

# A Systematic Literature Review on the Product-to-Platform Transition

*Seminar paper*

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## Abstract

*Platforms are considered the dominating business model in the digital age. The study of their competitive dynamics, challenges, and strategies has received considerable attention in recent years as platforms continue dominating more markets. The success of platform businesses forces product-based companies to transform their products into platforms to maintain their competitiveness and ensure market survival. With this, the relevance of the systematic investigation of products to platform transition has risen. To provide the management level of companies and future researchers with a comprehensive understanding of this topic, this literature review aims to present the current state of research based on identified dimensions. The intention is to serve as a guide for companies, aiding in strategic decision-making. Furthermore, I provide researchers with an overview to systematically advance research on the product-to-platform transition.*

*Keywords: Product-to-Platform, Platform Ecosystems, Systematic Literature Review, Business Strategy*

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## 1 Introduction

Platforms are considered the dominating business model in the digital era (Parker et al., 2016). Based on the public stock market, five of the ten most valuable companies in the world in terms of market capitalization are platforms, namely Apple, Microsoft, Alphabet, Amazon, and Meta (Dyvik, 2023). Recently emerged platforms have become well known for their growth, including Uber, Alibaba, and Airbnb (Van Alstyne et al., 2016). This upcoming success of platforms is turning existing industries upside down (Tarafdar et al., 2009), forcing traditional companies, so-called incumbents, and other product-based companies to transform their products into platforms to maintain their competitiveness and ensure their survival in the market (Bughin et al., 2019; Gusmão et al., 2016; Hagiú and Wright, 2021; Van Alstyne et al., 2016). Furthermore, platforms are progressively infiltrating novel markets (Gawer & Cusumano, 2008) and virtually always win against products in these markets (Parker et al., 2016).

To understand this transformation and its challenges, it is essential to precisely define the terms "product" and "platform" within the context of this research, as their usage is inconsistent depending on context and scope, making it difficult to analyze this topic (Evans and Gawer, 2016). In this review, I define the term "product" as the output of a production process, which can be physical or a service. Companies that manufacture products create value by managing a linear sequence of activities (e.g., developing, manufacturing, selling, etc.) This culminates in the customer's purchase of the product, thus characterizing their business model as a pipeline (Parker et al., 2016; Van Alstyne et al., 2016). The term "platform" is interpreted as a business that enables interactions between different user groups (e.g., producers, consumers, and the platform) that are non-linear and through which value is created (Zhu and Furr, 2016; Altman and Tripsas, 2015; Hagiú and Wright, 2021). These include transaction platforms that enable transactions between users and third parties (Altman and Tripsas, 2015; Bughin et al., 2019; Cusumano et al., 2019), such as eBay's Marketplace, which connects buyers and sellers (Altman and Tripsas, 2015; Hermes et al., 2021). They also include innovation platforms on which third parties (e.g., innovators), can develop and exchange extensions, services, or products (Evans and Gawer, 2016), e.g., Apple's App Store, on which producers (e.g., app developers) offer their complementary products (e.g., apps) to consumers (e.g., iPhone users) (Altman and Tripsas, 2015; Hermes et al., 2021).

In an economic context, there are various factors for the success of platforms. Some are easy to conclude, e.g., that platforms are significantly lighter in assets (e.g., fewer employees) and can scale faster compared to product-based companies (Bughin et al., 2019; Parker et al., 2016). Other reasons, however, are more complex, e.g., network effects and various sources of value creation (e.g., interactions, external value creators), and require a new understanding of business logic (Parker et al., 2016). Network effects, which can trigger feedback loops and even lead to monopolies, are particularly relevant for the success of platforms (Bughin et al., 2019). Furthermore, digitalization and new technologies favor the rise of platforms, strengthening their increasing dominance in the market (Van Dyck et al., 2023). Sooner or later, companies from almost all sectors will have to shift into the platform economy (Pertlwieser, 2022). This will require various changes in pipelines (Moser et al, 2017; Parker et al., 2016). To be successful in the platform business, companies must adjust and digitize their processes and develop precise strategies to transform an established business into a platform (Moser et al, 2017). In addition to the challenges of strategy and operations, further questions are raised concerning such a transformation. Can every product become a platform? Which areas of the company are affected by this transformation, need to be promoted or possibly closed? What happens to organizational structures? Despite the relevance of these questions for product-based companies, only a few papers deal with these challenges.

The existing research contains extensive works that delve into the dynamics of platforms and their effects on markets. In particular, the competitive dynamics and strategies of platform companies (e.g., pricing, openness of platforms) have been well described (Rochet and Tirole, 2005; Armstrong, 2006; Eisenmann et al., 2008; Eisenmann et al., 2006). In addition, some papers also include technological aspects of platform management in this research (Gawer and Cusumano, 2008). However, the existing literature focuses on existing platforms (Moser et al., 2017) but does not focus on product-based

companies that are shifting to a platform-based business model, nor does it analyze the impact of such a change on products (Van Dyck et al., 2023). The few exceptions concentrate only on specific industries or aspects of the transition. Gusmão et al. (2016) deal with the transition from a software product to a software ecosystem and the architectural requirements necessary for it. Altman and Tripsas (2015) focus primarily on the organizational implications. In addition, other works derive from use cases and are not systematic reviews, such as the case study by Van Dyck et al. (2023), which compares the strategic decisions of two companies transforming their product into a platform.

Given this context, the literature review aims to provide a general overview of the product-to-platform transition. Therefore, the review seeks to serve as a guide for companies and their management to decide which strategy they can employ to successfully shift into a platform and which changes in operations are necessary for this. Furthermore, the review should serve as a basis for subsequent research. Thus, I examine existing literature by posing the following questions: What is the current state of the literature on the Transition from Product to Platform, and what key dimensions can be derived to influence and guide practical implementations of this transformation?

I proceed as follows. First, I describe the methods used for this literature review. I then present the qualitative findings, including the dimensions identified. Finally, I discuss the limitations of my review and the practical implications and give suggestions for further research questions arising from my review, before concluding.

## 2 Methodology

For this literature review, I performed a structured approach according to Wolfswinkel's Grounded Theory Method to gain a deep and high-quality understanding of the selected topic (Wolfswinkel et al., 2011). This approach includes the phases "Define", "Search", "Select", "Analyze", and "Present".

### Define

In the initial Define phase, I followed Wolfswinkel's objective of establishing precise criteria for the selection or exclusion of articles in the dataset. For this, I initially conducted a comprehensive analysis of the terms "product" and "platform" and set how these should be understood in the context of the literature review (see Chapter 2). The definition of the platform in the context of my research was carefully developed, explicitly including aspects relevant to the investigation (e.g., the possibility of generating network effects). Definitions of platforms not directly related to the underlying topic (e.g., product platforms) were explicitly excluded. Furthermore, it was defined that only papers that explicitly deal with the transformation from a product to a platform are included.

### Search

After establishing the search terms "Product to Platform" AND "Transition," I conducted a systematic search for relevant literature, starting with the database Google Scholar. I decided to include the terms "pipeline" and "incumbent," which were often used synonymously in the context of "product", by using the OR operator, to obtain further results (see Chapter 2). After working out my search string, I expanded the search to databases such as EBSCO, IEEE Xplore, Science Direct, and Web of Science.

### Select

To select the relevant literature from the number of texts found previously, duplicates were eliminated first. The texts were then selected in three steps based on the title, abstract, and full text, whereby after each step I removed the texts not aligning with the scope defined in the second phase. Finally, to consider fundamental works as well as current developments in the field of research, I conducted the recommended forward and backward searches. For the forward search, I identified works citing my previously found literature in the database. For the backward search, I reviewed the works cited by the authors of the literature I selected. This ensured that my literature review was both comprehensive and up to date.

## **Analyze**

As proposed by Wofswinkel, the fourth step involved systematically analyzing the selected and filtered literature to later present empirical results, understand developed theories, and identify research gaps. Open, axial, and selective coding methods were employed. I conducted open coding by breaking down texts into discrete excerpts by their concepts. I then used axial coding to establish relationships between identified categories. Finally, through selective coding, I integrated and refined the main categories directly connected to the research object or research questions into dimensions. These analysis processes were conducted in an iterative and interactive procedure, constantly revisiting steps to further refine concepts and categories using the similarities and differences found.

## **Present**

In the present phase, the content of the included literature is structured and presented using the knowledge gained from the analytical phase, with the concept matrix serving as the foundation, as defined by Webster and Watson (2002)

# **3 Findings**

## **3.1 Overview**

Research on product-to-platform transition is still in its early development. The first publication on this topic included in the dataset dates to 2015. Altman and Tripsas (2015) laid the foundation for subsequent work by describing the organizational impacts of such transformations on product-based companies. The most recent article was published in November 2023 and illustrates the ongoing importance of the issue. The final dataset includes 12 publications. Nine of these publications examined the topic through use cases, including four multi-case studies, two single-case studies, and three review articles. All contributions addressed the drivers of transformation, but only Bughin et al. (Jahre) explored these systematically in a survey. A majority of the 12 publications in my dataset considered both physical and non-physical products across various industries. Gusmão et al. (2016) were the only authors who focused on the transformation of a software product. Conversely, Evans and Gawer (2023) compared the transformation of two physical products into platforms. Overall, six of the articles focused on the products of incumbents.

	Driver			Strategy			Shifts						Control
	Network Effects	Competitiveness	Digitalization	Requirements	Approach	Implementation	Focus	Optimization	Metrics	Market Forces	Assets	Identity	Control
Altman and Tripsas (2015)	X		X			X	X		X			X	X
Bughin et al. (2019)	X	X											
Gusmão et al. (2016)	X	X		X									
Hagiu and Wright (2021)	X	X		X	X					X			X
Hagiu and Altman (2017)	X	X		X	X				X	X		X	X
Hodapp et al. (2022)	X		X				X	X	X				
Leijon et al. (2017)	X	X				X	X			X	X	X	X
Moser et al. (2017)	X	X			X	X				X			X
Parker et al. (2016)	X	X			X		X	X	X	X	X		X
Van Alstyne et al. (2016)	X	X	X			X		X	X	X	X		X
Van Dyck et al. (2023)	X		X		X	X		X		X		X	X
Zhu and Furr (2016)	X	X		X	X	X	X			X			X

Table 1. Presentation of a concept matrix created to provide a visualized overview of the findings. In the following sections, the dimensions “Driver”, “Strategy”, “Shifts” and “Control” and their subcategories are discussed in more detail.

### 3.2 Driver

The literature review reveals various reasons that drive the product-to-platform transition in pipeline companies, and which make it particularly relevant. In the following section, I discuss the roles of network effects, competitiveness, and digitalization.

#### Network Effects

Network effects are considered a driving force for a platform’s success (Bughin et al., 2019; Moser et al., 2017; Parker et al., 2016; Van Dyck et al., 2023). They occur when the value of a product or service increases as consumers use it (Altman and Tripsas, 2015). Platforms are primarily driven by indirect network effects, i.e., the value for one side of the platform increases due to the use or growth of the other side (Altman and Tripsas, 2015; Van Alstyne et al., 2016). Network effects lead to ecosystems of users, partners, and service providers, bringing increasing benefits for platform users and thus enhancing their loyalty to the product or company (Gusmão et al., 2016; Hagiu and Wright, 2021; Moser et al., 2017). According to four papers, endless feedback loops may occur that lead companies to dominate the market and gain a monopoly position according to the "winner takes all market" concept (Bughin et al., 2019; Hagiu and Wright, 2021; Moser et al., 2017; Van Alstyne et al., 2016). Building a platform and the associated network effects and ecosystems can, therefore, result in significant competitive advantages (Hagiu and Wright, 2021; Hagiu and Altman, 2017). Whether a platform can dominate the market

depends, among other things, on the size of the ecosystem and the quality of the platform itself (Moser et al., 2017).

### **Competitiveness**

Some platforms rank among the largest and most valuable companies today, including Apple, Alibaba, Facebook, and SAP (Gusmão et al., 2016; Hagiú and Wright, 2021; Van Alstyne et al., 2016). Many authors agree on the fact that the success of these companies pushes traditional companies further into a corner, making the product-to-platform transition or the introduction of some elements of a platform crucial to maintain competitiveness and survival in the market (Bughin et al., 2019; Gusmão et al., 2016; Hagiú and Wright, 2021; Van Alstyne et al., 2016). Two publications explain that this becomes even more evident when demonstrating that platforms virtually always win over products when entering new markets (Bughin et al., 2019; Parker et al., 2016). In contrast to pipelines that mainly generate profits from product sales, the immense success of platforms can be attributed to the fact that they enable new and multiple sources of revenue simultaneously (e.g., product sale, transaction fee, registration fee, etc.), resulting in overall higher profits (Hagiú and Altman, 2017; Hagiú and Wright, 2021; Leijon et al., 2017; Parker et al., 2016; Zhu and Furr, 2016). These aspects increase a company's growth and its value (Hagiú and Altman, 2017). According to a survey, the fact that a company's products or services can be combined and integrated into a full-service offering therefore drives companies to transform (Bughin et al., 2019). This may lead to lighter assets (e.g., number of employees), allowing platforms to scale much faster compared to product-based companies (Bughin et al., 2019; Parker et al., 2016).

Additionally, interactions among different participants and the exchange of information on the platform are considered an important source of value creation that drives innovations or problem-solving while saving the company's resources at the same time (Hagiú and Wright, 2021; Leijon et al., 2017; Van Alstyne et al., 2016). These platform advantages contribute to a continuous increase in product value and customer loyalty and can prevent customers from switching to competitors (Hagiú and Wright, 2021; Hagiú and Altman, 2017; Moser et al., 2017; Gusmão et al., 2016). This is further reinforced by the fact that platform customers, compared with product customers, have significantly higher switching costs (e.g., financial or time expenditure), making them less likely to leave the platform (Parker et al., 2016).

### **Digitalization**

Increasing digitalization reduces the effort and costs of information processing and storage, pushing product-to-platform transitions (Van Alstyne et al., 2016). At the same time, the continuous improvement of broadband internet facilitates access to these platforms and promotes interactions, making it easier to create and multiply network effects (Altman and Tripsas, 2015; Hodapp et al., 2022; Van Alstyne et al., 2016). Furthermore, it is modern technologies that make social media or the development of apps possible and thus contribute to the expansion of ecosystems (Van Alstyne et al., 2016). Van Dyck claim, that it is even necessary to provide a digital interface to create network effects (2023).

## **3.3 Strategy**

The following section focuses on requirements, approaches, and the implementation of product-to-platform transition strategies.

### **Requirements**

Reviewing the literature, I could identify several requirements that should be met before becoming a platform to support successful platform development (Hagiú and Altman, 2017; Gusmão et al., 2016; Zhu and Furr, 2016) These include product-related aspects on the one hand (Hagiú and Altman, 2017; Zhu and Furr, 2016) and digital infrastructure on the other (Gusmão et al., 2016). Firstly, companies need a successful product that reaches a critical mass of regular users (Hagiú and Altman; Hagiú and Wright, 2021; Zhu and Furr, 2016) and distinguishes itself from competitors through its core competence

(e.g., design, technologies), (Zhu and Furr, 2016). These aspects make the platform valuable for third parties (Hagiu and Altman, 2017; Hagiu and Wright, 2021; Zhu and Furr, 2016). Secondly, Gusmão et al. (2016) investigated architectural requirements that should be met to make interactions with the platform easy and secure for customers and third parties (e.g., external developers), including features for security, a standardized interface, or accessible and open services or resources. Furthermore, high stability and flexibility of the infrastructure and compatibility between different versions of the platform are required to minimize the impact of platform changes on external developers and extensions (Gusmão et al., 2016).

### **Approaches to Transition**

The literature review identifies three different approaches to transitioning products into a platform: opening the product, connecting customers, or reaching the customers of its customers. I found that the most common strategy in the use cases examined by the authors was opening their products, software, or services (e.g., Apple, Peloton, QuickBooks, Shopify, Intuit, Qihoo). This way third parties gain access to the product's customers, making the platform valuable to them (Hagiu and Altman; Hagiu and Wright, 2021; Van Dyck et al., 2023; Zhu and Furr, 2016). This value increases with the size of the customer base (Hagiu and Altman; Hagiu and Wright, 2021; Zhu and Furr, 2016). Therefore, it is crucial to simultaneously offer sufficient platform value to the customers so that they become customers of the platform (Moser et al., 2017; Zhu and Furr, 2016). I found two options for how this can be achieved: by involving users in the development of the platform (Zhu and Furr, 2016) and by building the platform on existing infrastructure (Moser et al., 2017). According to two publications, successfully transitioning users to the platform can solve the so-called chicken-and-egg problem, as there is no need to build a large customer base from scratch, which provides product-based companies a tremendous advantage over startups (Parker et al., 2016).

A product-to-platform transition can also be approached by connecting customers of one or different products instead of opening them up (Hagiu and Altman, 2017; Hagiu and Wright, 2021). Such a platform can be exclusively accessible to existing customers or provide public access (Hagiu and Wright, 2021). Well-known examples of this approach are Tesla's user forum, which is public and accessible to non-Tesla users, and BMW, which is open exclusively to BMW drivers (Hagiu and Wright, 2021). The third approach may be very specific and mainly suitable for B2B products (Hagiu and Altman, 2017; Hagiu and Wright, 2021). These can shift into platforms supplying customers of existing customers (e.g. core product producers) with complementary products (Hagiu and Altman, 2017; Hagiu and Wright, 2021), thereby increasing the value of the core product supplied by the platform's initial customer (Hagiu and Altman, 2017).

Additionally, Parker et al. (2016) state, that it makes sense to approach the platform business by utilizing existing structures, such as existing value chains, strong partnerships, or a pool of talent, which can provide significant advantages to large companies over startups when entering the platform business (book).

### **Implementation**

However, many of the selected publications seem to assume that most companies, such as Qihoo or Lego, that successfully transform their products into platforms, initially choose a hybrid strategy, i.e., they gradually incorporate elements of a platform while continuing to sell their core products (Altman and Tripsas, 2015; Leijon et al., 2017; Moser et al., 2017; Van Alstyne et al., 2016; Van Dyck et al., 2023; Zhu and Furr, 2016). This allows customers to benefit from third-party extensions while the company's main product remains at the center (Zhu and Furr, 2016). At the same time, firms benefit from the value added by the transition into a platform without losing their main source of profit (Leijon et al., 2017) or customer base (Zhu and Furr, 2016) and thus can adapt gradually to the transition (Zhu and Furr, 2016).

### 3.4 Shifts

Many authors have explored shifts that companies when transitioning from a pipeline to a platform. These include the change from customer- to network-focusing, from internal to external thinking, from maximizing profit to maximizing interactions/from traditional to non-traditional metrics, from securing to sharing resources, from competing to complementing, and from one identity to another.

#### **From Customer- to Network-Focusing**

Pipelines create value by developing products based on customer needs (Altman and Tripsas, 2015; Hodapp et al., 2022; Leijon et al., 2017; Parker et al., 2016; Zhu and Furr, 2016). Activities such as market segmentation or technology development contribute to delivering the best possible value to customers (Altman and Tripsas, 2015). However, the publications showed, that this focus must change as the value of platforms primarily arises from interactions and the network effects derived from them, determined by the number of platform users, i.e., customers and complementors (i.e., parties that produce complementary goods) (Altman and Tripsas, 2015; Hodapp et al., 2022; Parker et al., 2016; Zhu and Furr, 2016). Customer needs are then addressed by complementors (Hodapp et al., 2022), so attracting third parties with the best quality becomes crucial to increasing the network's growth (Altman and Tripsas, 2015; Hodapp et al., 2022). In a platform business monetary value can be captured through collecting fees (e.g., for access or transactions), advertisements, or by licensing or selling spillovers (Leijon et al., 2017; Zhu and Furr, 2016).

#### **From Internal to External Thinking**

With the product-to-platform transition, companies also shift the location of value creation, and this requires them to change their business logic (Hodapp et al., 2022; Parker et al., 2016; Van Alstyne et al., 2016; Van Dyck et al., 2023), which I identified as an important shift. While pipelines attempt to optimize linear value chains through internal processes (e.g., material procurement, sales, service), platforms strive for the external expansion of their ecosystem by generating interactions (Hodapp et al., 2022; Van Alstyne et al., 2016; Van Dyck et al., 2023). Hodapp et al. (2021, p. 122) underlines that "This shift in the location of value creation is fundamental to platform business logic."

#### **From Product-based to Platform-based Metrics**

As the way and location of value creation change from a pipeline to a platform, traditional goals such as profit maximization (Altman and Tripsas, 2016; Parker et al., 2016; Van Alstyne et al., 2016), revenue increase (Parker et al., 2016; Van Alstyne et al., 2016), or market growth become less relevant (Altman and Tripsas, 2016; Parker et al., 2016; Van Alstyne et al., 2016). Instead, platforms aim to reach a critical mass that promotes their core interactions and the emergence of network effects (Altman and Tripsas, 2016; Parker et al., 2016; Van Alstyne et al., 2016). Reducing prices or providing free products can facilitate this, even if they lead to short-term monetary losses (Altman and Tripsas, 2016). Traditional metrics of success, such as production costs (Hodapp et al., 2022), units sold (Altman and Tripsas, 2016; Van Alstyne et al., 2016), or market share (Altman and Tripsas, 2016), become invalid, requiring firms to adapt to new ones (Altman and Tripsas, 2016; Hagi and Altman, 2017; Hodapp et al., 2022; Parker et al., 2016; Van Alstyne et al., 2016). Some new important metrics I found in the studies to be maximized are, the number of platform participants (Altman and Tripsas, 2016; Hodapp et al., 2022; Parker et al., 2016), interactions (Van Alstyne et al., 2016; Parker et al., 2016), transactions (Altman and Tripsas, 2016; Parker et al., 2016), or network effects (Van Alstyne et al., 2016; Parker et al., 2016), as well as total license fees (Altman and Tripsas, 2016), while others, for instance, interactions failure or negative network effects (Van Alstyne et al., 2016), need to be reduced.

#### **From Competing to Complementing**

In a product-based world, companies build barriers around their business to protect themselves from competition and to draw clear boundaries between their suppliers, customers, and competitors (Parker et al., 2016; Van Alstyne et al., 2016; Van Dyck et al., 2023). Many authors emphasized, that, as companies shift to become a platform, competitors may become complementors by enlarging the offering to



customers and thus increasing value creation (Hagiu and Altman, 2017; Hagiu and Wright, 2021; Leijon et al., 2017; Van Dyck et al., 2023; Van Dyck et al., 2023; Zhu and Furr, 2016). Some authors even found that in a platform-based world, co-opetition, i.e., relationships between platform actors that simultaneously involve both competition and cooperation, may be helpful (Hagiu and Altman, 2017; Leijon et al., 2017; Van Dyck et al., 2023), even if the product sales of the transitioning firm may decline (Hagiu and Wright, 2021, Moser et al., 2017).

### **From Securing to Sharing Resources**

Competitive advantages between product-based companies are achieved through the ownership of scarce and valuable resources (e.g., mines, real estate, intellectual property) (Van Alstyne et al., 2016; Parker et al., 2016). This changes when shifting into a platform, where the most important asset is the network of consumers and producers, along with their resources (Van Alstyne et al., 2016; Parker et al., 2016) shared on the platform to create extensions or innovations (Leijon et al., 2017; Van Alstyne et al., 2016).

### **From One Identity to Another**

The transition to a platform also questions current organizational identity (Altman and Tripsas, 2015; Hagiu and Altman, 2017; Leijon et al., 2017; Van Dyck et al., 2023) and leadership (Altman and Tripsas, 2015; Hagiu and Altman, 2017), which was particularly researched by Altman and Tripsas (2015). The definition of the core product (the answer to "what we do") and the main category (the answer to "what business are we in") changes, impacting different areas of the company (Altman and Tripsas, 2015; Van Dyck et al., 2023). For instance, creativity and innovation are key identity characteristics of many pipeline companies (Altman and Tripsas, 2015). However, since external complementors rely on certain product aspects or designs, firms need to establish new identity characteristics such as discipline, standardization, or stability as they transition from a product to a platform (Altman and Tripsas, 2015). Another identity characteristic that should change is self-reliance or independence (e.g., independence from external suppliers), which can be a major advantage in the pipeline business but needs to be replaced by the ability to be a great team player, as this is much more important for companies in an ecosystem with many partners (Altman and Tripsas, 2015). By sharing their resources, firms can even build a new, shared identity on their platform (Leijon et al., 2017). Two publications explain, how shifting to a new identity can also have an impact on the reputation of employees or leadership positions (Altman and Tripsas, 2015; Hagiu and Altman, 2017). This becomes clear when showing that a company defines itself, among other things, by its main functional area (e.g., technical skills) (Altman and Tripsas, 2015). With the product-to-platform transition, these skills become less central, and business development, which is responsible for attracting complementors, becomes more relevant (Altman and Tripsas, 2015). The shift in the focus of the main function may be accompanied by a change in the perception and position of engineers or business development staff (Altman and Tripsas, 2015; Hagiu and Altman, 2017).

## **3.5 Control**

I identified "Control" as another shift that influences and guides product-to-platform transformation. While various authors addressed this aspect, no studies have specifically focused on it. Moreover, governance plays an important role, which I understand as an entity that coordinates the platform through incentive and control mechanisms (Moser et al., 2017). It is one of its central tasks to protect the value created on the platform and the firm's position (Leijon et al., 2017; Parker et al., 2016). This is important because, during the transition to a platform, a company no longer has sole control over the offerings (Van Dyck et al., 2023). However, through governance mechanisms, it can continue to influence the value created for customers (Hagiu and Altman, 2017; Van Dyck et al., 2023). Firstly, I state that the governance must answer the question of how open the platform will be and for whom (Altman and Tripsas, 2015; Hagiu and Wright, 2021; Leijon et al., 2017; Parker et al., 2016; Van Alstyne et al., 2016;

Van Dyck et al. 2023; Zhu and Furr, 2016). A predominantly open architecture facilitates access to the platform and its resources, thereby encouraging new sources of value (Van Alstyne et al., 2016; Van Dyck et al., 2023), creativity, and flexibility (Altman and Tripsas, 2015, Van Dyck et al., 2023). Opening the rewards also creates incentives for third parties (Van Alstyne et al., 2016, Van Dyck et al., 2023). However, unrestricted access can destroy the value of the platform (Van Alstyne et al., 2016; Van Dyck et al., 2023), for instance, through low-quality content or third-party misconduct (Van Alstyne et al., 2016; Van Dyck et al., 2023). Therefore, governance must minimize unsatisfactory interactions and ensure the quality of the platform content (Altman and Tripsas; 2015; Hagiu and Altman, 2017; Van Alstyne et al., 2016). The literature review showed various tools that come into play, such as rating systems (e.g., Airbnb) (Van Alstyne et al., 2016), tools to prevent stalking (Van Alstyne et al., 2016), or actively filtering out low-quality applications (Van Alstyne et al., 2016).

Additionally, technical solutions can enable access to the platform (Altman and Tripsas, 2015). For instance, Nintendo provided security chips to authorized game manufacturers, ensuring compatibility with their consoles for high-quality games only (Altman and Tripsas, 2015). Furthermore, by opening their products, pipelines risk cannibalization of their products by third parties (Hagiu and Wright, 2021; Hagiu and Altman, 2017; Moser et al., 2017). Hagiu and Altman (2015) state, that this pitfall is favored when customers are dissatisfied with the platform or its tools and seek to buy directly from third-party providers or competitors (Hagiu and Altman, 2017). As there are different degrees of openness (Altman and Tripsas, 2015), many platforms start with a relatively closed architecture and gradually open it to new third parties or extensions (Van Alstyne et al., 2016). Secondly, Parker et al. (2016) explain that companies must ensure that complements do not become the main source of the platform's value. This may be prevented by acquiring products or companies that bring significant value to the platform and have the potential to become a platform themselves (Parker et al., 2016). For instance, Apple bought the firm that developed Siri (Parker et al., 2016). Also, the governance should buy and integrate functionality that is designed by multiple external developers and widely used by their customers (Buch). This applies to many image editing tools that are common on every smartphone (book). Two publications also highlighted the prevention of imitations as a goal of governance in a platform world (Zhu and Furr, 2016). One way to achieve this may be by establishing proprietary standards (Altman and Tripsas, 2015; Zhu and Furr, 2016) or building exclusive contracts with third partners that make imitation impossible (Zhu and Furr, 2016).

The literature review shows additional pitfalls, but they pertain only to other approaches to transition. For instance, connecting existing customers of one or different products with each other carries the risk of wasting resources on things from which users derive no benefit (Hagiu and Altman, 2017). Moreover, if customers feel disturbed by these new interactions, this can even become a disadvantage for the platform (Hagiu and Altman, 2017). Also, reaching out to customer's customers may harm the ecosystem if the initial customer, i.e., another business company, perceives this approach as a challenge, potentially leading to the initial customer leaving the platform (Hagiu and Altman, 2017).

Lastly, it is important to emphasize that poorly managed platforms lead to negative feedback loops (Van Alstyne et al., 2016), e.g., uncontrolled growth of the network leads to overload (Van Alstyne et al., 2016). In a product-to-platform transition, governance must therefore also shift its methods to protect value, avoid pitfalls, and attract third-party providers (Leijon et al., 2017; Hagiu and Altman, 2017; Parker et al., 2016; Zhu and Furr).

## **4 Discussion**

In the following section, I discuss this literature review by showing its practical relevance and outlining the limitations of this work that need to be considered in the analysis, before highlighting interesting topics for future research.

### **Relevance**

The review agrees with the results of the included studies and thus complements the current literature on product-to-platform transition. At the same time, however, the results are not limited to individual companies or perspectives but provide a comprehensive overview of the key dimensions that influence and guide the transformation of a product into a platform. The drivers described comprehensively underline the relevance of the topic for product-based companies. Moreover, my work provides various strategic aspects that managers can use to develop a concrete strategy for the transition of their product to a platform. The shifts presented are necessary to establish a successful platform and can serve as a guide to systematically prepare corresponding steps within companies, covering operational, organizational, or financial aspects. Besides that, platforms that are already in transition can use the identified dimensions to further structure their process, discover potential errors, and make targeted changes. Additionally, I provide concepts for an organization's governance that may be overlooked during practical implementation, preventing potential pitfalls.

Overall, the review conveys a profound understanding of the topic that can assist managers in recognizing the potential of their products and embracing the transition. Finally, this work provides good contextualization and extensive sub-dimensions to influence future research and identify research gaps.

### **Limitations**

Among the sources used, some aspects influence the validity and generalizability of my literature review. First, most sources were based on use cases, meaning that strategic, operational, or organizational implications are primarily based on transformations that have already taken place. This may result in missing out on additional opportunities that have not been recognized by the companies themselves and thus, were not included in the implications and results of the works, including this one. Additionally, many of the use cases examined were incumbents, generally successful in the product business, bringing certain characteristics that give them an advantage over other companies when they transform their product into a platform (e.g., brand value, customer base, financial and non-financial resources). This may mean that the conclusions drawn are not universally valid and fail in less established companies. Second, the conclusions and theoretical models that were made in the considered papers mostly have not been empirically validated. Although firms from various industries were considered, industry-specific differences were not empirically examined. These aspects limit the validity and generalizability of my work in various respects (e.g., transferability to different industries, company sizes, etc.).

Further quality and completeness limitations result from my search string. While clear criteria were set following Wolfswinkel's recommendation to provide a good framework for the included papers, I had to decide not to exclude literature based on their quality (e.g., only peer-reviewed papers) and to also include books or internet articles by renowned authors, because there were limited contributions on the topic. This approach enlarges the database but limits the quality of my review. Additionally, I excluded articles in three steps based on their title, abstract, and content, which may have led to important literature being omitted, e.g., because of the title. This was further complicated by the topic of this review, various terms are defined inconsistently, e.g., platform (also called pipeline, incumbent, innovation ecosystems, multi-sided platform, etc.), not all of which were included in the search string. Finally, suitable literature may not have been included if they were published outside the databases used, after the search period (up to the 13<sup>th</sup> of November 2023) or in a language other than English. This leads to limitations in terms of completeness.

### **Future research**

The current literature on platforms is already profound and includes both impacts on market dynamics as well as detailed strategies and challenges for companies and industries. However, research on product-to-platform transition is limited and has relevant research gaps that I identified by reviewing the literature. I would like to discuss these in more detail.

Future research on product-to-platform transition could investigate which influencing aspects of the transformation exist (e.g., industry, physical or non-physical product). It could then explore whether there are specific challenges associated with these influencing factors and, if so, what strategies are

appropriate to overcome the challenges. Moreover, the scope of the research be extended to the different types of platforms (i.e., transaction and innovation platforms) and whether the influencing factors have an impact on the choice of platform. Researchers could also pursue other approaches, for instance, focusing on pitfalls of the transition, some of which have been mentioned in this review but not systematically examined. These could be specifically analyzed, such as the effects of cannibalization or poor quality of complementors on different aspects of a platform.

Finally, it must be emphasized that the results of the included studies and this review are not validated and that only qualitative studies of the product-to-platform transition have been conducted. Future research should therefore validate the strategies and models for the transition in empirical studies. Industry-dependent, combined quantitative and qualitative approaches, including case study analyses, early-stage validation, and pilot studies, are suitable for this.

## **5 Conclusion**

This work aimed to provide a comprehensive overview of the current state of research on the product-to-platform transition. To this end, 12 publications were analyzed, and the following higher dimensions were derived: "Driver," "Strategy," "Shift," and "Control." Three different drivers were identified, including network effects, which may have the strongest driving forces, competitiveness, and digitalization. Important facets of the strategy include requirements, approaches, and practical implications of the transformation. Therefore, companies can turn their products into platforms by opening them, connecting their customers, or reaching their customer's customers. The most common strategy among them is to open a product. The examination of use cases reveals that companies, regardless of the approach, often choose a hybrid model with which they gradually incorporate elements of a platform. Shifts identified from the literature that need to be implemented in companies involve the way and location of value creation, metrics, competition, assets, and identity. Various control mechanisms were highlighted, the execution of which is the task of governance.

With this literature review, I expand existing research with a comprehensive overview and make a relevant contribution to practice by providing a profound understanding of the topic. This can serve as a guide for the management level for the practical implementation of a product-to-platform transition and facilitate strategic decision-making. Existing platforms can also leverage the results to structure their process and make targeted changes. Additionally, I provide researchers with an overview of the current state of research, paving the way for further investigations into this subject. These are necessary for the precise understanding and successful implementation of the product-to-platform transition.

## References

- Altman, E. and Tripsas, M. (2015): “Organizational Identity Implications: Implications of organizational identity.” In: *Shalley, C.E., Hitt, M.A. and Zhou, J. (Eds), Oxford Handbook of Creativity, Innovation, and Entrepreneurship: Multilevel Linkages*. Oxford: pp. 379-94.
- Armstrong, M. (2006): “Competition in two-sided markets”. In: *The RAND Journal of Economics*, 37(3), pp. 668-691.
- Bughin, J., Catlin, T., Dietz, M. (2019): “The right digital-platform strategy.” In: *McKinsey Quarterly*. Available at: <https://www.mckinsey.com/business-functions/mckinsey-digital/our-insights/the-right-digital-platform-strategy>.
- Cusumano, M. A., Gawer, A., Yoffie, D.B. (2019): “The business of platforms: Strategy in the age of digital competition, innovation, and power. Vol. 320. New York: Harper Business.
- Dyvik, E.H. (2023): “The 100 largest companies in the world by market capitalization in 2023”. In: *Statista*. Available at: <https://www.statista.com/statistics/263264/top-companies-in-the-world-by-market-capitalization/>.
- Eisenmann, T.R., Parker, G., Van Alstyne, M. (2006): “Strategies for Two-Sided Market.” In: *Harvard Business Review* 84, pp. 92-101.
- Eisenmann, T.R., Parker, G., Van Alstyne, M. (2008): “Opening platforms: how, when and why?”. In: *Platforms, Markets, and Innovations*. Cheltenham, UK.
- Evans, P.C. and Gawer, A. (2016): “The rise of the platform enterprise: a global survey. *The Center for Global Enterprise*.
- Gusmão, A.L., De Souza, C. R. B., Reis, R.Q., Lima, A. M. (2016): “A study about architectural requirements in a transition from product to software platform”. In: *European Conference on software Architecture Workshops*. Copenhagen: pp. 1-4.
- Hagiu, A. and Altman E. (2017): “Finding the platform in your product”. In: *Harvard Business Review* 95 (4), pp. 94-100.
- Hagiu, A., Altman E. (2021): “Product-to-platforms (Part I – Part VII)”. Available at: <https://platform-chronicles.substack.com/p/product-to-platforms-part-i>.
- Hermes, S., Guhl, R., Schreieck, M., Weking, J., Krcmar, H. (2021): “Moving beyond the Build-or-Join Decision: A Multiple Case Study on Multi-Platform Strategies of Incumbent Firms. In: *Hawaii International Conference on System Sciences*. Hawaii, United States. pp. 6143 – 6152.
- Hodapp, D., Hawlitschek, F., Wortmann, F., Lang, M., Gassmann, O. (2022): “Key Lessons from Bosch for Incumbent Firms Entering the Platform Economy.” In: *MIS Quarterly Executive*: Vol. 21: Iss. 2, Article 3.
- Leijon, E., Svenheden, J., Svahn, F. (2017): “Platform Thinking in Incumbent Firms.” In: *Hawaii International Conference on System Sciences*. Hawaii, United States: pp. 4766-4755.
- Moser, D., Wecht, C. Gassmann, O. (2017): “Open Platforms at Incumbents.” In: *ISPIM Innovation Conference*. Vienna, Austria, pp. 1-17.
- Parker, G. G., Van Alstyne, M. W., Choudary, S.P. (2016): “Platform Revolution: How Networked Markets Are Transforming the Economy and How to Make Them Work for You.” New York, NY: W.W. Norton.
- Pertlwieser, M. (2022): “Das Richtige digitalisieren. Eine ‘Masterclas’ zur digitalen Transformation der Wirtschaft.” In: Springer Gabler. *Bad Soden am Tanus, Deutschland*: Springer Fachmedien Wiesbaden GmbH.
- Rochet, J.C. and Tirole, J. (2005): “Two-Sided Markets: A Progress Report.” In: *IDEI Working Papers 275, Institut d’Économie Industrielle (IDEI)*. Toulouse, France.
- Tarafdar, M. and Qrunfleh, S. (2009): “IT-Business Alignment: A Two-Level Analysis.” In: *Information System Management* 26, pp. 338-34.
- Van Alstyne, M.W., Parker, H.G., Choudary, S.P. (2016): “Pipelines, platforms, and the new rules of strategy. In: *Harvard Business Review* 94 (4), pp. 54-62.
- Van Dyck, M., Lüttgens, D., Diener, K., Piller, F., Pollok, P. (2023): “From product to platform: How incumbents’ assumptions and choices shape their platform strategy”. In: *Research Policy* 53 (1).

- Wolfswinkel, J., Furtmueller, E. and Wilderom, C. (2011): “*Using Grounded Theory as a Method for Rigorously Reviewing Literature*”. In: *European Journal of Information Systems*, 22 (1), pp. 45-55.
- Webster, J. and Watson, R.T. (2002): “*Analyzing the Past to Prepare for the Future: Writing a Literature Review*”. In: *MIS Quarterly*, 26(2), pp. 13-23
- Zhu, F., Furr, N. (2016): “*Product to Platforms: Making the leap*”. In: *Harvard Business Review* 94 (4), pp. 72-78.