

Complementor Autonomy in Digital Platform Ecosystems

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Abstract

Complementor Autonomy in Digital Platform Ecosystems

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Digital platform ecosystems have become the dominant structure for value creation in the digital age, placing platform owners and third-party complementors in complex, interdependent relationships. While these ecosystems are often praised for encouraging innovation and co-creation, this thesis examines a less-studied aspect: the autonomy of complementors. The autonomy of complementors describes the degree of freedom complementors have when co-creating value with the digital platform. Focusing on how developers, service providers, and content creators manage platform-imposed constraints, this study investigates the factors that influence their strategic and operational freedom.

Using a multi-method qualitative approach, the research combines a scoping review of 58 peer-reviewed articles, a comparative policy analysis of Apple's App Store and Google Play Store, and in-depth interviews with active complementors.

By conceptualizing autonomy as a negotiated condition across institutional, technical, and relational dimensions, this research offers a comprehensive framework for understanding the shifting power dynamics within digital platform ecosystems. It aims to provide important insights for platform designers, policymakers, and digital entrepreneurs aiming to balance innovation with control in increasingly centralized ecosystems.

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Dedication

I dedicate this work to my Lord and personal saviour, Jesus Christ, with whose strength I completed this Master's journey.

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Introduction

In 2015, the Apple Watch quickly became one of the most successful wearable devices launched through Apple's platform ecosystem. While Apple provided the platform infrastructure, much of the watch's success was shaped by independent app developers, complementors, who extended its utility through health, productivity, and lifestyle applications. This example illustrates the promise of the platform economy: independent complementors leveraging platform infrastructures to reach global audiences. Yet, as platforms have matured, this promise of autonomy has been increasingly curtailed by governance controls, restrictive policies, and evolving algorithms.

Digital platform ecosystems have become crucial to the day-to-day functioning of the modern economy, breeding innovation, collaboration, and value creation (Peppard, Joe, & Rylander, 2006). A very significant aspect of these ecosystems is the involvement of Complementors, who develop corresponding products and services that bring value to the platform (Kretschmer, Leiponen, Schilling, & Vasudeva, 2022). Understanding the dynamics of complementor independence within these ecosystems is important for the growth and continuity of digital platforms (Wareham, Fox, & Cano Giner, 2014).

Currently, this promise of complementor autonomy is being curtailed. Digital platform ecosystems, defined as "assemblages of digital technologies, actors, and institutions, organized around a core platform" (Kretschmer, Leiponen, Schilling, & Vasudeva, 2022), have emerged as powerful and tightly governed environments. Although they continue to try to create an environment for innovation and collaboration (Peppard, Joe, & Rylander, 2006), they have also become sites of increasing control and asymmetry between platform owners and complementors (Wareham, Fox, & Cano Giner, 2014; Tan, Ondrus, Tan, & Oh, 2020).

Digital platform ecosystems have become ever-present, affecting various aspects of modern life, from how people communicate and shop to how we access information and services (Benlian, Kettinger, Sunyaev, & Winkler, 2018). Extensive research has been conducted on the dynamics of digital platforms, highlighting their pivotal role in fostering innovation, collaboration, and value creation (Parida, Sjödin, D., & Reim, 2019).

While there is a growing body of knowledge on digital platforms, much of this research has predominantly focused on platform providers, their strategies, and the relationships they foster with consumers (Tan, Ondrus, Tan, & Oh, 2020). The absence of a comprehensive study on complementor autonomy is largely undermined in the current landscape of platform ecosystem research (Schübler, Attwood-Charles, Kirchner, & Schor, 2021).

In this breadth, complementor autonomy, the capacity for third-party developers, service providers, or content creators to act independently while operating within a platform, has emerged as an urgent and underexplored topic. Though complementors create a lot of value that fuels platforms, their autonomy is most often straightjacketed by restrictive governance structures, dense policies,

and the continuous shift of algorithmic priorities (Schüßler, Attwood-Charles, Kirchner, & Schor, 2021). This is especially problematic given that complementor innovation is a key driver of ecosystem vitality (Teece, 2007).

Most studies on platform ecosystems emphasize platform owners, highlighting their management of users and creators on their platform, managing boundary resources and trying to scale up their systems (Tan et al., 2020; Gawer, 2021). While such insights are essential, they tend to undermine the agency of complementors, who are often positioned as adaptive followers rather than co-creators of value (Boudreau, 2010). This encourages the oversimplification of the complex and ever-changing relationship between autonomy or independence and control that characterizes what a modern digital platform ecosystem should be.

The mechanisms that highlight and shape this interplay have begun to be looked at closely. For example, Ghazawneh and Henfridsson (2013) emphasize the importance of boundary resources such as APIs, SDKs, and interface documentation, which simultaneously enable and constrain developer actions. Similarly, Karhu, Gustafsson, and Lyytinen (2018) explore how platform owners "gatekeep" complementor access through selective openness, using governance to steer ecosystem direction. Schrieck, Wiesche, and Krcmar (2022) argue that the internal architecture and modular design of platforms can affect how freely complementors innovate. All these insights lead to the understanding that autonomy is not an inherent property but rather an outcome of specific institutional, technical and governance dynamics.

Regulatory environments and institutional contexts also impact the autonomy of complementors. Sanner, Kempton, Russpatrick, and Sæbø (2025) show that state involvement in platform governance can help uphold social options and protect vulnerable actors, while Vaia, Arkhipova, and DeLone (2022) highlight the role of agile governance in allowing ecosystems to adapt and maintain dynamic flexibility. In extremely regulated ecosystems, complementors may gain advantages from outside protection that bolsters their autonomy, even when platform owners resist such shifts. Concurrently, value co-creation mechanics increasingly depend on engaging collaboration between platform owners and complementors. Agarwal, Miller, and Ganco (2023) describe how platforms strategically manage the adoption of complementor products, often mediating access based on perceived network effects. If left unchecked, such gatekeeping can distort complementor incentives, limiting diversity and suppressing grassroots innovation.

Although the recognition of these dynamics seems to be growing, there remains a consistent effort to identify, analyze and project the antecedents of complementor autonomy. The definition of the word "autonomy" itself is often used inconsistently, and empirical studies hardly dissociate its drivers from broader ecosystem actors. This results in a fragmented and incomplete understanding of how we interpret what enables or restricts complementors from exercising strategic innovation and independence. This research aims to bridge this gap by investigating the critical success factors that enable complementors to maintain their independence and the subsequent effects on value

creation within digital platform ecosystems. Furthermore, it seeks to explore the influence of platform owners and managers on complementor autonomy and the strategies that can foster a balanced and mutually beneficial relationship between central platform providers and complementors.

Problem Statement

Despite the critical role of complementors in platform ecosystems, their ability to act independently, referred to as autonomy, is increasingly constrained by platform governance, technical architectures, and regulatory asymmetries. This creates tension between complementors' need for freedom to innovate and platforms' desire for control. The absence of a comprehensive framework leaves gaps in understanding the antecedents of complementor autonomy.

This study suggests one question to attempt to understand complementor autonomy and lay a foundation for future research: How do platform owners affect complementor autonomy?

Chapter 1 : Theoretical Underpinning

The scholarly field of digital platform ecosystems is broad and diverse (Hein, et al., 2019). Scholars from various disciplines take different perspectives on how digital platforms orchestrate an ecosystem of actors to co-create value (Lusch and Nambisan 2015). These disciplines include economics with a market-based perspective (Parker et al. 2017; McIntyre and Srinivasan 2017), technology management with a technical perspective (Tiwana et al. 2010; Baldwin and Woodard 2009; Tilson et al. 2010), and information systems with a socio-technical perspective (de Reuver et al. 2018; Constantinides et al. 2018). Additionally, more recent articles have emphasized the dedicated perspective of ecosystems as a fruitful basis for new theories on sustaining competitive advantage (Adner 2017; Jacobides et al. 2018; Kapoor 2018).

Digital Platforms

The market-based perspective goes back to the work of Rochet and Tirole (2003), who studied market power in the presence of network externalities (Schilling 2002; Katz and Shapiro 1986). Network externalities describe how the value for one side of the market increases as the number of actors on the other side increases (Schilling 2002). However, placing a higher value on products or services with a vast installed base of actors presents challenges and offers new opportunities for companies to leverage network effects (McIntyre and Srinivasan 2017). One challenge for emerging digital platforms is the chicken-and-egg problem: the platform needs both the complementor and the consumer side to ensure a valid value proposition, but neither side is willing to join as long as the other side is not populated (Caillaud and Jullien 2003). Another factor that influences the performance of digital platforms is the multi-homing behavior of users by reducing the exclusivity and dominant-firm equilibria (Koh and Fichman 2014; Caillaud and Jullien 2003). Digital platforms with a sufficient installed base so-called platform leaders can use their dominant position in the market to increase their market share even further (Gawer and Cusumano 2014). Strategies include platform envelopment, adopted for example by Amazon, that used its profits to tap into new markets by subsidizing cloud-computing services or by using its information superiority to out-compete internal complementors (Zhu and Liu 2018). Other examples are antitrust cases, such as those against Microsoft and Google (Iacobucci and Ducci 2019; Schmalensee 2000) that show the relevance and importance of the so-called “winner-take-all” effect of two-sided markets (Cennamo and Santalo 2013).

The technical perspective sees digital platforms as software-based platforms, that is, extensible codebases that provide core functionality, supplemented by modular services (Tiwana et al. 2010; Tilson et al. 2010). Each modular service is a software subsystem that can extend the functionality of the platform (Baldwin and Woodard 2009). Examples for modular services can be SDKs that

the platform owner provides or value-adding complements from complementors. Those complementors can use standardized interfaces such as application programming interfaces (API) to integrate new modules (Ghazawneh and Henfridsson 2013; Hein et al. 2019b). The standardized integration process and modular architecture of software-based platforms minimize interdependencies among modules and foster network externalities by reducing translation costs between different modules (Farrell and Saloner 1985; Katz and Shapiro 1994). Thus, the software-based platform is not only a source of economies of scale and scope (Thomas et al. 2014); it also fosters economies of substitution (Garud and Kumaraswamy 1995). Economies of substitution result from reusing modular and upgradable components in a platform instead of designing a system from scratch (Garud and Kumaraswamy 1993). The modularity of a software-based platform makes it easier for both external complementors and the platform owner to substitute system components while retaining a stable core. In turn, upgradability enables both parties to work on already-established modules that preserve the platform's knowledge base (Wheelwright and Clark 1992; Foerderer et al. 2019). In summary, the stability of the software-based platform and boundary resources ensures that complementors can develop and integrate modules without extensive knowledge of platform architectures, whereas the modular architecture allows for versatility and scalability of new modules (Tiwana et al. 2010).

Apart from the modular and architectural views on digital platforms, scholars draw on the *innovation capabilities of digital infrastructures* (Tilson et al. 2010; Yoo et al. 2012; Constantinides et al. 2018), wherein a crucial characteristic is the provision of digital affordances (Tan et al. 2016; Nambisan et al. 2019). Digital affordances refer to “what an individual or organization with a particular purpose can do with a technology” (Majchrzak and Markus 2013). To provide new affordances, the digital infrastructure builds upon a modular software-based platform that is inherently malleable, meaning it can be reconfigured to adapt user needs and prompt new technological advances (Yoo et al. 2010; Hein et al. 2019a). The platform owner provides affordances via boundary resources, such as Software Development Kits (SDKs), that assist complementors in cultivating products or services on top of a software-based platform (Constantinides et al. 2018; Hein et al. 2019b). An example is Apple's introduction of the augmented reality kit (ARKit) that extends the iOS platform and provides new affordances to all third-party developers.

The *socio-technical perspective* focuses on how platform owners integrate and govern an ecosystem of actors (de Reuver et al. 2018). A particular governance mechanism is the provision of boundary resources that takes the form of interfaces, such as APIs, or toolkits, such as SDKs, to integrate and enable an ecosystem of actors to co-create complementary products or services (Ghazawneh and Henfridsson 2013). Interfaces represent standardized processes, whereas toolkits provide a shared worldview by strengthening the interpretative flexibility between actors of the ecosystem and the digital platform (Lusch and Nambisan 2015; Hein et al. 2019b). Depending on the openness of interfaces, the platform owner can restrict the ecosystem to internal use within the

company, for example, to enterprise resource planning systems or can open the ecosystem to take advantage of the innovation capabilities of external complementors that provide value-adding services (Hein, et al., 2019). The degree of openness also influences competition within and across ecosystems (Gawer 2014; Thomas et al. 2014). Depending on the archetype of ownership, either a central platform owner, a consortium of partners or a decentralized peer-to-peer network need to balance control rights against the autonomy of ecosystem actors (de Reuver et al. 2018; Ghazawneh and Henfridsson 2013). The ownership status influences the evolutionary dynamics of an ecosystem by changing how governance mechanisms such as input and output control, and decision rights are implemented (Tiwana et al. 2010; Tiwana 2014; Hein et al. 2016). Consequently, research on digital platforms has emphasized the need to focus on boundaries between digital platforms and their ecosystem (Foerderer et al. 2019; Karhu et al. 2018).

Digital platform ecosystems

The latest conceptual work on ecosystems (Kapoor 2018; Adner 2017; Jacobides et al. 2018) shows the rise of a new research paradigm. Up to now, digital platforms have been mainly analyzed from single paradigms such as economics (Jiang et al. 2018), technical (Tiwana 2015), business (Parker and Van Alstyne 2017), and social (Thies et al. 2016). Whereas the literature on boundary resources only combines the social and technical paradigms (Eaton et al. 2015), (Hein, et al., 2019) suggest a paradigm shift by integrating the intra-organizational technical perspectives on digital platforms and the inter-organizational economic, business, and social perspectives on ecosystems. In this new paradigm, digital platforms rely heavily on autonomous agents that contribute to the digital platform's value proposition (Teece 2018). This core tenet highlights the need for digital platforms to enable and coordinate an ecosystem of actors while being exposed to interdependencies (Hein, et al., 2019). The interdependencies between platform and agents in an ecosystem can have both economic and structural components (Kapoor 2018; Adner 2017).

Economic components describe the type of complementarities of products or services provided by complementors. Jacobides et al. (2018) focused on unique and supermodular complementarities to characterize the relationship between a platform and actors in an ecosystem. In a unique complementarity, Product A does not function without Product B (Hein, et al., 2019). More generally, the value of Product A is maximized with Product B (Hein, et al., 2019). Additionally, the complementarity can be one-way (Hein, et al., 2019). Thus, Product A requires a particular Product or Service B (Hein, et al., 2019). It can also be two-way. Thus, Products A and B both require each other (Teece 1986). In a supermodular complementarity, an increased amount of Product A makes Product B more valuable, where A and B are different products or services (Hein, et al., 2019). The ecosystem of application stores illustrates the effect of unique and supermodular complementarities (Hein, et al., 2019). The applications and the application store have unique

complementarity in the sense that the applications cannot function without the store and its underlying platform (Hein, et al., 2019). Furthermore, a supermodular complementarity exists because the presence of applications increases the value of the store (Jacobides et al. 2018).

Another fundamental characteristic of an ecosystem is its *generativity* (Henfridsson and Bygstad 2013; Yoo et al. 2010), where generativity is defined as the “overall capacity to produce unprompted changes driven by large, varied, and uncoordinated audiences” (Zittrain 2005). Building on the digital affordances provided by the platform owner, ecosystem actors fuel generativity with individual innovation capabilities (Nambisan et al. 2019). For example, complementors can share their knowledge to come up with new ideas of value-adding complements, in turn, fueling the generativity of the ecosystem (Dokko et al. 2014). Another example stems from the application development industry, where more external complementors on a digital platform lead to more variety and more applications (Boudreau 2012).

The structural components in an ecosystem describe how actors interact with value proposition and value creation (Hein, et al., 2019). Recent studies have focused on three structural elements of ecosystems: activities, actors, and architectures (Kapoor 2018; Adner 2017). → Merge with previous or next.

Activities are discrete actions that determine how value is co-created in an ecosystem (Hein, et al., 2019). Activities in a digital platform ecosystem include the development of new applications or the provision of services, such as offering rides or listing new properties (Hein, et al., 2019). Objects of inquiry include bottlenecks that result from the interdependencies of actors and products in an ecosystem (Hein, et al., 2019). Bottlenecks are critical components whose performance, costs, and scarcity constrain the value proposition of an ecosystem (Kapoor 2018). Research on digital platforms has suggested that platforms act as bottlenecks to control and limit interactions in an ecosystem (Boudreau 2010).

Actors are agents that can take the role of complementors and consumers who undertake activities and produce different offers (Hein, et al., 2019). First, complementors provide complementary products or services to contribute to a platform’s value proposition (Hein, et al., 2019). It is important to note that the role of the complementor differs from that of traditional firm-supplier relationships (Hein, et al., 2019). Whereas the complementor autonomously decides to join an ecosystem, in a firm-supplier relationship, the firm exerts decision rights regarding the cooperation (Kapoor 2018). Second, consumers refer to service beneficiaries that, in turn, contribute to the platform’s value proposition by providing insights about how and which complements are used (Lusch and Nambisan 2015).

The *architecture* defines technological interactions that orchestrate the exchange between the supply and demand sides of an ecosystem (Hein, et al., 2019). This architecture can result in either a platform or product-based ecosystem (Kapoor 2018). Platform-based ecosystems contain autonomous agents, such as complementors, that contribute complementary products or services

(Hein, et al., 2019). Depending on the ownership status of platforms, the platform owners establish governance mechanisms that define the ground rules for orchestrating interactions in the ecosystems (Gawer and Cusumano 2002; Tiwana 2014). For example, Uber facilitates the interactions between drivers and passengers (Hein, et al., 2019). In contrast, product-based ecosystems entail one-sided market interactions between a firm and consumers (Kapoor 2018). For example, the mobility service provider, DriveNow, owns the complementary products (cars) and merely integrates consumers as service beneficiaries (Hein, et al., 2019).

Summarizing research on digital platforms and ecosystems, (Hein, et al., 2019) conclude that digital platforms are built on a modular architecture comprising a stable core and a flexible periphery (Tiwana et al. 2010), taking advantage of economies of scale and substitution (Garud and Kumaraswamy 1995; Thomas et al. 2014). With platform governance mechanisms, the platform owner facilitates transactions between autonomous complementors and consumers in an ecosystem (Lusch and Nambisan 2015; de Reuver et al. 2018). Above the modular infrastructure, the platform owner provides affordances that complementors can actualize based on individual innovation capabilities (Hein, et al., 2019). Besides, complementors can interact with each other to utilize the generativity of the digital platform ecosystem (Yoo et al. 2012; Nambisan et al. 2019).

Based on this synthesis, (Hein, et al., 2019) propose the following definition:

A digital platform ecosystem comprises a platform owner that implements governance mechanisms to facilitate value-creating mechanisms on a digital platform between the platform owner and an ecosystem of autonomous complementors and consumers.

Three building blocks of digital platform ecosystems

Applying the definition on established and emerging digital platform ecosystems, we conclude three different building blocks to characterize digital platform ecosystems: status of platform ownership; value-creating mechanisms in the ecosystem; and autonomy of complementors (figure 1) In this section, we outline the three building blocks and their characteristics based on variations from well-known digital platform ecosystems.

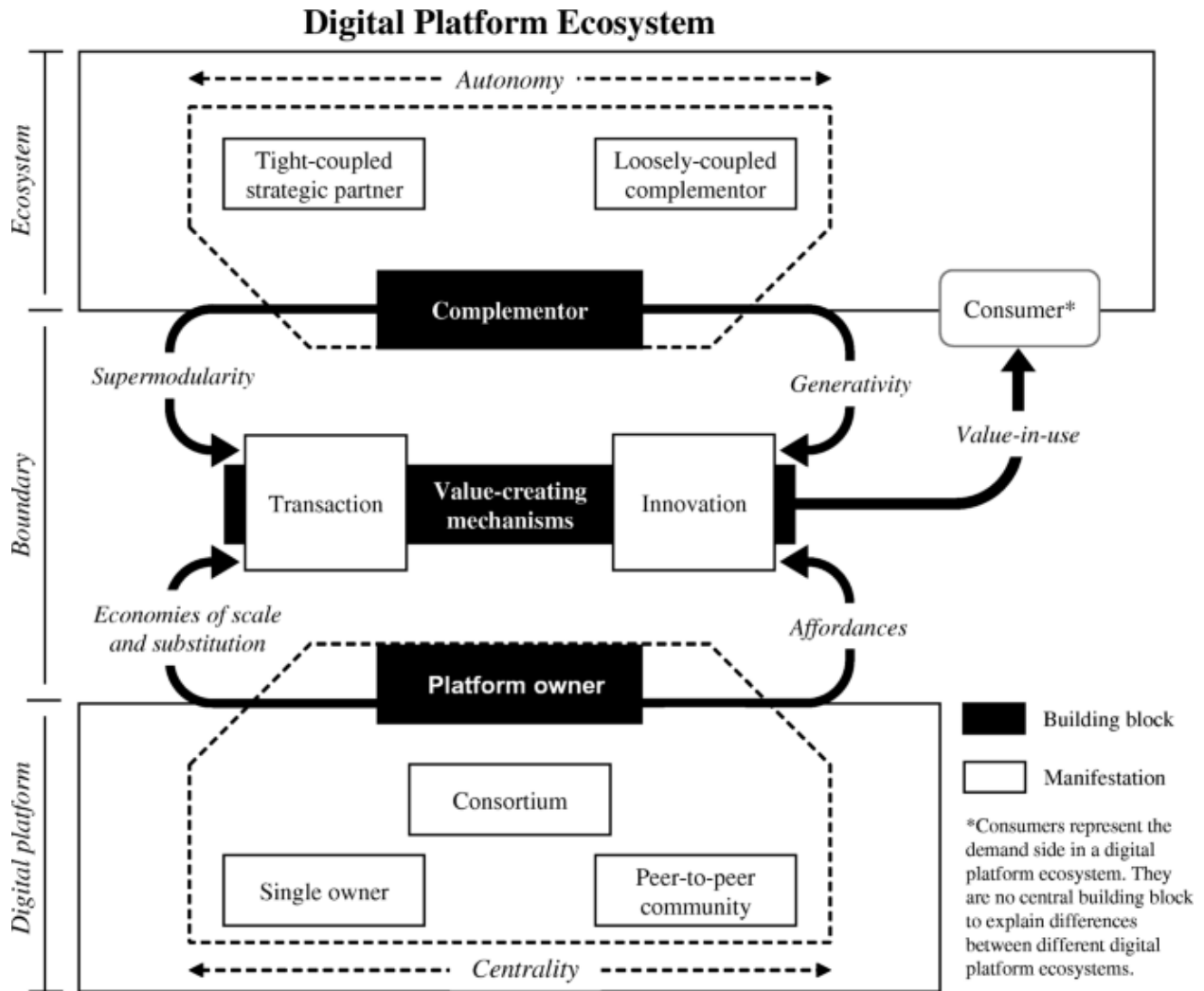


Figure 1. Building blocks and characteristics of digital platform ecosystems (directly reproduced from Hein, et al., 2019)

Platform Ownership

Platform ownership is an essential factor for the design and governance of digital platform ecosystems (Bakos and Katsamakos 2008; Tiwana et al. 2010). Platform ownership is not just about the legal entity that owns the digital platform; it also relates to the distribution of power in the ecosystem, which can be centralized or decentralized (Hein, et al., 2019). It also describes the relationships among partners in the ecosystem (Hein, et al., 2019). We found different ownership models that depend on the degree of power centralization and classified them into three main archetypes.

First, there are centralized digital platform ecosystems controlled by a single owner, such as Facebook, the Apple iOS mobile operating system, and the SAP Cloud Platform (Hein, et al., 2019). In this case, power is centralized, and only the platform owner as a single entity defines, establishes, and maintains governance mechanisms. Thus, the platform owner can implement and adjust governance mechanisms quickly and in a way that is best for ecosystem growth (Hein, et al., 2019). However, with a growing ecosystem, some digital platforms have come to dominate their markets, such as Google and Apple, in the mobile operating system market (Hein, et al., 2019). In such cases, the centralized power of the platform owner becomes overwhelming (Hein, et al., 2019). For example, platform owners can exclude complementors from their platforms or limit collaboration with hardware partners, as Google did in 2019 with device manufacturer Huawei (Satariano et al. 2019).

Second, digital platform ecosystems can be formed by consortia, implying that a group of actors owns the digital platform and, thus, establishes the governance mechanisms (Bazarhanova et al. 2019). An example of this ownership archetype is the Cloud Foundry, an open-source, multi-cloud application platform-as-a-service governed by the Cloud Foundry Foundation (Hein, et al., 2019). In contrast to centralized digital platform ecosystems, consortia typically imply a distribution of power over multiple stakeholders (Hein, et al., 2019). These stakeholders jointly define, establish, and maintain governance mechanisms for the digital platform ecosystem (Hein, et al., 2019). In the Cloud Foundry Foundation, actors, such as Cisco, SAP, Dell EMC, IBM, Pivotal, SUSE, and VMware, jointly support the management of the platform ecosystem.

Third, there are decentralized digital platform ecosystems governed by peer-to-peer communities. Blockchain platforms, such as Ethereum or District0x, allow the creation of decentralized ecosystems that can be governed by a community (Riasanow et al. 2018a). This decentralization empowers users to directly influence the future direction of the ecosystem (Hein, et al., 2019). For instance, District0x offers a digital platform that allows users to design and establish new marketplaces in the form of districts (Hein, et al., 2019). As users stake tokens to a project, they gain voting rights (Hein, et al., 2019). These rights can be used to participate in design changes and functionality improvements of a district and to specify how the generated revenue of a marketplace is used or distributed (Lestan et al. 2017).

Platform Value Creating Mechanisms

Successful digital platforms facilitate value-creating mechanisms in the platform ecosystem (Hein, et al., 2019). These value-creating mechanisms build on the efficient and convenient facilitation of transactions (Tiwana 2014) and the provision of affordances making the digital platform a breeding ground for innovation (Yoo et al. 2012).

With the first value-creating mechanism of transactions, digital platforms help complementors and consumers locate and interact with each other and exchange value in a mutually beneficial manner (Evans 2012). The digital platform acts as an intermediary by directly matching supply to demand and suggesting possible transactions or by providing easy-to-use search functions through which users can find transaction partners (Hein, et al., 2019). Via the orchestration of transactions, digital platforms create two-sided markets (Armstrong 2006; Rochet and Tirole 2003) that leverage cross-side network effects (Hein, et al., 2019). For example, Airbnb is a digital platform that facilitates transactions between property owners and people looking for temporary accommodations (Hein, et al., 2019). The digital platform helps owners advertise their accommodations and offers a fine-tuned search functionality for users looking for a place to stay (Hein, et al., 2019). Each new listing utilizes economies of scale and substitution and increases the value of the platform, making it a supermodular complementarity that induces network effects between supply and demand (Hein, et al., 2019). Thus, individuals across the globe who would never have initiated such a transaction are brought together via the combined value of all listings on the Airbnb platform (Hartmans 2017). The basis for this value-creating mechanism is a modular software-based platform, where the platform owner provides value-creating services, such as payment functionalities or recommender systems to increase the efficiency and convenience of the services for the ecosystem (Hein et al. 2019a).

The second value-creating mechanism refers to the innovation capabilities of digital platforms that enable complementors to create solutions complementary to the platform core (Tiwana 2014). The platform owner provides affordances by offering development tools for complementors, who, in turn, can use those boundary resources to co-create value-adding complements (Ghazawneh and Henfridsson 2013; Nambisan et al. 2019). For example, SAP leverages third-party innovation on its SAP Cloud Platform (Schreieck et al. 2019). The digital platform offers affordances through APIs and other resources for complementors to create applications that complement SAP's enterprise resource planning software (Hein, et al., 2019). The South-African SAP partner, EPI-USE, developed an application based on the platform's internet-of-things capabilities to monitor endangered species using drones. The nonprofit organization, Elephants, Rhinos & Peoples, uses this application to obtain better information about the number of endangered animals (SAP SE 2018).

Similar to Elephants, Rhinos & People, many other complementors utilize the generativity of SAP's offerings, because third parties often have specialized knowledge and experience, leading to knowledge transfer and better solutions (Hein, et al., 2019). Customers can choose from these innovative complementary applications when adapting the enterprise resource planning software to their own needs or developing applications for their use.

Additionally, the generativity of the ecosystem can spoil new affordances that can be used by the platform owner (Hein, et al., 2019). After establishing its ridesharing platform, Uber used its broad

ecosystem to build additional services, such as UberEats, effectively enveloping and tapping into new markets (Hein, et al., 2019).

Complementor Autonomy

The autonomy of complementors describes the degree of freedom complementors have when co-creating value with the digital platform (Ye and Kankanhalli 2018). Complementors with a high autonomy are loosely coupled to the digital platform and contribute to the variety and amount of complements (Boudreau 2012). In turn, Complementors with low autonomy are tightly coupled to a digital platform and form strategic partnerships that strengthen the core focal-value proposition (Danneels 2003). Depending on the autonomy of complementors, the platform owner must cope with varying levels of control, scalability, and flexibility (Parker and Van Alstyne 2017).

High autonomy complementors refer to a loosely coupled relationship in which the complementor is independent and separate from the digital platform (Orton and Weick 1990). The complementor can either be an actor that actively contributes to the digital platform or another platform that is compatible but not actively engaged in the digital platform (Hein, et al., 2019). An example of the former includes complementors of Airbnb, where homeowners have relatively low entrance barriers and can easily multi-home between different platforms (Hein, et al., 2019). Autonomous platform-to-platform relationships can be illustrated in the case of Facebook, where other platforms can implement features, such as the “like” button (Hein, et al., 2019). Although platform owners cannot exert direct control over highly autonomous complementors, they can use the design of boundary resources to channel the interpretative flexibility of complementors to specify the design process of complements (Lusch and Nambisan 2015). An example includes SDKs, which help complement development by providing them with guidance and boilerplate code (Hein et al. 2019b; Foerderer et al. 2019).

Low autonomy complementors refer to tightly coupled strategic partners in which both the platform owner and the complementor are mutually dependent and aligned (Orton and Weick 1990). Again, low autonomy complementors can be individual actors or other platforms (Hein, et al., 2019). An example of tightly coupled actors is the Open Handheld Alliance (OHA), used to promote and develop the Android operating system and to jointly compete against other mobile platforms, such as from Apple and Microsoft (Hein, et al., 2019). Low-autonomy platform-to-platform relationships describe core dependencies and contributions to focal-value propositions such as Netflix that strongly relies on the Amazon Web Services infrastructure, despite having competing video-on-demand services (Butler 2013). Compared to high-autonomy relationships, tightly coupled partnerships are determined by high mutual trust, a commonly defined goal, and

contracts (Steensma and Corley 2000) that define whether parties are allowed to provide their services to competing platforms.

Digital Application Marketplaces: Conceptual Background

Digital application marketplaces sit at the intersection of platform owners, application developers, and end users, acting as critical infrastructures for value exchange and platform growth (Ghazawneh & Henfridsson, 2015). They function as venues where applications are distributed and consumed within one or multiple ecosystems, extending Bakos's (1998) view of marketplaces as mechanisms for matching, transaction facilitation, and institutional support. Specifically, they connect developers seeking distribution with end users seeking device-enhancing applications through catalogues, search tools, and discovery mechanisms (Müller et al., 2011; Ghazawneh & Henfridsson, 2015). They also manage transactions by enabling secure delivery, payment processing, and trust-building features like rating systems (Amberg et al., 2010; Han & Ghose, 2012; Kazan & Damsgaard, 2013), while providing legal and regulatory frameworks for exchange (Kim et al., 2010; Magnusson & Nilsson, 2013). In this way, digital marketplaces not only serve technical and transactional purposes but also institutionalize the broader platform ecosystem.

Digital application marketplaces: control and typology

The governance of digital application marketplaces varies along two main dimensions: the degree of control and the scope of application functionality (Ghazawneh & Henfridsson, 2015). Control can range from centralized, where a single actor such as the platform owner dominates decisions, to distributed, where multiple ecosystem actors share governance (Yoo et al., 2010; Selander et al., 2013). Similarly, functionality scope ranges from specialized vertical marketplaces focused on niche applications to generalized horizontal marketplaces offering broad categories (Grieger, 2003; Gawer, 2014). Combining these dimensions, Ghazawneh and Henfridsson (2015) propose four ideal types: closed marketplaces (centralized, specialized, e.g., United States Army Software Marketplace), censored marketplaces (centralized, generalized, e.g., Apple's App Store, carrier-operated platforms), focused marketplaces (distributed, specialized, e.g., AppChina, Taobao App Market), and open marketplaces (distributed, generalized, e.g., AppsLib). This typology highlights how different governance logics and functionality choices shape the structure, openness, and innovation potential of application ecosystems.

Chapter 2 : Methodology

This study employs a multi-method qualitative approach, integrating a Scoping Literature Review, Comparative Content Analysis, and In-depth Interviews to investigate the factors and dynamics influencing complementor autonomy within digital platform ecosystems. Each method is selected based on its suitability for the research goals and is explained further below. Importantly, these methods are not applied in isolation but designed to reinforce one another. The Scoping Literature Review establishes the conceptual foundation, the Comparative Content Analysis operationalizes these insights through real-world platform governance frameworks, and the In-depth Interviews capture the lived experiences of complementors to validate and extend both literature and policy findings. This triangulation ensures that the research questions are addressed from complementary conceptual, structural, and experiential perspectives.

Scoping Literature Review

A Scoping Literature Review (SLR) is the most suitable foundational approach for this study because the idea of complementor autonomy is still emerging and spread across various fields such as digital innovation, platform governance, and ecosystem strategy. Unlike systematic reviews, which aim to assess evidence quality for specific questions, scoping reviews aim to chart the existing knowledge, define conceptual boundaries, and highlight research gaps (Arksey & O'Malley, 2005; Levac et al., 2010).

This is important for the study which seeks to unravel antecedents of complementor autonomy, a concept which has not yet been overly defined or compiled via research. The scoping review approach will provide a comprehensive overview of how autonomy has been theorized, understood and characterized in the scope of digital platforms.

Other methods that were considered included a systematic review or a meta-analysis. However, these methodologies were ruled out because they require highly homogenous data and a well-defined construct, conditions which do not yet apply to understanding complementor autonomy.

The review will be guided by the following research question: How has the existing literature on digital platform ecosystems addressed the issue of complementor autonomy?

Comparative Analysis

To deepen the empirical grounding of the review’s findings, this study employs Comparative Content Analysis (Webster & Watson, 2002). This component will analyze publicly available policy documents from two major digital platforms: Apple’s App Store and Google Play Store. These platforms represent contrasting yet dominant governance logics and provide a rich basis for comparison.

The analysis examines how platform owners govern through policies that can protect, enable, or restrict complementor autonomy, a conceptualization referred to here as a “Three Ps” framework.

Protective policies aim to safeguard users and preserve platform integrity, for instance, through content moderation, privacy controls, or oversight mechanisms that ensure safety and trust in the ecosystem (Gorwa, 2024)

Progressive policies foster innovation and enable complementor autonomy by devolving decision-making rights, offering open boundary resources (such as public APIs and SDKs), and embracing generative architectures that allow third-party creators to extend platform capabilities (Auer & Manne, 2024).

Prohibitive policies constrain complementor creativity or independence, exhibited by closed governance designs, strict controls on platform extension, or policies that raise multihoming costs or limit what complementors can develop or distribute (Chen, Yi, Li, & Tong, 2021).

These are further coded against the backdrop of five thematic dimensions: Security, Performance, Business, Design, and Legal. This dual-layered framework enables systematic comparison across platforms and highlights how different policy orientations influence complementor autonomy.

In-Depth Interviews

While the scoping review and content analysis establish conceptual and structural insights, in-depth interviews are important to capture the lived realities of complementors navigating platform ecosystems (Engert, Evers, Hein, & Krcmar, 2022). This method provides access to the subjective experiences, interpretations, and strategic responses of actors embedded within these systems.

Interviews allow the study to explore questions such as how complementors experience autonomy, what influences their decision-making freedom, and how platform rules constrain or enable them (Roknifard, 2021). This method is particularly suited for revealing knowledge, personal narratives, and emerging themes that may not be documented in literature or policy texts.

Participants were selected using purposive sampling, targeting individuals and firms actively engaged with platform ecosystems such as mobile app developers, API users, digital service providers, and third-party innovators. Recruitment was done through industry networks, developer forums, LinkedIn outreach, and professional associations.

Interviews were open-ended, conducted virtually via Zoom or Microsoft Teams to ensure accessibility and flexibility for global participants. An interview guide will be developed based on findings from the scoping review and content analysis. All interviews were recorded (with consent) and transcribed verbatim. Ethical approval was obtained through the university’s research ethics board, and participants were given consent forms outlining confidentiality and the voluntary nature of participation.

Validation of Findings

Establishing the rigor and trustworthiness of qualitative research requires systematic strategies that address credibility, dependability, confirmability, and transferability throughout the research process (Morse et al., 2002). In this study, validation was not considered a discrete, post-hoc activity but rather a continuous process integrated into each stage of the research design, data collection, analysis, and interpretation. The use of three complementary methods: a scoping literature review, comparative content analysis, and in-depth interviews, enabled methodological triangulation, thereby enhancing the robustness of the findings and ensuring that they reflect the complexity of complementor autonomy in digital platform ecosystems. Each methodological component was accompanied by tailored validation strategies. These included the use of established protocols for literature searches, transparent coding frameworks for policy documents, reflexive practices, member validation, and systematic triangulation of results across data sources. Table 1 below summarizes the validation strategies employed for each method and outlines their contributions to the overall trustworthiness of the study’s findings.

Table 1. Validation of Findings

Method	Validation Strategies	Contribution to Trustworthiness
Scoping Literature Review	Comprehensive multi-database search (Web of Science, AISeLibrary) using structured Boolean queries.	Credibility Ensures comprehensive and unbiased coverage of relevant literature.

	Application of a PRISMA flow diagram to document the screening and selection process.	Dependability Transparent documentation of search and selection procedures enhances replicability.
	Forward and backward citation chaining to ensure completeness of coverage.	Confirmability Independent coding verification minimizes subjective bias.
	Independent verification of coding by a second coder to assess consistency.	
Comparative Content Analysis	Dual-layered coding framework combining the “Three Ps” (Protective, Progressive, Prohibitive) and five thematic dimensions (Security, Performance, Business, Design, Legal).	Credibility Structured framework supports systematic interpretation of policy content.
	Iterative coding cycles and refinement to ensure internal consistency.	Dependability Iterative coding enhances stability and reduces interpretive drift.
	Reflexive memoing to document decisions in cases of ambiguity.	Confirmability Reflexive documentation provides an auditable record of analytic decisions.
In-Depth Interviews	Verbatim transcription of interviews to preserve data integrity.	Credibility Member checking enhances the accuracy and authenticity of interpretations.
	Thematic coding aligned with the six antecedents of complementor autonomy.	Transferability Thick description enables contextual judgment by readers.
	Member validation through participant review of thematic summaries.	Confirmability Reflexive practice reduces researcher bias and improves transparency.
	Reflexive journaling to document researcher positionality and assumptions.	Dependability Thematic alignment ensures analytical consistency.
	Inclusion of thick description and verbatim quotations in the analysis.	

Cross-Method Triangulation	Integration of findings across literature, policy, and interview data.	Credibility Triangulation enhances confidence in the robustness of findings.
	Convergence assessed around six antecedents (platform governance, architecture, value co-creation, relationship management, boundary resources, and institutional context).	Transferability Multiple data sources improve the applicability of results to varied contexts.
	Divergence treated as analytically meaningful and used to refine theoretical insights.	Confirmability Cross-method validation reduces the influence of method-specific biases.

The validation strategies embedded in this research collectively enhance the trustworthiness of the study’s findings. By systematically integrating verification procedures into each methodological stage and employing triangulation across conceptual, structural, and experiential data sources, the study mitigates common threats to credibility and dependability. Consequently, the findings presented in this thesis can be regarded as credible, dependable, and confirmable representations of the antecedents shaping complementor autonomy in digital platform ecosystems.

Chapter 3: Literature Review

This scoping literature review was motivated by the need to map out how existing literature has theorized and tackled complementor autonomy in digital platform ecosystems. While studies have highlighted themes such as platform governance and control (Uzunca et al., 2022), boundary resources (Tiwana, 2015), and relationship management (Hilbolling et al., 2020), there is limited synthesis on how these antecedents relate to the autonomy of complementors. For instance, research has examined the role of architectural decisions and modularity in shaping complementor freedom (Saadatmand et al., 2019), as well as how regulatory or institutional constraints impact their independence (Gastaldi et al., 2024; Sanner et al., 2025).

To address this gap, this study conducts a scoping literature review of 58 academic articles spanning 2010 to 2025. The review is guided by the following research question; How has the existing literature on digital platform ecosystems addressed the issue of complementor autonomy?

Scoping reviews are suitable for exploring broad, complex research domains where multiple streams of inquiry have emerged (Paré et al., 2015). This method enables a comprehensive analysis of diverse conceptualizations and empirical findings across information systems, innovation management, and strategic management disciplines (Gélinas, Sadreddin, & Vahidov, 2022).

Digital platform ecosystems have become a dominant organizational form in today's digital economy. These ecosystems revolve around a core platform firm and a multitude of independent complementors who create and deliver complementary products, services, or innovations (Saadatmand et al., 2019; Hein et al., 2020). A defining characteristic of these ecosystems is the tension between the platform owner's need for governance and control and the complementors' need for autonomy to innovate and extract value (Shaikh and Bogers, 2025; Hurni et al., 2021).

To understand the factors that shape complementor autonomy within these ecosystems, the literature increasingly points to a set of antecedents which are key conditions or mechanisms that influence how much strategic, operational, and technical freedom complementors retain. Building on this body of work, this review organizes these antecedents into a two-pronged thematic structure: Platform-Internal Design and Governance Mechanisms, which are mechanisms crafted and controlled by the platform owner to structure and steer ecosystem dynamics. The second one is External and Contextual Influences on Autonomy, which relates to external forces beyond the platform's control that condition the environment in which complementors operate.

Platform-Internal Design and Governance Mechanisms

These antecedents are endogenous to the platform and represent the deliberate choices made by platform owners in designing the architecture, access, and relational dynamics of the ecosystem.

Platform Governance and Control

Governance refers to the formal and informal mechanisms through which platform owner's direct participant behaviour. These include access rules, quality standards, decision rights, enforcement tools, and incentive structures (Benlian et al., 2015; Tiwana, 2015). While such governance ensures ecosystem coherence, it may also constrain complementor freedom by imposing rigid participation rules or limiting visibility and discoverability (Saadatmand et al., 2019; Uzunca et al., 2022).

Platform Boundary Resources

These are the technical and organizational interfaces, such as APIs, SDKs, documentation, and support channels that enable complementors to interact with the platform (Ghazawneh and Henfridsson, 2015; Hein et al., 2020). Boundary resources both empower and restrict: they provide essential tools for innovation but also embed constraints that define how complementors must behave.

Platform Architecture and Design

The modularity, standardization, and technical openness of a platform's design significantly impact complementor autonomy. Modular architectures allow greater independence in innovation, while tightly coupled systems may force complementors into compliance with specific design and integration requirements (van Angeren et al., 2013; Saadatmand et al., 2019).

Platform–Complementor Relationship Management

This refers to the relational aspects of ecosystem orchestration, such as trust, communication, transparency, and conflict resolution, which affect how complementors perceive their freedom and stability in the ecosystem (Marheine et al., 2021; Hurni et al., 2021). Cooperative, transparent relationships foster autonomy, while asymmetric or exploitative dynamics can hinder it (Shaikh and Bogers, 2025).

External and Contextual Influences on Autonomy

These antecedents are exogenous to the platform and reflect broader societal, legal, and economic factors that shape how much autonomy is feasible or desirable for complementors.

Value Co-Creation and Capture

Autonomy is influenced by how value is generated collaboratively and how it is distributed between the platform and its complementors. Complementors are more likely to retain autonomy when value capture mechanisms, like revenue sharing, pricing freedom, or access to user data, are seen as equitable (Chung et al., 2024; Hilbolling et al., 2020). When platforms centralize too much of the value or shift rules unpredictably, complementors' strategic independence is undermined (Engert et al., 2020; Schrieck et al., 2022).

Institutional and Regulatory Contexts

Broader legal and institutional conditions, including data governance laws, antitrust regulations, and industry norms, also shape complementor autonomy. These external pressures can restrict how platforms govern their ecosystems and how complementors operate within them (Baskerville et al., 2020; Sanner et al., 2025). For platforms operating in multiple jurisdictions, legal fragmentation may lead to uneven levels of complementor autonomy across regions (Uzunca et al., 2022).

Scoping Literature Review Methodology

To address the research questions of this study, a scoping literature review was conducted. A scoping review was appropriate given the emerging and interdisciplinary nature of the study and the need to map the breadth of available literature rather than engage in deep theoretical synthesis (Paré et al., 2015). Following the recommended approach by Webster and Watson (2002), the review aimed to be as comprehensive as possible by including searches across multiple scholarly databases relevant to Information Systems and Management. Searches were conducted using two major scholarly databases: Web of Science and the AISELibrary. These databases were selected because of their comprehensive coverage of information systems, platform research, and management scholarship. Searches were conducted using the following Boolean string:

Platform* AND Ecosystem* AND Complement*

In Web of Science, the string was applied using the TS (Topic) field, while in AISELibrary, the peer-review filter was applied to ensure only high-quality academic publications were retrieved. No date restrictions were used in either database in order to capture the full evolution of scholarly discussion around complementors in digital platform ecosystems. The initial searches yielded 783 records from Web of Science and 469 records from AISELibrary, totaling 1,252 database hits. After removing duplicates and non-article formats (e.g., editorials, white papers), the remaining dataset consisted of 1,244 unique articles. A multi-step screening process was employed to identify relevant literature. First, a title screening was conducted, resulting in the retention of 155 articles. Second, abstracts of these articles were screened to determine relevance to the topic, particularly whether the article addressed complementors within the context of platform ecosystems. This step excluded papers that did not address the concept of complementors directly, leaving 48 articles. Next, review papers were excluded, narrowing the pool to 47 articles. Finally, full-text screening was conducted, leading to a final set of 44 articles from the initial database search. To further expand the search, a forward and backward citation analysis was conducted as recommended by Webster and Watson (2002). For the forward search, only articles with 30 or more citations were considered to ensure the influence and quality of additional studies. For the backward search,

references cited within the 44 retained papers were reviewed for relevance. These combined citation searches yielded an additional 2,226 papers. After removing duplicates, 2,193 unique papers remained. Exclusion of review papers brought this number to 2,101. Title, abstract, and full-text screening of these articles resulted in the addition of 14 relevant articles. Thus, a final set of 58 articles was selected for coding and analysis in this review. To ensure coding reliability, my thesis supervisor, Suchit Ahuja, acted as a second coder for the scoping review. His independent coding confirmed the same categorizations and conclusions as my original coding, strengthening the validity of the review.

Results of Scoping Literature Review

Overview of Included Articles

A total of 1,252 articles were identified through initial searches across Web of Science and the AISELibrary. After removing duplicates, review articles, and irrelevant publications, 155 articles were selected for abstract screening. This process resulted in 47 articles for full-text review. Following the exclusion of three additional papers at the full-text stage, 44 articles were retained. Forward and backward citation searches yielded an additional 14 relevant papers, bringing the final count to 58 peer-reviewed articles included in the analysis. Figure 3 also shows the timeline of publications.

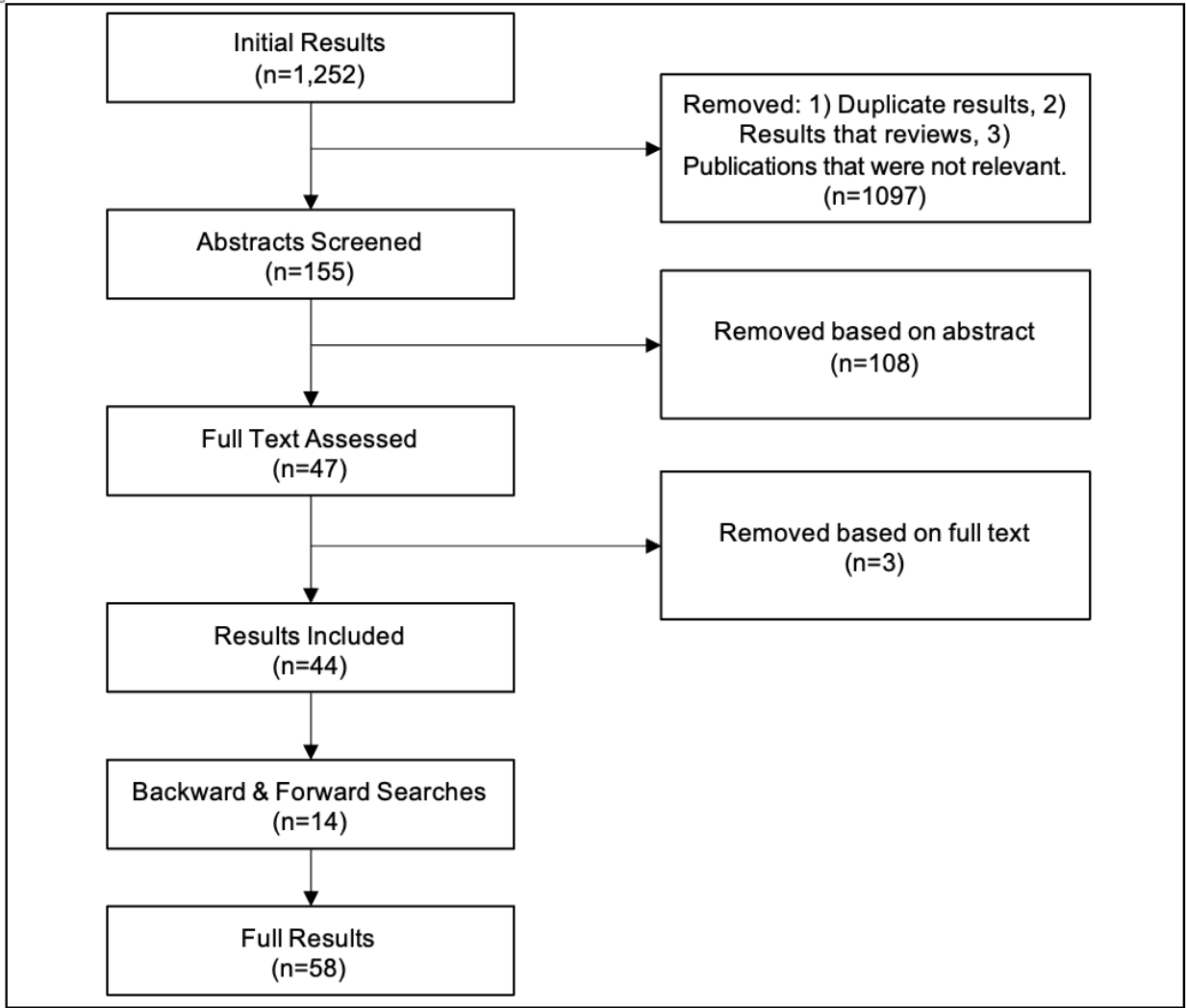


Figure 2. PRISMA Diagram of Papers

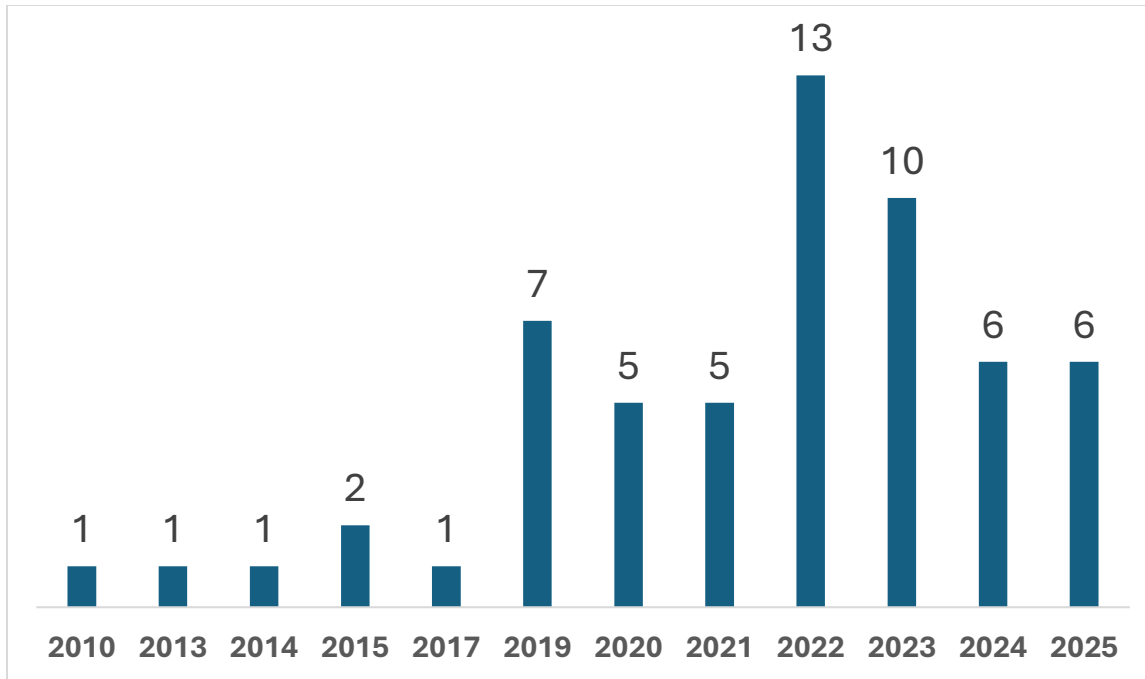


Figure 3. Timeline of Publications

Distribution of Antecedents

The selected articles were analyzed to determine which antecedents of complementor autonomy they addressed. As shown in the table below, the most frequently discussed antecedents were **Platform Governance and Control (93%)**, **Platform Architecture and Design (88%)**, and **Value Co-Creation and Capture (86%)**. These were followed by **Platform–Complementor Relationship Management (78%)**, **Platform Boundary Resources (59%)**, and **Institutional and Regulatory Contexts (36%)**. Each of these six antecedents is discussed in detail below.

Table 2. Distribution of Antecedents

Antecedents	Total Number of Articles
Platform Governance and Control	(93%)54
Platform Architecture and Design	(88%)51
Value Cocreation and Capture	(86%)50
Platform-Complementor Relationship Management	(78%)45
Platform Boundary Resources	(59%)34
Institutional and Regulatory Contexts	(36%)21

Platform Governance and Control

Platform governance and control emerged as the most prominent antecedent of complementor autonomy, appearing in 93% (n = 54) of the articles. This antecedent refers to the mechanisms through which platform owners establish rules, allocate decision rights, and define the boundaries of permissible behavior for complementors (Adam et al., 2023; Agarwal et al., 2023; Ajah, 2025; Argyres et al., 2023; Benlian et al., 2015; Chen et al., 2021 et al.). A significant portion of the literature examined how governance styles, ranging from centralized control to participatory or decentralized models, affect the degree of freedom complementors experience when developing, distributing, and monetizing their innovations. Several studies highlighted the tension between platform control and openness. For instance, platforms that imposed rigid rules or exerted unilateral control over access, pricing, and promotion were shown to restrict complementor autonomy. Conversely, platforms that adopted transparent and inclusive rule-setting processes, such as co-governance models or standardized APIs, were more conducive to fostering complementor independence. Moreover, platform governance mechanisms such as ranking algorithms, app store policies, and approval processes were frequently cited as tools that implicitly or explicitly constrained complementor strategies. Articles further noted that sudden policy shifts or opaque enforcement practices could disempower complementors, creating uncertainty and limiting their strategic freedom. In contrast, predictability and fairness in governance contributed positively to complementor trust and autonomous innovation.

Platform Architecture and Design

The architecture and design of platforms, discussed in 88% (n = 51) of the articles, play a critical role in shaping the boundaries within which complementors operate. This antecedent pertains to the structural design of the platform's technical core, modular interfaces, and degree of interoperability with external applications or services (Adam et al., 2023; Agarwal et al., 2023; Ajah, 2025; Argyres et al., 2023; Benlian et al., 2015; Cennamo, 2021 et al.). Articles consistently emphasized the importance of modular and layered architectures in enabling complementor autonomy. A platform with a clearly defined, stable core and well-documented interfaces allows third-party developers to innovate independently without needing to coordinate extensively with the platform owner. Conversely, tightly integrated or closed architectures often restricted complementor creativity by making them dependent on the platform's technical roadmap. Furthermore, the availability and clarity of interface documentation, SDKs, and versioning policies influenced the extent to which complementors could experiment or customize offerings. Design choices that facilitated plug-and-play integration, backward compatibility, and system transparency were positively associated with higher levels of complementor initiative and reduced reliance on direct platform support. Several articles also discussed how architecture can indirectly influence power dynamics, especially when platforms bundle core services that crowd out complementor contributions or introduce proprietary standards that limit interoperability. In such contexts, platform architecture functions not just as a technical foundation but as a strategic tool of control or enablement.

Value Co-creation and Capture

Value co-creation and capture appeared in 86% (n = 50) of the reviewed articles, reflecting the centrality of economic and strategic incentives in shaping complementor behaviour (Adam et al., 2023; Agarwal et al., 2023; Ajah, 2025; Argyres et al., 2023; Cennamo, 2021; Chen et al., 2021 et al.). A key insight across studies was that the promise of equitable value capture is foundational to encouraging complementor autonomy. Complementors are more willing to invest, experiment, and act independently when they perceive the revenue-sharing arrangements, pricing freedom, and access to customers as fair and sustainable. In contrast, exploitative value extraction practices, such as high commission fees, monetization restrictions, or asymmetric data access, discourage complementors from taking autonomous risks. Several studies also highlighted how transparent analytics dashboards, performance-based incentive systems, and demand-prediction tools empower complementors to make data-driven decisions, thereby enhancing their operational autonomy. However, concerns were raised about the disproportionate capture of value by platform owners, especially in winner-takes-all markets where platforms can exert outsized control over value flows. Ultimately, the reviewed literature suggests that value co-creation is a necessary but

insufficient condition for autonomy. The equitable distribution and capture of value are equally critical, as they determine whether complementors have the resources and motivation to exercise independence within the platform ecosystem.

Platform-Complementor Relationship Management

Platform-complementor relationship management was discussed in 78% (n = 45) of the included studies. This antecedent refers to the relational dynamics, communication practices, and support structures that platforms establish to engage and retain complementors (Adam et al., 2023; Agarwal et al., 2023; Ajah, 2025; Benlian et al., 2015; Chen et al., 2021; Chen et al., 2022 et al.). The literature underscores that the quality of relational engagement, such as responsiveness to feedback, conflict resolution mechanisms, and onboarding support, significantly affects complementor autonomy. Complementors that perceive their relationship with the platform owner as collaborative, respectful, and transparent are more likely to act independently and align their innovations with platform goals. Articles also explored how trust-based relationships could compensate for low structural autonomy. In contexts where technical or governance constraints exist, relational trust and ongoing communication were shown to mitigate perceived dependency. Moreover, relationship management practices that promote inclusion in decision-making, co-development of features, and tailored support services enhanced complementor confidence and strategic flexibility. On the contrary, adversarial or neglectful relationship management, marked by poor communication, arbitrary decisions, or insufficient guidance, fueled disengagement and constrained complementor contributions. Overall, relationship quality emerged as both a moderating and enabling factor for autonomy in digitally mediated partnerships.

Platform Boundary Resources

Boundary resources, examined in 59% (n = 34) of the articles, refer to the tools, APIs, SDKs, and rules that mediate interactions between the platform core and its complementors (Adam et al., 2023; Ajah, 2025; Argyres et al., 2023; Benlian et al., 2015; Chen et al., 2021; Chen et al., 2022 et al.). Articles frequently characterize boundary resources as “control points” that platforms use to manage the openness of the ecosystem. Well-documented, stable, and functionally rich boundary resources were associated with greater technical autonomy, allowing complementors to develop, test, and deploy innovations independently. Conversely, proprietary, unstable, or poorly supported boundary resources increased dependence on the platform owner and limited strategic flexibility. Some studies further observed that platforms selectively expose functionalities based

on strategic interests, offering full access to certain partners while restricting others. This selective permeability can create tiered levels of autonomy within the ecosystem, privileging some complementors over others. Thus, boundary resource design becomes a key site where autonomy and control are negotiated. A few articles also discussed the emerging trend of "boundary resource evolution," where platforms iteratively update APIs or SDKs to incorporate user feedback, regulatory requirements, or competitive threats. The agility and transparency of this evolution process influenced complementor trust and willingness to innovate autonomously.

Institutional and Regulatory Contexts

Finally, institutional and regulatory contexts were examined in 36% (n = 21) of the reviewed studies. This antecedent captures the influence of formal institutions, informal norms, legal mandates, and policy regimes on complementor autonomy (Engert et al., 2022; Farshchian and Thomassen, 2019; Foster and Bentley, 2022; Ghazawneh and Henfridsson, 2015; Hein et al., 2020; Hesse et al., 2022 et al.). The literature emphasized that autonomy is not solely determined by platform-internal dynamics but is also shaped by external pressures such as antitrust regulation, data protection laws, IP regimes, and market norms. In regions where regulatory scrutiny is high, platform behaviours that restrict complementor freedom, such as forced exclusivity, self-preferencing, or sudden policy changes, are more likely to be challenged or deterred. Some articles discussed how national and regional governance systems promote or constrain complementor autonomy through funding schemes, innovation policies, or standard-setting bodies. Others explored how institutional voids, such as a lack of legal protections or ambiguous IP rights, created uncertainty for complementors, thereby reducing their willingness to act independently. Overall, while less represented than internal platform antecedents, institutional and regulatory contexts were recognized as critical boundary conditions that either reinforce or counterbalance platform power, thus impacting the scope and scale of complementor autonomy.

Framework of Antecedents of Complementor Autonomy

layered determinants of complementor autonomy, serving as the conceptual basis as seen in figure below. Platform Governance and Control emerges as the most prevalent antecedent, highlighting the structural and procedural mechanisms by which platform owners establish rules and allocate rights. Platform Architecture and Design captures the technical affordances that either enable or restrict third-party innovation, while Value Co-Creation and Capture address the economic incentives and distribution mechanisms that shape complementor motivation and risk-taking.

Relationship Management adds a human centered design flow, showing how trust and communication practices either reinforce or substitute for formal autonomy. Boundary Resources, acting as the technical and procedural interfaces between platform cores and external actors, are framed as both enablers and control mechanisms depending on their accessibility and evolution. Finally, Institutional and Regulatory Contexts are integrated as external forces that moderate or amplify internal platform dynamics.

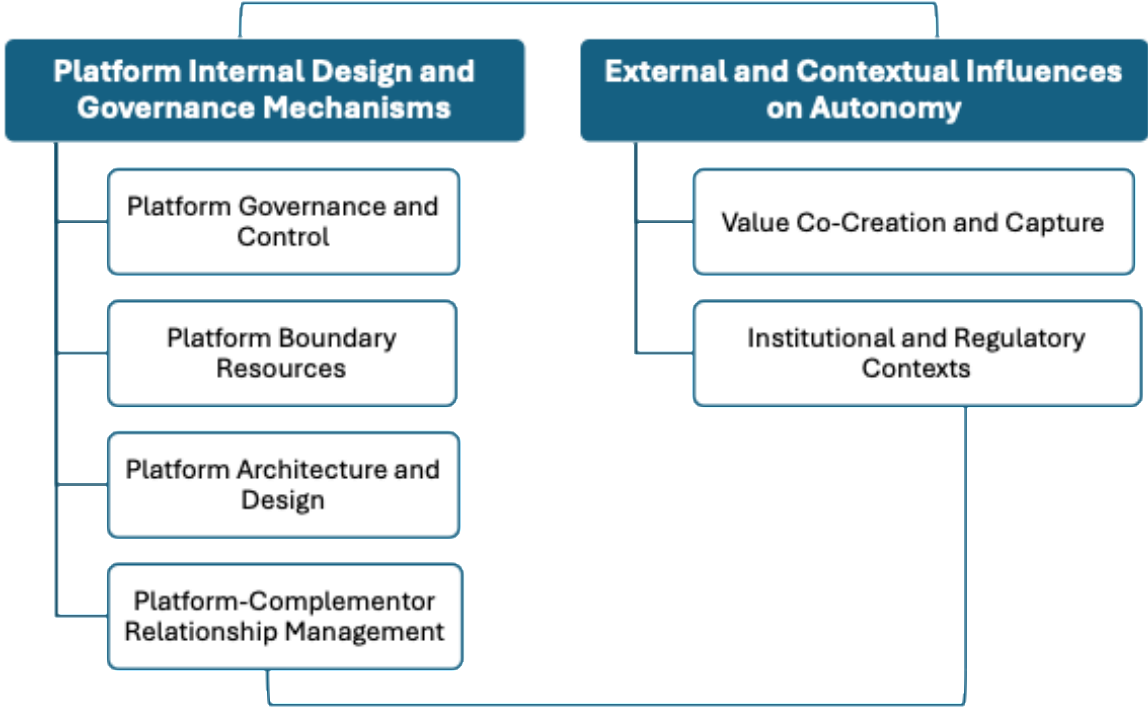


Figure 4. Framework of Antecedents of Complementor Autonomy

Chapter 4: Content Analysis

The content analysis involves an examination of two main documents: Apples Apple Store Review Guidelines and Google’s Google Developer Policy Center Documents. The purpose of this chosen methodology is to systematically compare the content of the aforementioned documents to identify patterns, themes, similarities, differences and make inferences.

Comparative Framework

The comparative framework used when evaluating platform owners' policies is based on three key “Ps”: Protective, Prohibitive, and Progressive. Each of these “Ps” describes the comprehensive nature of the policy under consideration.

Protective

For a policy to be classified under “Protection”, its contents must focus on protecting users, including their data, and the integrity of the entire platform. These measures include robust security protocols, encryption standards, and proactive risk mitigation strategies. Protective policies safeguard Consumers.

Progressive

Progressive policies aim to foster innovation, inclusivity, and positive user experiences. This may include efforts to support diversity, user empowerment, and the development of innovative features. We can say that Progressive Policies protect and focus on Complementors.

Prohibitive

Prohibited policies, on the other hand, are policies whose wording and contents restrict the power of Complementors to have the freedom to create need-based value for Consumers, thus taking away their autonomy.

The 3Ps framework directly connects to the six antecedents of complementor autonomy by classifying how policies either **enable, constrain, or safeguard autonomy** across governance, design, value, relational, boundary, and regulatory dimensions. Protective policies align with the Institutional and Regulatory Contexts and Platform Governance, ensuring security and compliance. Progressive policies reflect Platform Architecture and Design, Boundary Resources, and Value Co-Creation, where openness and incentives expand complementor independence. Prohibitive policies highlight the restrictive aspects of Platform Governance and Control, showing how constraints diminish complementor freedom. Using the 3Ps allows the content analysis to systematically evaluate how policies embody and affect the antecedents of autonomy, thereby providing a structured bridge between platform policy design and complementor agency.

Thematic Areas

To dig deeper into the analysis, the framework further categorizes policies into subject areas such as safety, performance, business, design, and legal. Security policies address user health, privacy, and prevention of harm while Performance guidelines include policies regarding the technical efficiency, speed, and reliability of the platform. Business guidelines focus on the economic aspects of the platform and cover topics such as monetization strategies, advertising policies, and partnerships while the design guidelines cover aesthetic and functional aspects of the user interface, user experience, and overall platform design. Finally, the legal policy addresses the platform's compliance with laws and regulations, including issues related to intellectual property, content moderation, and compliance with local legal frameworks. By leveraging this comprehensive comparative framework, we can gain a nuanced understanding of the various factors that constitute and characterize the policies implemented by platform owners.

Table 3. Apple Store Review Policy

Apple Store Review Policy				
Thematic Area	Core Policy	Protective	Prohibitive	Progressive
Safety	Objectionable content	Yes		
	User Generated Content			Yes
	Kids Category	Yes		
	Physical Harm	Yes		
	Developer Information	Yes		
	Data Security	Yes		
	Reporting Criminal Activity			Yes
Thematic Area	Core Policy	Protective	Prohibitive	Progressive
Performance	App Completeness			Yes
	Beta Testing			Yes
	Accurate Meta Data	Yes		
	Hardware Compatibility			Yes
	Software Requirements			Yes
Thematic Area	Core Policy	Protective	Prohibitive	Progressive
Business	Payments	Yes		
	Other Business Model Issues	Yes		

Thematic Area	Core Policy	Protective	Prohibitive	Progressive
Design	Copycats			Yes
	Minimum Functionality			Yes
	Spam			Yes
	Extensions			Yes
	Apple Sites and Services			Yes
	Alternate App Icons			Yes
	HTML5 Games, Bots, etc.			Yes
	Sign in with Apple			Yes
Streaming games			Yes	
Thematic Area	Core Policy	Protective	Prohibitive	Progressive
Legal	Privacy	Yes		
	Intellectual Property			Yes
	Gaming Gambling and Lotteries			Yes
	VPN Apps			Yes
	Mobile Device Management	Yes		
	Developer Code of Conduct			Yes

Table 4. Google Developer Policy

Google Developer Policy Center				
Thematic Area	Core Policy	Protective	Prohibitive	Progressive
Safety	Inappropriate Content	Yes		
	User Generated Content			Yes
	Child Endangerment	Yes		
	Health Content and Services	Yes		
	User Data	Yes		
	Illegal Activities			Yes
	Families	Yes		
	Ad Fraud	Yes		
	Hostile Downloaders	Yes		

	Unauthorized Use or Imitation of System Functionality	Yes		
	Device and Network Abuse	Yes		
	Deceptive Behavior	Yes		
	Social Engineering	Yes		
	AI-Generated Content			Yes
Thematic Area	Core Policy	Protective	Prohibitive	Progressive
Performance	User Ratings, Reviews, and Installs			Yes
	Android Instant Apps	Yes		
	Blockchain-based Content	Yes		
	Content Ratings	Yes		
Thematic Area	Core Policy	Protective	Prohibitive	Progressive
Business	Payments	Yes		
	Subscriptions	Yes		
	Financial Services	Yes		
	Families Self-Certified Ads SDK	Yes		
	Ads			Yes
	App Promotion	Yes		
Thematic Area	Core Policy	Protective	Prohibitive	Progressive
Design	Impersonation	Yes		
	Minimum Functionality			Yes
	Spam	Yes		
	Policy Coverage			Yes
	SDK Requirements			Yes
	Target API Level			Yes
	Metadata	Yes		

	Mobile Unwanted Software	Yes		
	News			Yes
	Malware	Yes		
Thematic Area	Core Policy	Protective	Prohibitive	Progressive
Legal	Permissions	Yes		
	Intellectual Property			Yes
	Real-Money Gambling, Games, and Contests			Yes
	Android Emoji Policy			Yes
	Enforcement Process			Yes
	Misrepresentation	Yes		

Findings

Safety

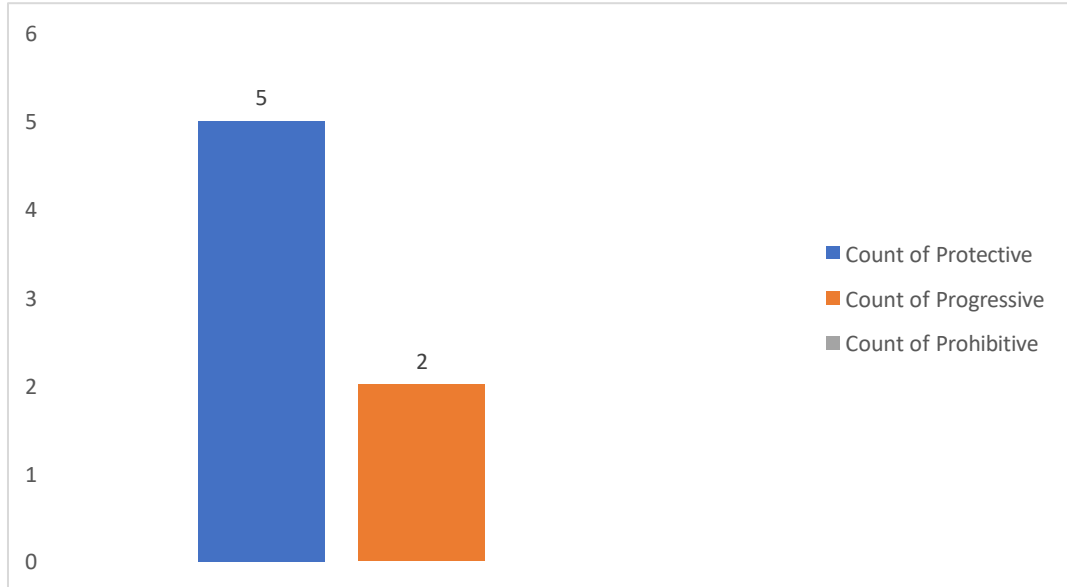


Figure 5. Safety Bar Chart, Apple Store Review Guidelines

For the Apple Store Review Guidelines, the Safety Theme within the framework is a key aspect that encompasses a variety of concerns aimed at ensuring the health and security of users and the platform. The elements under this theme include the management and containment of objectionable content, as well as policies and procedures for identifying and handling content that may be harmful, objectionable, or violate community standards. Other elements include user-generated content which focuses on establishing clear parameters for user contributions to maintain a healthy and respectful digital environment. The aim of the Kids category is focused on implementing specific security measures tailored to younger users, such as age-appropriate content restrictions and increased privacy protections. Concerns about physical harm include policies that focus on user interaction and content distribution, and that aim to prevent all forms of harm and risk arising from the use of the Platform. The purpose of the Developer Information element is to regulate the exchange and handling of sensitive information among platform developers and to emphasize transparency and security. The Data security element is concerned with implementing robust measures to protect user data, ensure confidentiality, and protect it from unauthorized access. Finally, criminal activity gives importance to mechanisms for users to report and act against potential criminal activity to foster a safer digital ecosystem for all participants. Through these multifaceted elements, the Safety Theme aims to create a comprehensive and resilient framework for user protection and platform integrity. Of the seven elements mentioned within the thematic

area, it is observed that five are classified as Protective and two as Progressive. There are no inhibitors to Complementor Autonomy here.

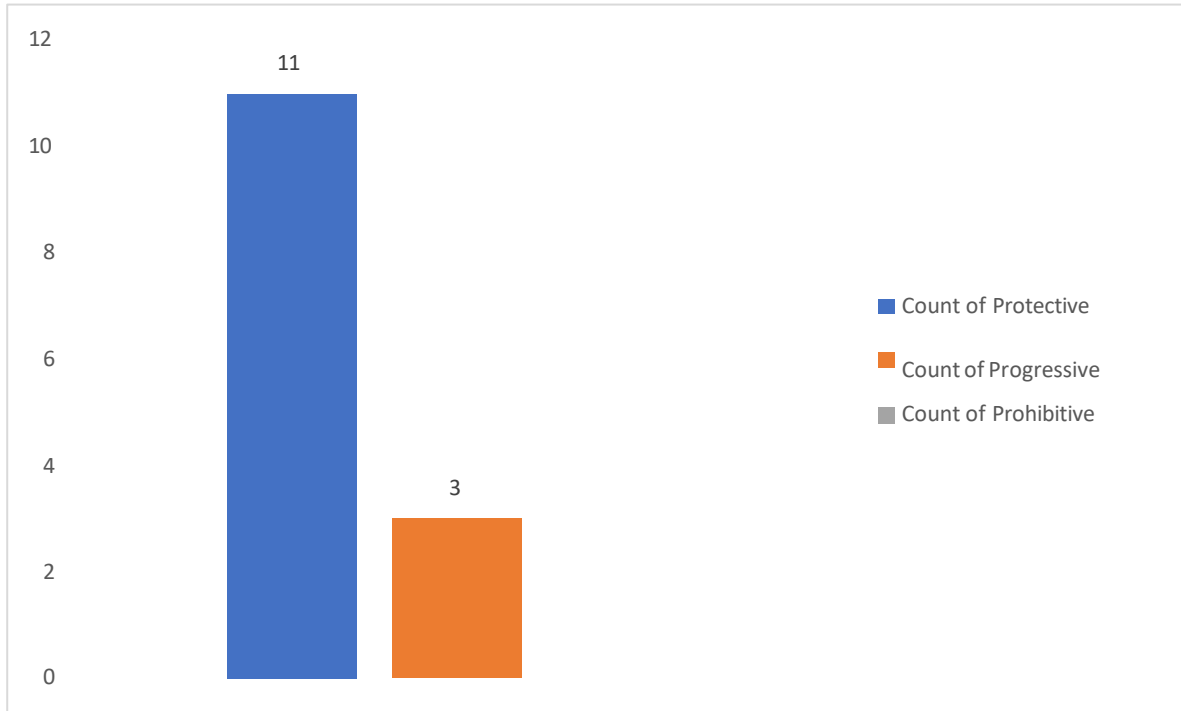


Figure 6. Safety Bar Chart, Google Developer Center

Likewise, Google Developer Policy Center’s Safety Theme is a robust framework designed to ensure a safe and trusted digital environment for both users and developers. The theme addresses a variety of concerns and includes various elements important to maintaining the integrity and security of the platform. While an inappropriate content policy is established to govern the type of material allowed on the platform, a user-generated content policy provides a framework for responsible and respectful user postings. The child endangerment policy highlight Googles commitment to creating safe spaces for young users and putting in place strict measures to prevent harm and exploitation. The Health Content and Services Policy focuses on maintaining the accuracy and reliability of health- related information disseminated on the Platform while User Data protection ensures the confidentiality and responsible handling of user information, with a focus on privacy and security. illegal activities are enforced to maintain legal standards, and Family's goal is to create a family-friendly environment through content and interactions. Ad Fraud

Protection reduces potential security risks by combating deceptive advertising practices and safeguarding against hostile downloaders and unauthorized use of system features and Device and network Abuse policies prevent abuse and deceptive behavior. Social engineering policies address malicious behavior while emerging concerns about AI-generated content have been put in place to ensure the responsible and ethical use of AI technology. Together, these elements form a comprehensive security framework that reflects Google’s commitment to fostering a secure and user-friendly developer ecosystem.

Although the elements under Safety are more for Google than those of Apple, the trend follows just as seen with Apple’s guidelines. Of the 14 elements mentioned, 11 of them are Protective, while 3 are Progressive. This breakdown can be seen in the appendix section of this document.

Performance

The Performance thematic area within the Apple Store Review Guidelines is an important aspect of ensuring optimal functionality and user experience for applications on the Apple platform. App integrity is a critical factor, highlighting the need for developers to deliver fully functional, polished applications that meet Apple's quality standards. Beta testing guidelines encourage developers to thoroughly test their apps before submitting them and promote a culture of continuous improvement and bug fixing. Accurate metadata ensures that the information provided through your app, such as its description and features, accurately matches its actual functionality, promoting transparency and preventing confusion among users. Hardware compatibility guidelines emphasize the importance of optimizing your app to work seamlessly across Apple devices and ensure a consistent and reliable experience for your users. Finally, software requirements emphasize the importance of compatibility with the latest software releases and encourages developers to take advantage of the latest tools and features available in the Apple ecosystem. Taken together, these elements of the performance theme highlight Apple's commitment to delivering high-quality, reliable, and compatible applications to improve the overall user experience on the platform. Here, we notice that policy language is more progressive, with 4 elements coding “yes” for the Progressive P, while one element codes “yes” for the Protective P.

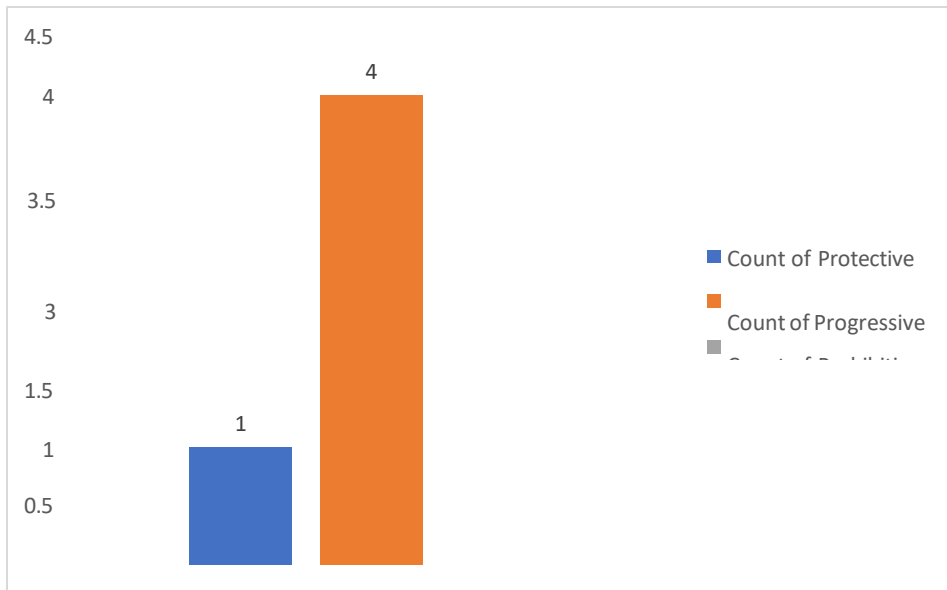


Figure 7. Performance Bar Chart, Apple Store Review Guidelines

In the Performance Thematic Area for the Google Developer Policy Center, several important factors contribute to the optimization and quality of applications on the Android platform. User ratings, reviews, and installations are of paramount importance, highlighting the importance of positive user experience, feedback, and widespread adoption. Developers are encouraged to actively participate in user reviews, address concerns promptly, and strive for high-quality app performance to improve overall user satisfaction. Android Instant Apps guidelines focus on ensuring that instant applications run smoothly and efficiently, and that users can access their content without requiring traditional installation. Blockchain-based content policies accommodate new blockchain technologies and ensure responsible and secure implementation in apps to maintain user trust and data integrity. Content ratings play an important role in providing users with information about the appropriateness of app content, allowing them to make informed decisions based on their tastes and sensibilities. Together, these elements contribute to Google's commitment to fostering a positive, user-centric ecosystem that prioritizes performance and quality to provide the best experience for Android users. Three elements are protective, with one being progressive.

Business

The Business Thematic Area within the Apple Store Review Guidelines play an important role in shaping the economics of applications on the Apple platform. The Payments element is important and addresses policies and guidelines regarding in-app purchases, subscriptions, and other financial transactions within the app. Apple is committed to transparency and fairness in our payment systems to ensure a seamless and secure experience for both users and developers. Additionally, the “Other Business Model Issues” category includes a variety of considerations, such as advertising practices, pricing, and compliance with relevant legal and ethical standards. These policies underscore Apple's commitment to levelling the playing field for developers, fostering innovation, and providing users with a trusted and transparent marketplace for digital goods and services. By setting clear business standards, Apple aims to create an environment that fosters developer and user trust, fair competition, and a positive economic ecosystem on the App Store. Ultimately, this thematic area protects the consumer against nefarious business models that does not bring value.

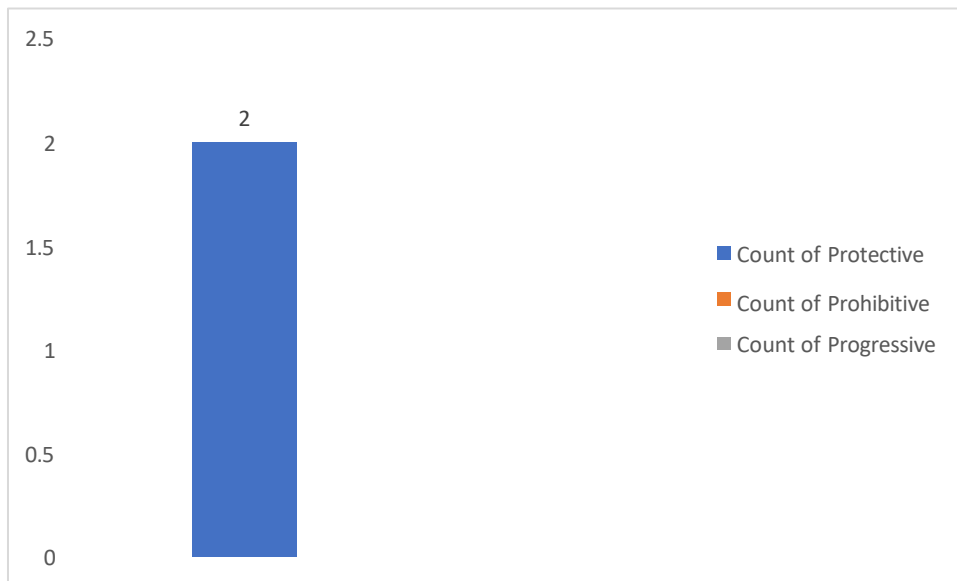


Figure 8. Business Bar Chart, Apple Store Review Guidelines

The Business Thematic area of the Google Developer Policy Center helps shape the economics of applications on the Android platform. Payment policies govern in-app transactions and emphasize transparency, security, and fairness of financial transactions within your application. Subscription focuses on providing clear terms and conditions for users who choose recurring payments, ensuring a user-friendly and reliable subscription model. The financial services component includes policies aimed at regulating financial transactions, protecting users' financial information,

and ensuring compliance with relevant regulations. The Family-Friendly Self-Certified Ads SDK Guidelines are specifically aimed at family-friendly apps and ensure that ads are appropriate and meet family-friendly content standards. The Advertising Guidelines apply to the broader app ecosystem and emphasize fair and transparent advertising practices. The app's advertising policy focuses on ensuring that advertising activities are conducted responsibly and do not mislead users. These elements highlight Google's commitment to fostering a robust and ethical business environment where developers can thrive while users experience a secure and transparent marketplace for digital services on his Android platform. Undeniably, the Bar Graph shows a Protective dominance and a single element being Progressive, although overall boding well for autonomy.

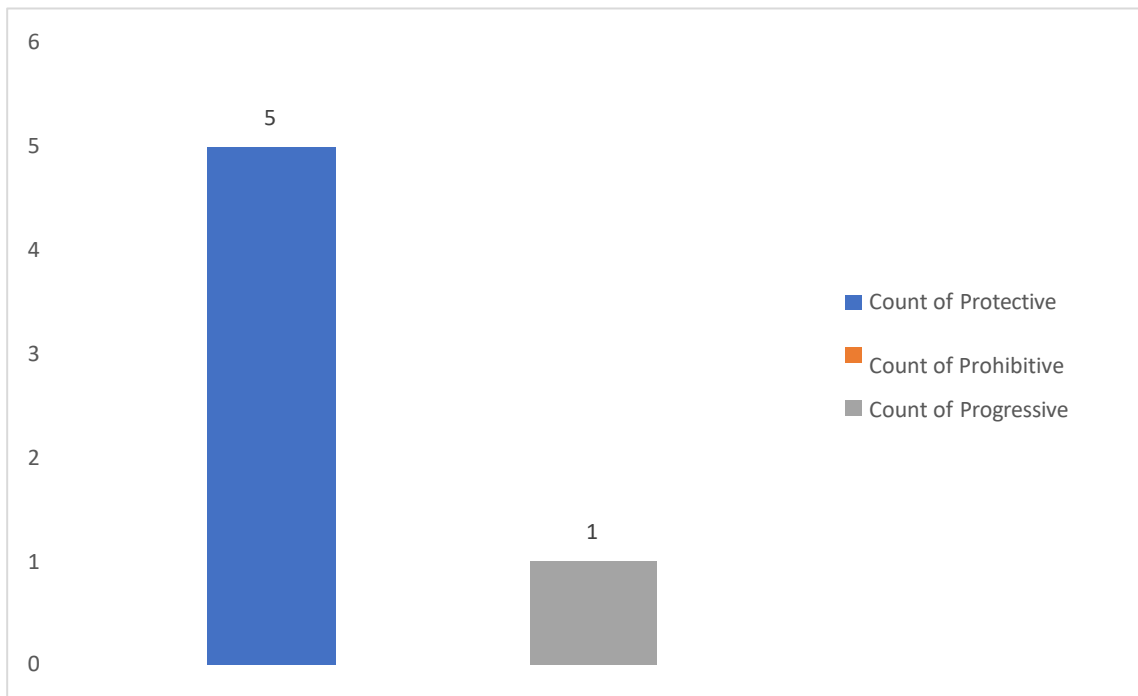


Figure 9. Business Bar Chart, Google Development Policy Center

Design

The Design Thematic area within the Apple Store Review Guidelines is important to maintaining the integrity and user experience of applications on the Apple platform. The Copycats element is concerned with prohibiting apps that imitate the appearance of other existing applications to

promote uniqueness and prevent confusion among users. Minimum functionality guidelines ensure that apps provide essential features and services and prevent the submission of apps with limited value or basic functionality. Spam elements are focused on preventing app stores from being flooded with redundant or irrelevant content and promoting a curated and user-friendly environment. Extension guidelines describe the design and integration of app extensions to ensure compatibility and a seamless experience. Apple's Sites and Services Guidelines emphasize adhering to design principles when integrating Apple-related content and services into apps. Alternate app icons give Complementors the flexibility to customize the appearance of their apps on Consumer devices. Guidelines for HTML5 games, bots, and more address the design and functionality of apps that use these technologies, ensuring a consistent, high-quality experience. Sign in with Apple facilitates a streamlined and secure authentication process, while the Game Streaming Policy focuses on the design and distribution of games across streaming services. Together, these elements of the design theme reflect Apple's commitment to maintaining a visually consistent, innovative, and user-friendly app ecosystem on the App Store. The design theme is overwhelmingly progressive, giving Complementors the leeway to express their best work and hopefully create value within the ecosystem.

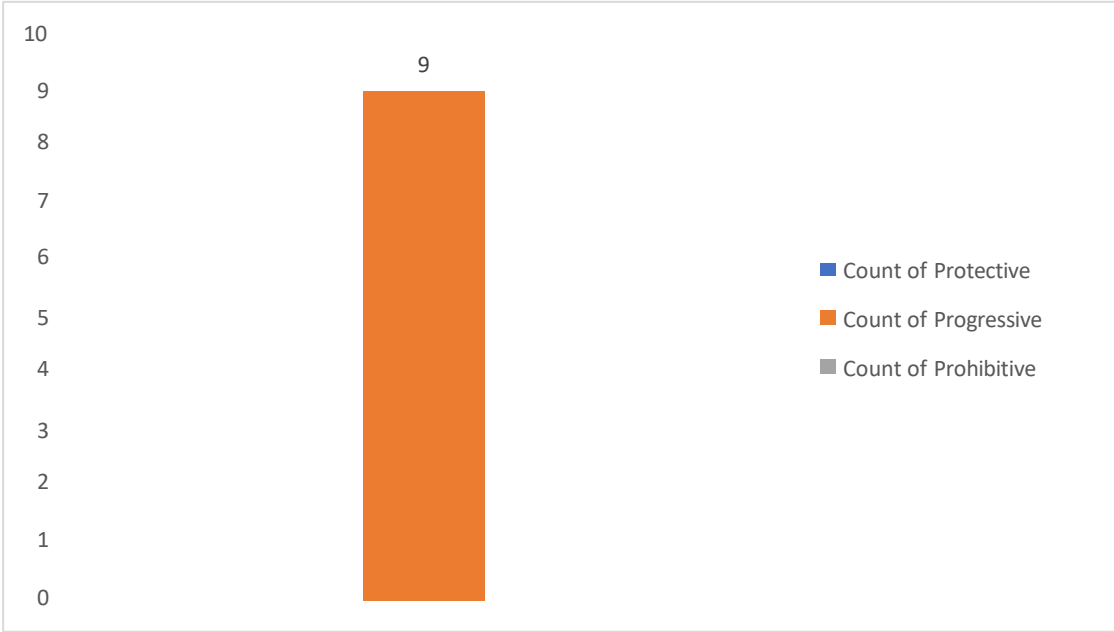


Figure 10. Design Bar Chart, Apple Store Review Guidelines

The Design Thematic area in the Google Developer Guidelines is important to maintaining the quality, user experience, and overall integrity of applications on the Android platform. The impersonation element concerns the banning of apps that copy other popular apps or attempt to

deceive users with misleading design elements, emphasizing the importance of originality and preventing user confusion. Minimum functionality guidelines ensure that apps provide useful features and services and prevent the submission of apps with limited utility. Spam elements aim to maintain a clean and relevant app ecosystem by preventing the spread of redundant or irrelevant content. Policy enforcement policies establish comprehensive compliance with all aspects of developer policies and emphasize a holistic approach to app quality. SDK requirements ensure that apps meet established software development kit standards, promoting compatibility and a seamless user experience. Target API level guidelines encourage developers to optimize their apps for the latest Android versions, promoting innovation and security. Metadata policies highlight accurate and informative app descriptions, icons, and screenshots, contributing to a transparent user experience. Unwanted mobile software policies focus on preventing apps that exhibit unwanted behaviour or negatively impact device performance. News policies address the design and functionality of apps used to deliver news content and ensure reliable and responsible reporting. Malware policies are important for preventing malicious software and maintaining the security of the Android ecosystem. These elements of the design theme reflect Google's commitment to fostering a diverse, safe, and user-friendly environment for Android users. For Android's Design Theme, it is a split between Progressive and Protective, with five elements each.

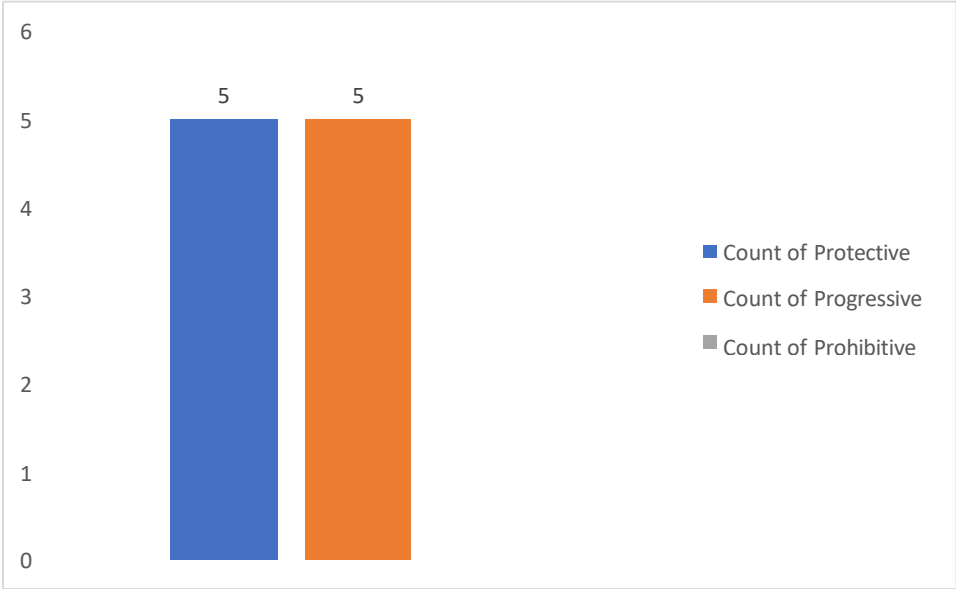


Figure 11. Design Bar Chart, Google Development Policy Center

Legal

The Legal Thematic area within the Apple Store Review Guidelines plays a fundamental role in ensuring legal compliance, ethical standards, and user protection for all applications on the Apple platform. Privacy policy is of paramount importance and focuses on protecting user data, disclosing data practices, and complying with privacy laws and regulations. Intellectual Property policy works to protect copyrights, trademarks, and other proprietary rights, and prevents the submission of apps that infringe on the intellectual property rights of others. The Gaming, Gambling, and Lotteries Policy sets standards for apps that include betting, gambling, and lotteries, and ensures compliance with applicable laws and responsible gaming practices. VPN app guidelines address the use of virtual private network applications and ensure their functionality and compliance with legal standards. Mobile device management policies are important for apps that provide device management services and value security and responsible management practices. The Developer Code of Conduct sets forth the ethical and professional behavior expected of developers in the Apple ecosystem. All together, these legal elements reflect Apple's commitment to complying with legal standards, protecting user privacy, and promoting a safe and trusted environment for users and developers on the App Store. The observation here is that four elements count as progressive while two elements count as protective.

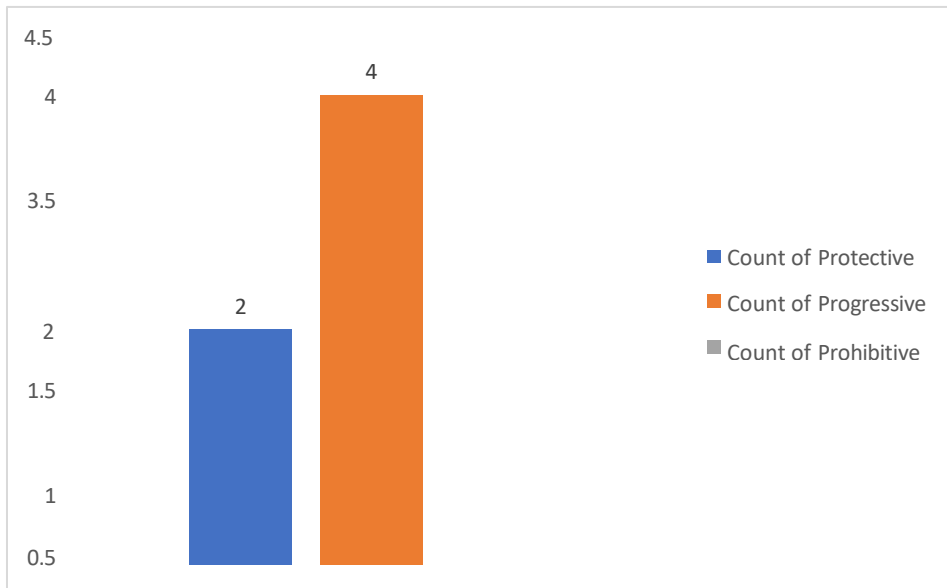


Figure 12. Legal Bar Chart, Apple Store Review Guidelines

The Legal Thematic area of Google's developer policy guidelines helps ensure legal compliance, protect intellectual property, and ensure that apps on the Android platform are fair and transparent. Permissions policies focus on responsible use of user data and device resources and emphasize transparency and user consent. Intellectual property policies address the protection of copyrights, trademarks, and other intellectual property rights and prevent the submission of apps that infringe on the rights of third parties. The Real Money Gambling, Games and Contests Guidelines set standards for apps involving real money transactions, gambling and contests and ensure compliance with legal standards and responsible gaming practices. The Android Emoji Policy provides guidelines for the appropriate use of emojis within apps and promotes consistency and cultural sensitivity. The enforcement process describes steps to address policy violations and ensures fair and consistent enforcement. The Misrepresentation Policy prevents fraud and ensures that the app's description, functionality, and features accurately reflect the true nature of the app. These together underscore Google's commitment to legal compliance, user protection, and maintaining a fair and trustworthy ecosystem for developers and users on the Android platform. The observation of the Bar Graph shows a more Progressive policy interspersed with Protective elements.

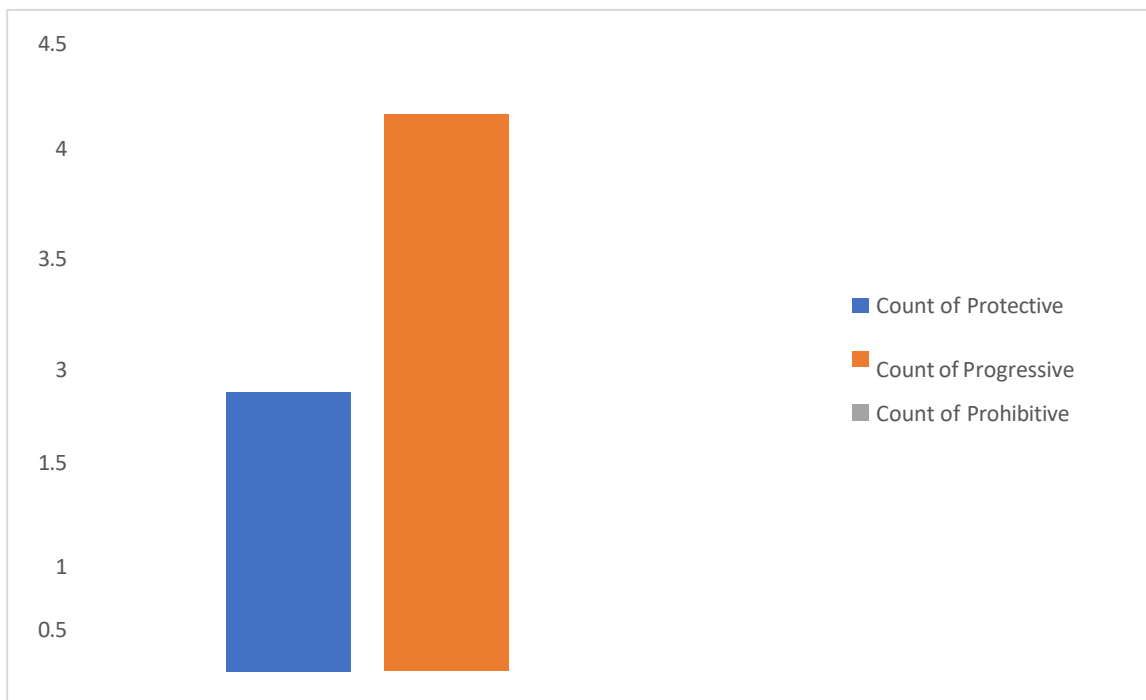


Figure 13. Legal Bar Chart, Google Development Policy Center

Outlook of Complementor Autonomy

The identified elements encompass an all-inclusive array, ranging from User Generated Content to Developer Code of Conduct, collectively proposing a robust framework that supports complementor autonomy within digital platform ecosystems. Covering content creation, quality assurance, compatibility, legal compliance, and ethical conduct, these elements provide a manifold approach to empower complementors. By addressing user engagement, technical standards, security, and adherence to guidelines, they create an environment that encourages complementors to operate independently while making significant contributions to the sustained growth and vitality of digital platforms. In essence, these elements serve as critical success factors, ensuring the autonomy of complementors and, concurrently, their effective and enduring participation in the broader digital ecosystem.

Outlook of Platform Restriction

Inasmuch as Apple and Google are Single Platform Owners, they look for ways to stimulate Complementor Autonomy, rather than to stifle it. Their main aim is to ensure a fair playing field for both Consumers and Complementors to be protected and to thrive to create value.

Outlook for Consumer Protection

Consumers are indeed protected through a comprehensive set of measures implemented by digital platforms. The existence of stringent policies addressing elements such as Inappropriate Content, Child Endangerment, Health Content and Services, User Data, Families, Ad Fraud, Hostile Downloaders, Unauthorized Use or Imitation of System Functionality, Device and Network Abuse, Deceptive Behavior, Social Engineering, Android Instant Apps, Blockchain-based Content, Content Ratings, Payments, Subscriptions, Financial Services, Families Self- Certified Ads SDK, App Promotion, Impersonation, Spam, Metadata, Mobile Unwanted Software, Malware, Permissions, and Misrepresentation underscores the commitment of these platforms to safeguarding consumer interests. Concurrently, these policies are designed to strike a fine balance, allowing complementors the autonomy needed to enhance consumer experiences within the bounds of ethical and legal standards. This nuanced approach ensures that consumers are shielded from potential risks while complementors can contribute meaningfully to the richness and diversity of digital platform experiences.

Chapter 5 : In-Depth Interviews

This section presents the emergent themes from three in-depth interviews with digital complementors embedded in distinct platform ecosystems. The respondents, a seasoned software developer with over two decades of industry experience (Respondent A), a mid-career tech entrepreneur and founder of a digital product agency (Respondent B), and a freelance developer who works with small businesses and startups (Respondent C), offered layered and candid reflections on how platform structures shape their work, autonomy, and innovation potential. Their insights are synthesized under the six core antecedents of complementor autonomy: Platform Governance and Control, Platform Architecture and Design, Value Co-Creation and Capture, Platform–Complementor Relationship Management, Platform Boundary Resources, and Institutional and Regulatory Contexts. Together, these themes paint a picture of platform ecosystems that are both enabling and constraining, promoting reach and scalability on one hand, while tightly controlling access, design, and monetization on the other. The three in-depth interviews conducted provided sufficient depth and breadth of insights, reaching thematic saturation for the deductive coding process, as no new codes or categories emerged after the third interview.

Platform Governance and Control

Platform governance emerged as the most prominent and polarizing antecedent affecting complementor autonomy. All three respondents described a highly centralized, opaque, and top-down governance structure in which platform owners dictate the rules with limited transparency or accountability.

Respondent B, a mid-career co-founder of a tech firm specializing in app development, recalled a particularly disruptive incident where Shopify froze his account during a successful Black Friday campaign. The platform flagged a verification issue and suspended operations for 90 days, without a clear path to resolution. This unilateral decision, made without consultation or recourse, exemplified the asymmetric power relationship that exists between platform owners and complementors.

“Their rigid policies limit flexibility and can harm legitimate businesses.”

Apple, in Respondent B’s experience, proved to be even more stringent. Developers have minimal input in the formulation or interpretation of platform rules. Despite adhering to technical and content standards, apps could still be rejected arbitrarily or subjected to lengthy approval delays. This created a constant sense of precarity.

“You could develop an app and still be denied access to their store.”

Respondent A, a seasoned software developer with more than 20 years of experience building software for major platforms, echoed these frustrations. He pointed to the strategic opacity used by platform owners to justify competitive suppression in the name of security and user data protection.

“Platforms may block rival apps or add bottlenecks to delay competition. Updates are imposed that force developers to adjust quickly, even if the market isn’t ready.”

These governance mechanisms often lack consultation with developers, resulting in a reactive, compliance-driven development culture where complementors must scramble to adapt to shifting platform mandates. Respondent C, a pragmatic freelance developer serving a diverse client base, acknowledged that while these governance issues are less restrictive at a small scale, they become a serious barrier to innovation and scaling when financial stakes grow.

“If I were running a production-level app with in-app purchases, the platform would take a cut and impose revenue-based restrictions.”

He shared a case involving Wix, where policy-imposed paywalls blocked access to advanced analytics tools, forcing him to either convince his client to upgrade or abandon the feature altogether.

“I hit multiple paywalls. I had to either convince the client to pay more or find a workaround.”

Ultimately, the consensus across interviews was that platform governance systems act more as gatekeepers than as facilitators, reinforcing dependency and limiting complementors’ ability to shape the ecosystem rules under which they operate.

Platform Architecture and Design

The architectural configuration of platforms was recognized as both an enabler and inhibitor of innovation. While some platforms provide robust development frameworks, these often come at the cost of flexibility, customization, and long-term autonomy. Respondent B criticized Shopify’s architectural rigidity, describing it as a “one-size-fits-all” approach that forces complementors to conform to predefined templates. Even though this uniformity might simplify development for newcomers, it severely limits experienced developers seeking customization and technical independence.

“You often have to adapt your business to fit their mould rather than innovate freely.”

By contrast, he spoke positively of WordPress, which allowed for greater control over hosting, design, and backend infrastructure. He highlighted the importance of modularity and

configurability in fostering a sense of ownership and creative freedom, traits lacking in many commercial platforms. Respondent A provided an insightful analysis of Microsoft Azure's architecture. He appreciated Azure's ability to distribute servers across multiple regions and integrate with products like Teams, capabilities that are invaluable for business scaling. Yet, he cautioned that this convenience comes with vendor lock-in, making it difficult to migrate or diversify once a system is deeply embedded in Microsoft's proprietary ecosystem.

"Azure allows us to distribute servers across regions. But the downside is cost; it locks you in."

Respondent C discussed Wix's visual builder and coding framework, Velo, as initially enabling. However, he noted that key functionalities, such as real-time analytics and conversion tracking, were locked behind higher-tier subscriptions. This tiered access model created hidden technical ceilings that made full innovation contingent on pricing, not creativity.

"Sometimes the available tools don't perfectly fit, or they're only available on higher-tier plans."

All three accounts underscore the paradox of platform architecture, that while it provides powerful development capabilities, it often embeds systemic constraints that reinforce platform dependence and restrict open-ended innovation.

Value Co-creation and Capture

Another major theme was the disconnect between value creation and value capture. All respondents acknowledged that they, and developers like them, play a crucial role in enriching the platform ecosystem. They build applications, plugins, and integrations that attract users and increase stickiness. However, they felt undervalued and undercompensated for their contributions. Respondent B framed this issue with sharp clarity.

"Without us, these platforms wouldn't thrive. We build the apps that users rely on."

Despite being the engines of innovation, complementors are often excluded from revenue-sharing models or platform-level recognition. Respondent B noted the absence of collaborative mechanisms for negotiating value distribution.

"There aren't formal systems that ensure fair value sharing and there's no collaborative process to determine how value is distributed."

Respondent A echoed these sentiments, particularly with reference to Apple and Google's standard 30% commission fees. He found these charges excessive, especially given the lack of direct support or shared risk from the platforms

“For platforms that didn’t help develop the app but take a third of the revenue, that can feel excessive.”

Respondent C provided a more nuanced view of value capture, pointing out that platforms leave monetization entirely up to the market. Developers are compensated only if they successfully commercialize their product or secure external clients. In his words.

“Platforms don’t directly compensate developers unless you’re selling something; it’s a free-market system.”

This market-driven structure disproportionately rewards those with marketing reach or paid access to users, rather than those who create functional or innovative tools that serve niche use cases. In effect, complementors are left to bear the cost of development while platforms reap the cumulative benefits of increased user engagement and loyalty.

Platform -Complementor Relationship Management

Across the interviews, platform–complementor relationships were described as highly transactional, impersonal, and symbolic. While platforms may publicly position themselves as developer-friendly, the reality, according to the respondents, is often one of tokenistic engagement. Respondent B commented on Apple and Google’s developer conferences and resource centers, noting that while these initiatives appear inclusive, they seldom result in policy changes or structural feedback loops.

“There’s a disconnect between those efforts and meaningful policy change... it feels like a formality.”

Respondent C highlighted the lack of access to platform representatives, especially for small-scale or freelance developers. Most of his support came from peer communities, not the platform itself.

“The relationship is very impersonal. It’s rare unless you’re part of a larger client base.”

Respondent A provided an example where Google’s reCAPTCHA malfunctioned on mobile, severely affecting a client’s bookings. Despite flagging the issue, support was slow and non-committal, underscoring the fragility of reliance on platform infrastructure.

“Unless it’s a widespread issue, responses take time, and you get charged for reCAPTCHA usage even if it’s malfunctioning.”

This theme reveals a power imbalance in the relationship model, where developers are dependent on platforms but have limited influence, visibility, or recourse in times of need.

Platform Boundary Resources

Boundary resources such as APIs, SDKs, documentation, and code libraries were unanimously recognized as critical tools for innovation. However, all three respondents noted that the availability and usability of these resources vary greatly across platforms, and are often complicated by poor documentation, platform constraints, or outdated guides. Respondent B observed that while Apple provides robust SDKs and has a formal developer program, its value is undermined by policy-induced technical limitations, particularly around third-party payment systems.

“Apple used to block third-party payment systems even after lawsuits forced them to allow alternatives; the process remains complicated.”

Respondent C described frequent encounters with incomplete or outdated documentation, forcing him to rely on developer forums, trial-and-error methods, and open-source hacks to solve problems.

“The documentation was available but outdated, so I relied heavily on forums.”

Respondent A lamented the lack of standardized deployment processes even when using cross-platform tools like Flutter. What should be a single build often requires multiple adaptations, each with its own quirks.

“Though it’s technically the same app, different deployment processes increase complexity. Lack of standardization makes the process tedious.”

These challenges compromise autonomy by increasing developer workload, reducing predictability, and obstructing seamless scalability, especially for teams with limited resources.

Institutional and Regulatory Contexts

Finally, the interviewees acknowledged the growing influence of external regulatory frameworks, especially regarding data privacy, health information, and user protection. These laws often intersect with internal platform policies, compounding the constraints on what developers can build or deploy. Respondent B, who works with fintech and health-tech clients, noted that regulatory compliance often dictates design decisions and limits innovation timelines.

“These external laws dictate design decisions and regulatory compliance must come before innovation.”

Respondent A flagged the fragmentation of international laws as a particularly burdensome issue for developers operating in multiple jurisdictions. In his view, the absence of harmonized standards increases development costs and delays.

“Managing compliance across multiple jurisdictions is complex and time-consuming. A global governance body would make life easier.”

Respondent C expressed a more balanced view, suggesting that while regulations can limit freedom, they also enhance user safety and trust.

“These rules can restrict autonomy but are necessary to prevent abuse, like malicious apps or criminal content.”

However, even where well-intentioned, regulations intersect with platform-level policies in ways that further reduce the room for creative experimentation, especially in sensitive sectors.

Overall Perceptions of Autonomy

Despite the diversity of backgrounds, platform engagements, and technical contexts, all three respondents conveyed a shared sense of constrained autonomy. Platforms are seen as both essential and overbearing, providing the infrastructure for global reach while maintaining tight control over governance, monetization, and compliance. Respondent B expressed frustration with being excluded from decision-making processes.

“I don’t feel very autonomous and if they truly included us in drafting regulations and rules, it would benefit everyone.”

Respondent A called for greater standardization and fairness, particularly in pricing models, support mechanisms, and deployment frameworks.

“A unified deployment interface and fair pricing models would make a world of difference.”

Respondent C, while more optimistic, acknowledged that autonomy is often conditional, transactional, and capped by platform-imposed ceilings.

“More developer support and fewer paywalls.”

In sum, the findings suggest that true complementor autonomy remains an aspirational goal. It is currently hindered by rigid governance structures, architectural constraints, value asymmetries, impersonal relationship models, fragmented boundary resources, and burdensome regulatory landscapes. For platform ecosystems to evolve into mutually empowering spaces, complementors must be actively involved in governance, design, and value-sharing frameworks, not simply treated as replaceable contributors within a tightly controlled environment.

Chapter 6: Discussion

This study sought to explore the autonomy of complementors within digital platform ecosystems through a triangulated methodology comprising a scoping literature review, comparative content analysis of platform governance policies, and in-depth interviews with active complementors. The findings coalesce around six core antecedents: platform governance and control, platform architecture and design, value co-creation and capture, platform–complementor relationship management, boundary resources, and institutional and regulatory contexts. Together, these elements reveal a complex interplay of enabling and constraining forces that shape the autonomy of third-party actors operating within digital platform ecosystems.

The Duality of Governance: Control vs. Enablement

Platform governance emerged as the most dominant antecedent, underscoring how access rules, enforcement mechanisms, and incentive structures are central to determining the scope of complementor autonomy. The literature, content analysis, and interviews collectively revealed that while governance mechanisms are essential for maintaining platform coherence and security, they often skew toward unilateralism, especially in ecosystems dominated by single actors like Apple and Google. For instance, policy reviews of the Apple App Store and Google Play revealed a predominance of prohibitive clauses, particularly in the business and design dimensions. These restrictive policies frequently limit pricing strategies, interface innovation, and application approval, suggesting a governance model that is more about containment than enablement. However, evidence from interviews and literature also pointed to governance models that promote participatory rule-setting and transparency, which were more conducive to fostering autonomy. Complementors described how greater clarity in policy guidelines, predictable enforcement, and transparent decision-making by platforms increased their confidence to innovate independently. This tension illustrates the need for platforms to strike a balance between ecosystem stability and creative freedom.

Architecture and Boundary Resources: The Technical Gatekeepers

Closely related to governance is the role of platform architecture and boundary resources. The findings suggest that technical design choices, such as modularity, interface openness, and the standardization of APIs, are not merely engineering concerns but powerful determinants of complementor freedom. Platforms with stable, open, and well-documented boundary resources enabled greater experimentation and modular innovation. Conversely, opaque or shifting interface

standards created dependency traps, forcing complementors to align with proprietary roadmaps or risk obsolescence. This duality was also evident in the interviews. Developers who worked with open-source APIs or received early access to technical documentation reported higher levels of strategic independence. On the other hand, several respondents noted how SDK limitations or unexplained API deprecations impeded their product development cycles, often without recourse or compensation.

Value Capture and the Autonomy-Incentive Trade-Off

The findings also highlight the importance of economic fairness in enabling complementor autonomy. Value co-creation mechanisms such as equitable revenue-sharing, transparent analytics, and fair commission structures emerged as essential for motivating independent innovation. Yet, both literature and empirical evidence suggest a recurring trend of value appropriation by platform owners, particularly through algorithmic ranking, user access restrictions, or data monopolization, which undermines complementors' long-term incentives. Interviewees emphasized this point strongly. One noted that “revenue sharing sounds good until you see the hidden fees and policy changes that take effect overnight,” reflecting a broader sentiment of power asymmetry. This suggests that autonomy is not only about control but also about having the means to thrive independently within the ecosystem.

Relational Trust as a Substitute for Formal Autonomy

Interestingly, platform–complementor relationship management emerged as a softer, yet equally potent antecedent. While technical and economic mechanisms shape what complementors can do, relational mechanisms shape how they feel about doing it. Transparent communication, conflict resolution, and inclusion in strategic planning all contributed to higher perceived autonomy. Complementors who were consulted, supported, or publicly recognized by platform owners expressed a stronger willingness to innovate within that ecosystem, even in the presence of structural constraints. This finding suggests that relationship management acts as a moderating force, potentially buffering the negative effects of rigid governance or technical dependency. In turn, it opens a window for platforms to build trust and commitment, even in tightly controlled environments.

External Institutions as Counterweights to Platform Power

Finally, institutional and regulatory contexts, though the least emphasized in the literature, emerged as critical moderators in practice. National regulations on data protection, antitrust scrutiny, and intellectual property laws served as external checks on platform behaviour, sometimes restoring agency to complementors. This was supported by content analysis findings showing how legal policies differ between platforms, with Apple tending to offer more centralized and closed systems, while Google presents a somewhat more distributed, though still restrictive, policy landscape.

A Multi-Layered View of Autonomy

Collectively, the findings illustrate that complementor autonomy is not a single-dimensional construct, but a multi-layered outcome shaped by platform-internal and external mechanisms. It is simultaneously technical, economic, relational, and institutional. This challenges simplistic views that equate autonomy with access or openness alone. Instead, the degree of autonomy is contingent on a platform's design philosophy, governance logic, and willingness to engage with complementors as strategic partners rather than subordinates.

Chapter 7: Potential Contributions and Future Research

This paper makes significant contributions to both academia and industry practice. Academically, it bridges a critical gap in digital platform research by offering a structured and comprehensive framework for understanding complementor autonomy, an underexplored yet vital concept in platform ecosystems. For the industry, the findings provide actionable insights for platform owners, digital entrepreneurs, and policymakers. By clarifying how design choices, policy framing, and relational practices impact complementor independence, the study empowers stakeholders to craft governance models that balance innovation with control. This has direct implications for ecosystem health, third-party developer engagement, regulatory compliance, and sustainable value creation in increasingly centralized digital environments. While this study offers a structured and empirically grounded understanding of complementor autonomy, several opportunities remain for further inquiry.

Longitudinal Studies on Platform-Complementor Evolution

The findings suggest that autonomy is not static; it can expand, or contract based on changes in governance, architecture, or regulation. Future research should employ longitudinal case studies to track how complementor autonomy evolves in response to platform policy shifts, technological upgrades, or regulatory interventions.

Comparative Analysis Across Platform Types

Most of the current research, including this study, focuses on dominant consumer-facing platforms such as Apple and Google. Future work should examine complementor autonomy across different types of platforms, such as B2B SaaS platforms, industrial IoT ecosystems, or blockchain-based marketplaces, to uncover sector-specific dynamics and transferable governance insights.

Quantifying Autonomy and Its Outcomes

There is a need for empirical models that quantify complementor autonomy and link it to performance outcomes such as innovation rates, revenue growth, or ecosystem retention. This would require developing validated scales of perceived and actual autonomy, using Large-N datasets from app stores or developer forums to statistically model how autonomy correlates with

innovation outputs (e.g., number of app updates, revenue, user ratings). Structural equation modeling (SEM) and multivariate regression could test how antecedents predict autonomy. Event-study methods could track how sudden policy changes (e.g., new commission rates) alter complementor activity quantitatively.

Exploring the Role of AI and Algorithmic Governance

Emerging technologies like AI are increasingly being used by platforms to automate governance tasks, such as app approval, ranking, or content moderation. Future research should investigate how algorithmic governance impacts complementor autonomy, particularly in terms of transparency, bias, and explainability.

Examining Complementor Strategies for Resisting or Navigating Constraints

While this study touches on complementor responses, more research is needed to unpack the strategies complementors use to maintain or reclaim autonomy. Do they multi-home, fork platforms, engage in collective action, or build alternative marketplaces? Understanding these strategic behaviours can inform platform policy as well as complementor best practices.

Regulatory Design for Autonomy Preservation

Finally, there is a growing need for interdisciplinary research that bridges legal scholarship, information systems, and public policy to propose governance frameworks that balance platform efficiency with autonomy preservation. Comparative studies across regulatory jurisdictions (e.g., EU vs. US) can reveal best practices for enabling a complementor agency while maintaining ecosystem stability.

Complementor Autonomy in Decentralized Platforms

Another promising avenue concerns autonomy in decentralized platforms (e.g., blockchain ecosystems, DAOs). Unlike centralized platforms, governance is distributed among participants,

potentially increasing complementor autonomy but also raising issues of coordination, standardization, and collective decision-making. Research could compare autonomy trade-offs between centralized and decentralized ecosystems.

Chapter 8: Contributions to Academia and Industry

This paper makes significant contributions to both academia and industry practice. Academically, it bridges a critical gap in digital platform research by offering a structured and comprehensive framework for understanding complementor autonomy, an underexplored yet vital concept in platform ecosystems. This conceptual advancement enriches the theoretical discourse on platform governance, ecosystem strategy, and innovation management by revealing how autonomy is not static but negotiated across institutional, technical, and relational dimensions.

For the industry, the findings provide actionable insights for platform owners, digital entrepreneurs, and policymakers. By clarifying how design choices, policy framing, and relational practices impact complementor independence, the study empowers stakeholders to craft governance models that balance innovation with control. This has direct implications for ecosystem health, third-party developer engagement, regulatory compliance, and sustainable value creation in increasingly centralized digital environments.

Key Take-aways

For Platform Owners, this paper helps them to design governance that balances control with openness, as overly prohibitive policies reduce innovation and long-term ecosystem vitality.

For Complementors, this paper helps them recognize that autonomy is negotiated. Strategic actions such as multi-homing, collective action, or leveraging boundary resources can protect independence.

For Policymakers, this paper zooms in on regulatory oversight (e.g., antitrust, data governance), which plays a crucial role in preserving complementor autonomy and ensuring fair competition.

For Researchers, this paper explains that autonomy is multi-layered (technical, economic, relational, institutional) and that future work should be aimed at developing quantitative scales and studying decentralized platforms.

Declaration of Use of Generative AI

Generative Artificial Intelligence (AI) tools, including Grammarly and ChatGPT, were employed strictly as writing aids to enhance sentence structure, paraphrase content for clarity, and support the drafting process of this thesis. At no point were these tools relied upon as sources of academic research or generators of original scholarly content. Adherence to academic integrity and best practices was maintained throughout the research and writing process. All ideas, arguments, data, figures, and tables not originating from the author were appropriately cited and referenced under academic conventions. The core research findings, analysis, and conclusions were based on rigorous engagement with credible academic sources accessed through recognized scholarly libraries and databases.

References/Bibliography

- Jacobides, M. G., Cennamo, C., & Gawer, A. (2018). Towards a theory of ecosystems. *Strategic Management Journal*, 2255–2276.
- Adner, R. (2017). Ecosystem as structure: An actionable construct for strategy. *Journal of Management*, 39-58.
- Baldwin, C. Y., & Woodard, C. J. (2009). The architecture of platforms: A unified view. In A. Gawer (Ed.), *Platforms, markets and innovation*. Edward Elgar Publishing.
- Benlian, A., Kettinger, W. J., Sunyaev, A., & Winkler, T. J. (2018). The transformative value of cloud computing: a decoupling, platformization, and recombination theoretical framework. *Journal of management information systems*, 35(3), 719.
- Constantinides, P., Henfridsson, O., & Parker, G. G. (2018). Introduction—Platforms and infrastructures in the digital age. *Information Systems Research*, 381–400.
- de Reuver, M., Sørensen, C., & Basole, R. C. (2018). The digital platform: A research agenda. *Journal of Information Technology*, 124–135.
- Eaton, B., Elaluf-Calderwood, S., Sørensen, C., & Yoo, Y. (2015). Distributed tuning of boundary resources: The case of Apple's Ios service system. *MIS Quarterly*, 217–243.
- Garud, R., & Kumaraswamy, A. (1995). Technological and organizational designs for realizing economies of substitution. *Strategic Management Journal*, 93–109.
- Gorwa, R. (2024). *The politics of platform regulation: How governments shape online content moderation*.
- Hein, A., Schrieck, M., Riasanow, T., Setzke, D. S., Wiesche, M., Böhm, M., & Krcmar, H. (2019). *Digital Platform Ecosystems*.
- Jacobides, M. G., Cennamo, C., & Gawer, A. (2018). Towards a theory of ecosystems. *Strategic Management Journal*, 2255–2276.
- Jiang, Y., Ho, Y.-C., Yan, X., & Tan, Y. (2018). Investor platform choice: Herding, platform attributes, and regulations. *Journal of Management Information Systems*, 86–116.
- Kapoor, R. (. (2018). Ecosystems: Broadening the locus of value creation. *Journal of Organization Design*, 12.
- Kapoor, R. (2018). Ecosystems: Broadening the locus of value creation. *Journal of Organization Design*, 12.

- Kretschmer, T., Leiponen, A., Schilling, M., & Vasudeva, G. (2022). Platform ecosystems as meta-organizations: Implications for platform strategies. *Strategic Management Journal*, 405-424.
- Lusch, R. F., & Nambisan, S. (2015). Service innovation: A service-dominant logic perspective. *MIS Quarterly*, 55–175.
- Auer, D., & Manne, G. A. (2024). *On the origin of platforms: An evolutionary perspective*.
- McIntyre, D. P., & Srinivasan, A. (2017). ms, and strategy: Emerging views and next steps. . *Strategic management journal*, 141-160.
- McIntyre, D. P., & Srinivasan, A. (2017). Networks, platforms, and strategy: Emerging views and next steps. *Strategic Management Journal*, 141-160.
- Morse, J. M., Barrett, M., Mayan, M., Olson, K., & Spiers, J. (2002). Verification strategies for establishing reliability and validity in qualitative research. *International Journal of Qualitative Methods*, 1(2), 13–22
- Nambisan, S., Wright, M., & Feldman, M. (2019). The digital transformation of innovation and entrepreneurship: Progress, challenges and key themes. *Research Policy*, 1-9.
- Nieborg, D. B., & Poell, T. (2018). The platformization of cultural production: Theorizing the contingent cultural commodity. *New media & society*, 4275-4292.
- Parida, V., Sjödin, D., & Reim, W. (2019). Reviewing literature on digitalization, business model innovation, and sustainable industry: Past achievements and future promises. *Sustainability*, 391.
- Parker, G., Alstyne, V., & M. (2017). Innovation, openness, and platform control. *Management Science*, 3015–3032.
- Parker, G., Van Alstyne, M., & Jiang, X. (2017). (2017). Platform ecosystems: How developers invert the firm. . *MIS Quarterly*, 255–266.
- Peppard, Joe, & Rylander, A. (2006). From Value Chain to Value Network: Insights for Mobile Operators. *European Management Journal*, 128-141.
- Schüßler, E., Attwood-Charles, W., Kirchner, S., & Schor, J. B. (2021). Between mutuality, autonomy and domination: rethinking digital platforms as contested relational structures. *Socio-Economic Review*, 19(4), 1217-1243.
- Tan, F. T., Ondrus, J., Tan, B., & Oh, J. (2020). Digital transformation of business ecosystems: Evidence from the Korean pop industry. *Information Systems Journal*, 30(5), 866-898.
- Teece, D. (2007). Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance. *Strategic management journal*, 1319-1350.

- Teece, D. J. (1986). Profiting from technological innovation: Implications for integration, collaboration, licensing and public policy. *Research Policy*, 285–305.
- Teece, D. J. (1986). Profiting from technological innovation: Implications for integration, collaboration, licensing and public policy. *Research Policy*, 285–305.
- Teece, D. J. (2018). Profiting from Innovation in the Digital Economy: Enabling Technologies, Standards, and Licensing Models in the Wireless World. . *Research Policy*, , 8.
- Thies, F., Wessel, M., & Benlian, A. (2016). Effects of social interaction dynamics on platforms. *Journal of Management Information Systems*, 843–873.
- Thomas, L. D., Autio, E., & Gann, D. M. (2014). Architectural leverage: Putting platforms in context.
- Roknifard, M. (2021). *Decision-making in open platform networks: Sensemaking of complementors' innovation success in a new platform* (Doctoral dissertation, Aston University). Aston University Publication.
- Academy of Management Perspectives, 198–219.
- Engert, M., Evers, J., Hein, A., & Krmar, H. (2022). The engagement of complementors and the role of platform boundary resources in e-commerce platform ecosystems. *Information Systems Frontiers*, 24(3), 843–861.
- Tilson, D., Lyytinen, K., & Sørensen, C. (2010). Research commentary—Digital infrastructures: The missing is research agenda. *Information Systems Research*, 748–759.
- Tiwana, A. (2015). Evolutionary competition in platform ecosystems. *Information Systems Research*, 7047–7047.
- Tiwana, A., Konsynski, B., & Bush, A. A. (2010). Platform evolution: Coevolution of platform architecture, governance, and environmental dynamics. . *Information Systems Research*, 675–687.
- Wareham, J., Fox, P. B., & Cano Giner, J. L. (2014). Technology ecosystem governance. . *Organization science*, 1195-1215.
- Zimmerer, K. S. (2023). *Changing fortunes: Biodiversity and peasant livelihood in the Peruvian Andes* . Univ of California Press.

Appendix A – Final List of all 58 Papers

Adam, M., Croitor, E., Werner, D., Benlian, A., & Wiener, M. (n.d.). Input control and its signalling effects for complementors' intention to join digital platforms. *Information Systems Journal*.

Agarwal, S., Miller, C. D. D., & Ganco, M. (n.d.). Growing platforms within platforms: How platforms manage the adoption of complementor products in the presence of network effects? *Strategic Management Journal*.

Ajah, E. O. (n.d.). Digital platforms boundary resource: A third-party developers strategy for digital start-ups and market penetration in Nigeria. *Electronic Journal of Information Systems in Developing Countries*.

Argyres, N., Nickerson, J., & Ozalp, H. (n.d.). Platform competition and complementor responses: Insights from combining design rules with the comparative adjustment, transaction, and opportunity cost framework. *Industrial and Corporate Change*.

Benlian, A., Hilkert, D., & Hess, T. (n.d.). How open is this platform? The meaning and measurement of platform openness from the complementors' perspective. *Journal of Information Technology*.

Cennamo, C. (n.d.). Competing in digital markets: A platform-based perspective. *Academy of Management Perspectives*.

Chen, L., Yi, J., Li, S., & Tong, T. W. (n.d.). Platform governance design in platform ecosystems: Implications for complementors' multihoming decision. *Journal of Management*.

Chen, Y., Pereira, I., & Patel, P. C. (n.d.). Decentralized governance of digital platforms. *Journal of Management*.

Chung, H. D., Zhou, Y. M., & Ethiraj, S. (n.d.). Platform governance in the presence of within-complementor interdependencies: Evidence from the rideshare industry. *Management Science*.

Engert, M., Evers, J., Hein, A., & Krcmar, H. (n.d.). Sustaining complementor engagement in digital platform ecosystems: Antecedents, behaviours and engagement trajectories. *Information Systems Journal*.

Engert, M., Evers, J., Hein, A., & Krcmar, H. (n.d.). The engagement of complementors and the role of platform boundary resources in e-commerce platform ecosystems. *Information Systems Frontiers*.

Engert, M., Hein, A., & Krcmar, H. (n.d.). Partner programs and complementor assessment in platform ecosystems: A multiple-case study. *AMCIS 2020 Proceedings*.

Farshchian, B. A., & Thomassen, H. E. (n.d.). Co-creating platform governance models using boundary resources: A case study from dementia care services. *Computer Supported Cooperative Work-The Journal of Collaborative Computing and Work Practices*.

Foerderer, J., Kude, T., Schuetz, S. W., & Heinzl, A. (n.d.). Knowledge boundaries in enterprise software platform development: Antecedents and consequences for platform governance. *Information Systems Journal*.

Fontao, A. L., dos Santos, R. P., & Dias-Neto, A. C. (n.d.). Exploiting repositories in mobile software ecosystems from a governance perspective. *Information Systems Frontiers*.

Foster, C., & Bentley, C. (n.d.). Examining ecosystems and infrastructure perspectives of platforms: The case of small tourism service providers in Indonesia and Rwanda. *Communications of the Association for Information Systems*.

Gastaldi, L., Appio, F. P., Trabucchi, D., Buganza, T., & Corso, M. (n.d.). From mutualism to commensalism: Assessing the evolving relationship between complementors and digital platforms. *Information Systems Journal*.

Ghazawneh, A., & Henfridsson, O. (n.d.). A paradigmatic analysis of digital application marketplaces. *Journal of Information Technology*.

Hein, A., Schrieck, M., Riasanow, T., Setzke, D. S., Wiesche, M., Boehm, M., & Krcmar, H. (n.d.). Digital platform ecosystems. *Electronic Markets*.

Hesse, M., Teubner, T., & Adam, M. T. P. (n.d.). In stars we trust - A note on reputation portability between digital platforms. *Business & Information Systems Engineering*.

Hillbolling, S., Berends, H., Deken, F., & Tuertscher, P. (n.d.). Complementors as connectors: Managing open innovation around digital product platforms. *R & D Management*.

Huber, T. L., Kude, T., & Dibbern, J. (n.d.). Governance practices in platform ecosystems: Navigating tensions between cocreated value and governance costs. *Information Systems Research*.

Hurni, T., Huber, T. L., & Dibbern, J. (n.d.). Power dynamics in software platform ecosystems. *Information Systems Journal*.

Hurni, T., Huber, T. L., Dibbern, J., & Krancher, O. (n.d.). Complementor dedication in platform ecosystems: Rule adequacy and the moderating role of flexible and benevolent practices. *European Journal of Information Systems*.

Jovanovic, M., Sjodin, D., & Parida, V. (n.d.). Co-evolution of platform architecture, platform services, and platform governance: Expanding the platform value of industrial digital platforms. *Technovation*.

Kang, H. Y., & Suarez, F. F. (n.d.). Platform owner entry into complementor spaces under different governance modes. *Journal of Management*.

Kari, A., Bellin, P., Matzner, M., & Gersch, M. (n.d.). Governing the emergence of network-driven platform ecosystems. *Electronic Markets*.

Lechner, C., Dexheimer, M., Lang, N., & Wurzer, C. (n.d.). Obstacles and strategies in ecosystem governance: A view from the orchestrator side. *Journal of Strategy and Management*.

Lohrenz, L., Michalke, S., Robra-Bissantz, S., & Lattemann, C. (n.d.). Mechanisms for designing digital platforms: Promoting autonomy, competence and relatedness completed research. *Digital Innovation and Entrepreneurship (AMCIS 2021)*.

Marheine, C., Pauli, T., Marx, E., Back, A., & Matzner, M. (n.d.). From suppliers to complementors: Motivational factors for joining industrial internet of things platform ecosystems. *Proceedings of the 54th Annual Hawaii International Conference on System Sciences*.

Mayer, A.-S., Kostis, A., Strich, F., & Holmstrom, J. (n.d.). Shifting dynamics: How generative AI as a boundary resource reshapes digital platform governance. *Journal of Management Information Systems*.

Mei, J., Zheng, G., & Zhu, L. (n.d.). Governance mechanisms implementation in the evolution of digital platforms: A case study of the Internet of Things platform. *R & D Management*.

O'Mahony, S., & Karp, R. (n.d.). From proprietary to collective governance: How do platform participation strategies evolve? *Strategic Management Journal*.

Pauli, T., Marx, E., Fielt, E., Marheine, C., & Matzner, M. (n.d.). Inhibitors and enablers of leverage in digital industrial platform ecosystems. *Business & Information Systems Engineering*.

Pellizzoni, E., Trabucchi, D., & Buganza, T. (n.d.). Platform strategies: How the position in the network drives success. *Technology Analysis & Strategic Management*.

Rietveld, J., Ploog, J. N., & Nieborg, D. B. (n.d.). Coevolution of platform dominance and governance strategies: Effects on complementor performance outcomes. *Academy of Management Discoveries*.

Saadatmand, F., Lindgren, R., & Schultze, U. (n.d.). Configurations of platform organizations: Implications for complementor engagement. *Research Policy*.

Sanner, T. A., Kempton, A. M., Russpatrick, S., & Saebo, J. I. (n.d.). Governing digital platform ecosystems for social options. *Information Systems Journal*.

Schmeiss, J., Hoelzle, K., & Tech, R. P. G. (n.d.). Designing governance mechanisms in platform ecosystems: Addressing the paradox of openness through blockchain technology. *California Management Review*.

- Scholten, S., & Scholten, U. (n.d.). Platform-based innovation management: Directing external innovational efforts in complex self-organizing platform ecosystems. PICMET 2010: Technology Management for Global Economic Growth.
- Schrieck, M., Wiesche, M., & Krcmar, H. (n.d.). From product platform ecosystem to innovation platform ecosystem: An institutional perspective on the governance of ecosystem transformations. *Journal of the Association for Information Systems*.
- Shaikh, I., & Bogers, M. (n.d.). Open innovation governance for the big tech (BT) platform-ecosystems: A multi-level stakeholder framework. *Digital Policy Regulation and Governance*.
- Shim, D. (n.d.). Interplay between platform providers and complementors via affordance, autonomy, and super-modularity: The empirical investigation of the Korean digital industry. *Journal of Theoretical and Applied Electronic Commerce Research*.
- Shi, R., Aaltonen, A., Henfridsson, O., & Gopal, R. D. (n.d.). Comparing platform owners' early and late entry into complementary markets. *MIS Quarterly*.
- Staub, N., Haki, K., Aier, S., & Winter, R. (n.d.). Governance mechanisms in digital platform ecosystems: Addressing the generativity-control tension. *Communications of the Association for Information Systems*.
- Thomas, L. D. W., Ritala, P., Karhu, K., & Heiskala, M. (n.d.). Vertical and horizontal complementarities in platform ecosystems. *Innovation-Organization & Management*.
- Uzunca, B., Sharapov, D., & Tee, R. (n.d.). Governance rigidity, industry evolution, and value capture in platform ecosystems. *Research Policy*.
- Vaia, G., Arkhipova, D., & DeLone, W. (n.d.). Digital governance mechanisms and principles that enable agile responses in dynamic competitive environments. *European Journal of Information Systems*.
- van Angeren, J., Blijleven, V., Jansen, S., & Brinkkemper, S. (n.d.). Complementor embeddedness in platform ecosystems: The case of Google Apps. 2013 7th IEEE International Conference on Digital Ecosystems and Technologies (DEST).
- van Angeren, J., & Karunakaran, A. (n.d.). Anchored inferential learning: Platform-specific uncertainty, venture capital investments by the platform owner, and the impact on complementors. *Organization Science*.
- van der Geest, C., & van Angeren, J. (n.d.). Architectural generativity: Leveraging complementor contributions to the platform architecture. *California Management Review*.
- Wareham, J., Fox, P. B., & Cano Giner, J. L. (n.d.). Technology ecosystem governance. *Organization Science*.

Wang, R. D., & Miller, C. D. (n.d.). Complementors' engagement in an ecosystem: A study of publishers' e-book offerings on Amazon Kindle. *Strategic Management Journal*.

Yi, J., He, J., & Yang, L. (n.d.). Platform heterogeneity, platform governance and complementors' product performance: An empirical study of the mobile application industry. *Frontiers of Business Research in China*.

Yoo, D. K., Roh, J. J., Cho, S., & Yang, M. M. (n.d.). Coopetition in a platform ecosystem: From the complementors' perspective. *Electronic Commerce Research*.

Yrjola, S., Ahokangas, P., & Matinmikko-Blue, M. (n.d.). Complementarities and externalities in 6G platforms-based ecosystems. 2024 Joint European Conference on Networks and Communications & 6G Summit, EuCNC/6G Summit 2024.

Zhang, Y., Li, J., & Tong, T. W. (n.d.). Platform governance matters: How platform gatekeeping affects knowledge sharing among complementors. *Strategic Management Journal*.

Zhao, H., Wang, H., Jin, S., & He, Z. (n.d.). Evolutionary game and simulation analysis of collaborative innovation mechanisms of industrial internet platform-based ecosystem. *Sustainability*.

Appendix B – Coding of all 58 Papers

Number	Paper Title	Authors	Journal	Platform Governance and Control	Platform Boundary Resources	Value Cocreation and Capture	Institutional and Regulatory Contexts	Platform Architecture and Design	Platform–Complementor Relationship Management
1	Configurations of platform organizations: Implications for complementor engagement	Saadatmand, Fatemeh; Lindgren, Rikard; Schultze, Ulrike	RESEARCH POLICY	Yes	Yes	Yes	Yes	Yes	Yes
2	Open innovation governance for the Big Tech (BT) platform-ecosystems: a multi-level stakeholder framework	Shaikh, Ibrahim; Bogers, Marcel	DIGITAL POLICY REGULATION AND GOVERNANCE	Yes	Yes	Yes	Yes	Yes	Yes
3	A paradigmatic analysis of digital application marketplaces	Ghazawneh, Ahmad; Henfridsson, Ola	JOURNAL OF INFORMATION TECHNOLOGY	Yes	Yes	Yes	Yes	Yes	Yes
4	From Suppliers to Complementors: Motivational Factors for Joining Industrial Internet of Things Platform Ecosystems	Marheine, Christian; Pauli, Tobias; Marx, Emanuel; Back, Andrea; Matzner, Martin	PROCEEDINGS OF THE 54TH ANNUAL HAWAII INTERNATIONAL CONFERENCE ON SYSTEM SCIENCES	Yes	Yes	Yes	No	Yes	Yes
5	Partner Programs and Complementor Assessment in Platform Ecosystems: A Multiple-Case Study	Engert, Martin; Hein, Andreas; Krcmar, Helmut	AMCIS 2020 PROCEEDINGS	Yes	Yes	Yes	No	No	Yes
6	How open is this platform? The meaning and measurement of platform openness from the complementors' perspective	Benlian, Alexander; Hilkert, Daniel; Hess, Thomas	JOURNAL OF INFORMATION TECHNOLOGY	Yes	Yes	No	No	Yes	Yes
7	Platform Governance in the Presence of Within-Complementor Interdependencies: Evidence from the Rideshare Industry	Chung, Hyuck David; Zhou, Yue Maggie; Ethiraj, Sendil	MANAGEMENT SCIENCE	Yes	No	Yes	No	No	No
8	Complementarities and Externalities in 6G Platforms-Based Ecosystems	Yrjola, Seppo; Ahokangas, Petri; Matinmikko-Blue, Matja	2024 JOINT EUROPEAN CONFERENCE ON NETWORKS AND COMMUNICATIONS & 6G SUMMIT, EUCNC/6G SUMMIT 2024	No	Yes	Yes	No	Yes	Yes

9	Complementor dedication in platform ecosystems: rule adequacy and the moderating role of flexible and benevolent practices	Hurni, Thomas; Huber, Thomas L.; Dibbern, Jens; Krancher, Oliver	EUROPEAN JOURNAL OF INFORMATION SYSTEMS	Yes	Yes	Yes	No	Yes	Yes
10	Complementor Embeddedness in Platform Ecosystems: The Case of Google Apps	van Angeren, Joey; Blijleven, Vincent; Jansen, Slinger; Brinkkemper, Sjaak	2013 7TH IEEE INTERNATIONAL CONFERENCE ON DIGITAL ECOSYSTEMS AND TECHNOLOGIES (DEST)	Yes	Yes	Yes	No	Yes	Yes
11	Complementors as connectors: managing open innovation around digital product platforms	Hilbolling, Susan; Berends, Hans; Deken, Fleur; Tuertscher, Philipp	R & D MANAGEMENT	Yes	Yes	Yes	Yes	Yes	Yes
12	Platform competition and complementor responses: insights from combining design rules with the comparative adjustment, transaction, and opportunity cost framework	Argyres, Nicholas; Nickerson, Jackson; Ozalp, Hakan	INDUSTRIAL AND CORPORATE CHANGE	Yes	Yes	Yes	No	Yes	No
13	Digital Platforms Boundary Resource: A Third-Party Developers Strategy for Digital Start-Ups and Market Penetration in Nigeria	Ajah, Emmanuel Okoro	ELECTRONIC JOURNAL OF INFORMATION SYSTEMS IN DEVELOPING COUNTRIES	Yes	Yes	Yes	No	Yes	Yes
14	Examining Ecosystems and Infrastructure Perspectives of Platforms: The Case of Small Tourism Service Providers in Indonesia and Rwanda	Foster, Christopher; Bentley, Caitlin	COMMUNICATIONS OF THE ASSOCIATION FOR INFORMATION SYSTEMS	Yes	Yes	Yes	Yes	Yes	Yes
15	Co-Creating Platform Governance Models Using Boundary Resources: a Case Study from Dementia Care Services	Farshchian, Babak A.; Thomassen, Hanne Ekran	COMPUTER SUPPORTED COOPERATIVE WORK- THE JOURNAL OF COLLABORATIVE COMPUTING AND WORK PRACTICES	Yes	Yes	Yes	Yes	Yes	Yes
16	Governance Mechanisms in Digital Platform Ecosystems: Addressing the Generativity-Control Tension	Staub, Nicola; Haki, Kazem; Aier, Stephan; Winter, Robert	COMMUNICATIONS OF THE ASSOCIATION FOR INFORMATION SYSTEMS	Yes	Yes	Yes	No	Yes	Yes

17	In Stars We Trust - A Note on Reputation Portability Between Digital Platforms	Hesse, Maik; Teubner, Timm; Adam, Marc T. P.	BUSINESS & INFORMATION SYSTEMS ENGINEERING	Yes	Yes	Yes	Yes	Yes	No
18	Power dynamics in software platform ecosystems	Hurni, Thomas; Huber, Thomas L.; Dibbern, Jens	INFORMATION SYSTEMS JOURNAL	Yes	No	Yes	Yes	No	Yes
19	Input control and its signalling effects for complementors' intention to join digital platforms	Adam, Martin; Croitor, Evgheni; Werner, Dominick; Benlian, Alexander; Wiener, Martin	INFORMATION SYSTEMS JOURNAL	Yes	Yes	Yes	No	Yes	Yes
20	Sustaining complementor engagement in digital platform ecosystems: Antecedents, behaviours and engagement trajectories	Engert, Martin; Evers, Julia; Hein, Andreas; Kremer, Helmut	INFORMATION SYSTEMS JOURNAL	Yes	No	Yes	No	Yes	Yes
21	From mutualism to commensalism: Assessing the evolving relationship between complementors and digital platforms	Gastaldi, Luca; Appio, Francesco Paolo; Trabucchi, Daniel; Buganza, Tommaso; Corso, Mariano	INFORMATION SYSTEMS JOURNAL	Yes	No	Yes	No	No	Yes
22	Interplay between Platform Providers and Complementors via Affordance, Autonomy, and Super-Modularity: The Empirical Investigation of the Korean Digital Industry	Shim, Dongnyok	JOURNAL OF THEORETICAL AND APPLIED ELECTRONIC COMMERCE RESEARCH	Yes	Yes	Yes	No	Yes	Yes
23	Co-evolution of platform architecture, platform services, and platform governance: Expanding the platform value of industrial digital platforms	Jovanovic, Marin; Sjodin, David; Parida, Vinit	TECHNOVATION	Yes	Yes	Yes	No	Yes	Yes
24	Obstacles and strategies in ecosystem governance: a view from the orchestrator side	Lechner, Christoph; Dexheimer, Maximilian; Lang, Nikolaus; Wurzer, Charline	JOURNAL OF STRATEGY AND MANAGEMENT	Yes	Yes	Yes	Yes	Yes	Yes
25	Platform Governance Design in Platform Ecosystems: Implications for Complementors' Multihoming Decision	Chen, Liang; Yi, Jingtao; Li, Sali; Tong, Tony W.	JOURNAL OF MANAGEMENT	Yes	Yes	No	No	Yes	Yes

26	Platform strategies: how the position in the network drives success	Pellizzoni, Elena; Trabucchi, Daniel; Buganza, Tommaso	TECHNOLOGY ANALYSIS & STRATEGIC MANAGEMENT	Yes	No	Yes	No	Yes	Yes
27	Platform heterogeneity, platform governance and complementors' product performance: an empirical study of the mobile application industry	Yi, Jingtao; He, Jinqiu; Yang, Lihong	FRONTIERS OF BUSINESS RESEARCH IN CHINA	Yes	No	Yes	Yes	Yes	Yes
28	Platform-based Innovation Management: Directing External Innovational Efforts in Complex Self-organizing Platform Ecosystems	Scholten, Simone; Scholten, Ulrich	PICMET 2010: TECHNOLOGY MANAGEMENT FOR GLOBAL ECONOMIC GROWTH	Yes	Yes	Yes	Yes	Yes	Yes
29	COEVOLUTION OF PLATFORM DOMINANCE AND GOVERNANCE STRATEGIES: EFFECTS ON COMPLEMENTOR PERFORMANCE OUTCOMES	Rietveld, Joost; Ploog, Joe N.; Nieborg, David B.	ACADEMY OF MANAGEMENT DISCOVERIES	Yes	No	Yes	No	No	No
30	Governance mechanisms implementation in the evolution of digital platforms: a case study of the Internet of Things platform	Mei Jingyao; Zheng Gang; Zhu Ling	R & D MANAGEMENT	Yes	Yes	Yes	No	Yes	Yes
31	COMPETING IN DIGITAL MARKETS: A PLATFORM-BASED PERSPECTIVE	Cennamo, Carmelo	ACADEMY OF MANAGEMENT PERSPECTIVES	No	No	Yes	No	Yes	No
32	COMPARING PLATFORM OWNERS' EARLY AND LATE ENTRY INTO COMPLEMENTARY MARKETS	Shi, Runyu; Aaltonen, Aleks; Henfridsson, Ola; Gopal, Ram D.	MIS QUARTERLY	Yes	No	Yes	Yes	Yes	No
33	Decentralized Governance of Digital Platforms	Chen, Yan; Pereira, Igor; Patel, Pankaj C.	JOURNAL OF MANAGEMENT	Yes	Yes	Yes	No	Yes	Yes
34	Coopetition in a platform ecosystem: from the complementors' perspective	Yoo, Dong Kyoon; Roh, James J.; Cho, Sunyoung; Yang, Mark M.	ELECTRONIC COMMERCE RESEARCH	Yes	No	Yes	No	Yes	Yes
35	The Engagement of Complementors and the Role of Platform Boundary	Engert, Martin; Evers, Julia; Hein, Andreas; Kremer, Helmut	INFORMATION SYSTEMS FRONTIERS	Yes	Yes	No	Yes	Yes	Yes

	Resources in e-Commerce Platform Ecosystems								
36	Digital platform ecosystems	Hein, Andreas; Schrieck, Maximilian; Riasanow, Tobias; Setzke, David Soto; Wiesche, Manuel; Boehm, Markus; Krcmar, Helmut	ELECTRONIC MARKETS	Yes	No	Yes	Yes	Yes	Yes
37	Governing the emergence of network-driven platform ecosystems	Kari, Arthur; Bellin, Pepe; Matzner, Martin; Gersch, Martin	ELECTRONIC MARKETS	Yes	No	Yes	Yes	Yes	Yes
38	Inhibitors and Enablers of Leverage in Digital Industrial Platform Ecosystems	Pauli, Tobias; Marx, Emanuel; Fiel, Erwin; Marheine, Christian; Matzner, Martin	BUSINESS & INFORMATION SYSTEMS ENGINEERING	Yes	Yes	Yes	Yes	Yes	Yes
39	Designing Governance Mechanisms in Platform Ecosystems: Addressing the Paradox of Openness through Blockchain Technology	Schmeiss, Jessica; Hoelzle, Katharina; Tech, Robin P. G.	CALIFORNIA MANAGEMENT REVIEW	Yes	Yes	Yes	Yes	Yes	Yes
40	Digital governance mechanisms and principles that enable agile responses in dynamic competitive environments	Vaia, Giovanni; Arkhipova, Daria; DeLone, William	EUROPEAN JOURNAL OF INFORMATION SYSTEMS	Yes	No	Yes	No	Yes	No
41	Complementors' engagement in an ecosystem: A study of publishers' e-book offerings on Amazon Kindle	Wang, Richard D.; Miller, Cameron D.	STRATEGIC MANAGEMENT JOURNAL	No	No	Yes	No	No	Yes
42	Platform governance matters: How platform gatekeeping affects knowledge sharing among complementors	Zhang, Yuchen; Li, Jingjing; Tong, Tony W.	STRATEGIC MANAGEMENT JOURNAL	Yes	Yes	Yes	No	Yes	Yes
43	Growing platforms within platforms: How platforms manage the adoption of complementor products in the presence of network effects?	Agarwal, Shiva; Miller, Cameron D. D.; Ganco, Martin	STRATEGIC MANAGEMENT JOURNAL	Yes	No	Yes	No	Yes	Yes

44	Evolutionary Game and Simulation Analysis of Collaborative Innovation Mechanisms of Industrial Internet Platform-Based Ecosystem	Zhao, Huiyan; Wang, Haijun; Jin, Shutong; He, Zitong	SUSTAINABILITY	Yes	No	Yes	No	Yes	Yes
45	Anchored Inferential Learning: Platform-Specific Uncertainty, Venture Capital Investments by the Platform Owner, and the Impact on Complementors	van Angeren, Joey; Karunakaran, Arvind	ORGANIZATION SCIENCE	Yes	No	No	No	No	No
46	Architectural Generativity: Leveraging Complementor Contributions to the Platform Architecture	van der Geest, Coen; van Angeren, Joey	CALIFORNIA MANAGEMENT REVIEW	Yes	Yes	Yes	No	Yes	Yes
47	Vertical and horizontal complementarities in platform ecosystems	Thomas, Llewellyn D. W.; Ritala, Paavo; Karhu, Kimmo; Heiskala, Mikko	INNOVATION-ORGANIZATION & MANAGEMENT	Yes	No	Yes	No	Yes	Yes
48	Exploiting Repositories in Mobile Software Ecosystems from a Governance Perspective	Fontao, Awdren de Lima; dos Santos, Rodrigo Pereira; Dias-Neto, Arilo Claudio	INFORMATION SYSTEMS FRONTIERS	Yes	No	Yes	No	Yes	Yes
49	From Product Platform Ecosystem to Innovation Platform Ecosystem: An Institutional Perspective on the Governance of Ecosystem Transformations	Schreieck, Maximilian; Wiesche, Manuel; Krcmar, Helmut	JOURNAL OF THE ASSOCIATION FOR INFORMATION SYSTEMS	Yes	No	No	Yes	Yes	No
50	From proprietary to collective governance: How do platform participation strategies evolve?	O'Mahony, Siobhan; Karp, Rebecca	STRATEGIC MANAGEMENT JOURNAL	Yes	Yes	Yes	Yes	Yes	Yes
51	Governance Practices in Platform Ecosystems: Navigating Tensions Between Cocreated Value and Governance Costs	Huber, Thomas L.; Kude, Thomas; Dibbern, Jens	INFORMATION SYSTEMS RESEARCH	Yes	No	Yes	No	Yes	Yes
52	Governance rigidity, industry evolution, and value capture in platform ecosystems	Uzunca, Bilgehan; Sharapov, Dmitry; Tee, Richard	RESEARCH POLICY	Yes	No	Yes	Yes	Yes	Yes

53	Governing digital platform ecosystems for social options	Sanner, Terje Aksel; Kempton, Alexander Moltubakk; Russpatrick, Scott; Saebo, Johan Ivar	INFORMATION SYSTEMS JOURNAL	Yes	Yes	Yes	No	Yes	No
54	Knowledge boundaries in enterprise software platform development: Antecedents and consequences for platform governance	Foerderer, Jens; Kude, Thomas; Schuetz, Sebastian Walter; Heinzl, Armin	INFORMATION SYSTEMS JOURNAL	Yes	Yes	No	No	Yes	No
55	Mechanisms for Designing Digital Platforms: Promoting Autonomy, Competence and Relatedness Completed Research	Lohrenz, Lisa; Michalke, Simon; Robra-Bissantz, Susanne; Lattemann, Christoph	DIGITAL INNOVATION AND ENTREPRENEURSHIP (AMCIS 2021)	No	No	No	No	Yes	Yes
56	Platform Owner Entry Into Complementor Spaces Under Different Governance Modes	Kang, Hye Young; Suarez, Fernando F.	JOURNAL OF MANAGEMENT	Yes	Yes	Yes	Yes	Yes	No
57	Shifting Dynamics: How Generative AI as a Boundary Resource Reshapes Digital Platform Governance	Mayer, Anne-Sophie; Kostis, Angelos; Strich, Franz; Holmstrom, Jonny	JOURNAL OF MANAGEMENT INFORMATION SYSTEMS	Yes	Yes	No	No	Yes	Yes
58	Technology Ecosystem Governance	Wareham, Jonathan; Fox, Paul B.; Cano Giner, Josep Lluís	ORGANIZATION SCIENCE	Yes	No	Yes	No	Yes	No

Appendix C – Interview Guide

INTERVIEW GUIDE

Complementor Autonomy in Digital Platform Ecosystems

By Gideon Quagraine

NAME:

DATE:

TIME:

VENUE: Microsoft Teams

INTRODUCTION

Good [morning/afternoon/evening]. My name is Gideon Quagraine, and I am a researcher from Concordia University conducting a study on Complementor autonomy within digital platform ecosystems. This interview aims to explore how complementors (such as app developers, third-party service providers, and vendors) experience and negotiate autonomy when engaging with digital platforms like Apple, Google, Amazon, and others. Before we begin, I would like to ask for your consent to participate in this interview and to record our conversation. Your responses will remain confidential and will only be used for academic research purposes. The interview will be conducted in English and should take approximately 45–60 minutes. Are you comfortable proceeding?

Section A. WARM-UP

Objective: Establish rapport and gain context about the respondent's background.

- Can you please start by telling me your name, your current role, and how it relates to digital platforms?
- How long have you or your organization been operating within a platform ecosystem?
- Which digital platforms do you or your company work with most closely (e.g., Apple App Store, Shopify, Salesforce)?
- Have you previously participated in a research interview?

Section B. EXPERIENCES WITH COMPLEMENTORSHIP IN DIGITAL PLATFORMS

Objective: Understand the respondent's general experience as a complementor.

- Can you describe the nature of your business or project on the platform?
- What motivated you to join or build on this particular platform?
- What aspects of working with this platform have been most empowering? What have been most constraining?

Section C. ANTECEDENTS OF COMPLEMENTOR AUTONOMY

1. Platform Governance and Control

- How would you describe the level of control the platform owner exerts over your operations?
- In what ways have platform rules, policies, or changes in terms of service impacted your ability to make independent decisions?
- Can you give an example of when platform governance either supported or restricted your strategic autonomy?

2. Platform Boundary Resources

- What types of tools, APIs, SDKs, or documentation has the platform provided?
- How adequate and flexible are these resources in supporting your development or business goals?
- Have there been times when boundary resources enabled innovation—or limited it?

3. Value Co-Creation and Capture

- How would you describe the value exchange between your organization and the platform?
- Are you fairly compensated or recognized for the value you create on the platform?
- What mechanisms exist for you to influence how value is shared?

4. Institutional and Regulatory Contexts

- Have laws, standards, or external regulations (e.g., GDPR, antitrust laws) influenced how you interact with the platform?
- In what ways do national or industry-specific regulations shape your autonomy as a complementor?

- Do you feel regulatory intervention is necessary to improve complementor autonomy in your ecosystem?

5. Platform Architecture and Design

- How does the platform's technical architecture (e.g., modularity, APIs, interface constraints) affect your ability to innovate or differentiate?
- Are there architectural decisions that have helped or hindered your ability to scale or experiment?
- Have you ever had to redesign or rethink your offering due to architectural changes made by the platform?

6. Platform–Complementor Relationship Management

- How would you characterize your relationship with the platform owner (e.g., collaborative, transactional, distant)?
- Are there channels through which you can offer feedback or influence platform decisions?
- Do you receive adequate communication, support, or partnership opportunities from the platform?

Section D. REFLECTION AND FUTURE OUTLOOK

Objective: Reflect on experiences and gather recommendations for improving autonomy.

- Overall, how autonomous do you feel in your interactions with the platform ecosystem?
- If you could change one thing about how platforms engage with complementors, what would it be?
- What advice would you give to new complementors joining the ecosystem?
- Is there anything else you'd like to share that we haven't discussed?

APPENDIX D- Information and Consent Form



INFORMATION AND CONSENT FORM

Study Title: Complementor Autonomy in Digital Platform Ecosystems

Researcher: Gideon Quagraine

Researcher's Contact Information: gideon.quagraine@gmail.com

Faculty Supervisor: Suchit Ahuja

Faculty Supervisor's Contact Information: suchit.ahuja@concordia.ca

You are being invited to participate in the research study mentioned above. This form provides information about what participating would mean. Please read it carefully before deciding if you want to participate or not. If there is anything you do not understand, or if you want more information, please ask the researcher.

A. PURPOSE

The purpose of the research is to ascertain the antecedents of Complementor Autonomy in Digital Platform Ecosystems and how Platform Owners influence the level of freedom Complementors must innovate.

B. PROCEDURES

If you participate, you will be asked a series of questions from an interview guide, which will aid in detailing your experiences and motivations regarding Digital Platform Ecosystems

In total, participating in this study will take approximately 45 minutes.

C. RISKS AND BENEFITS

You might face certain risks by participating in this research including potential discomfort or frustration from recalling experiences related to getting your applications approved within Digital Platform Ecosystems.

Potential benefits include contributing to a better understanding of Complementor Autonomy, which may help enhance the subject.

D. CONFIDENTIALITY

I will gather the following information as part of this research: demographic information and motivations.

I will not allow anyone to access the information, except people directly involved in conducting the research. I will only use the information for the purposes of the research described in this form.

The information gathered will be anonymous. That means that it will not be possible to make a link between you and the information you provide since the information will be coded. That means that the information will be identified by a code. The researcher will have a list that links the code to your name.

I will protect the information by storing it securely on password-protected computers accessible only to the researchers involved in the study.

I intend to publish the results of the research. However, it will not be possible to identify you in the published results.

F. CONDITIONS OF PARTICIPATION

You do not have to participate in this research. It is purely your decision. If you do participate, you can stop at any time. You can also ask that the information you provided not be used, and your choice will be respected. If you decide that you don't want us to use your information, you must tell the researcher before the end of the interview.

There are no negative consequences for not participating, stopping in the middle, or asking us not to use your information.

G. PARTICIPANT'S DECLARATION

I have read and understood this form. I have had the chance to ask questions and any questions have been answered. I agree to participate in this research under the conditions described.

NAME _____

SIGNATURE _____

DATE _____

If you have questions about the scientific or scholarly aspects of this research, please contact the researcher. Their contact information is on page 1. You may also contact their faculty supervisor.

If you have concerns about ethical issues in this research, please contact the Manager, Research Ethics, Concordia University, 514.848.2424 ex. 7481 or oor.ethics@concordia.ca.