

Two-directional convergence of platform and pipeline business models

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693

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Abstract

Purpose – This article examines the new phenomenon of the convergence of platform and pipeline business models. It examines the potential synergies and challenges for platforms to add pipeline components and vice versa for pipeline businesses.

Design/methodology/approach – This paper uses a conceptual approach that synthesizes and integrates the literature from service, hospitality, and strategy, and supplements them with two illustrative mini-case studies.

Findings – While the extant literature typically focuses on the dichotomy between incumbent pipeline businesses that create value by controlling a linear series of activities and network effects-driven platforms, we differentiate between two types of platform business models (i.e. platforms with asset control and platforms with peer-provided assets). Further, we identify three common pathways of convergence; that is, pipelines moving towards (1) platforms with asset control and (2) those with peer-provided assets, and (3) platforms with peer-provided assets adopting defining business characteristics of pipelines. Furthermore, we contrast key characteristics of the three business models and examine potential synergies and challenges for business model convergence. Our findings suggest that convergence from pipelines to platforms with asset control seems to be a natural extension that offers many potential synergies and relatively minor challenges. In contrast, convergence from pipelines to platforms with peer-provided assets is likely to encounter more serious challenges and few synergies. Finally, the synergies and challenges of convergence from platforms with peer-provided assets to pipelines seem to be in between the other two in terms of synergies and challenges.

Practical implications – This article helps managers think through key considerations regarding potential synergies to develop and challenges to mitigate for embarking on convergence strategies between pipeline and platform business models.

Originality/value – This article is the first in the service, business model and strategy literature to identify, define, and conceptualize business model convergence between platforms with asset control, those with peer-



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provided assets and pipeline businesses. It is also the first to examine potential synergies and challenges these different paths of business model convergence may entail.

Keywords Platforms, Sharing economy, Peer-to-peer sharing platforms, Pipelines, Incumbents, Business models, Disruption, Convergence

Paper type Research paper

Introduction

During the past decade, the global economy has witnessed an explosive growth of platform businesses, especially those with peer-to-peer (P2P) provision of assets and other resources (Wirtz *et al.*, 2019). Today's consumers are familiar with renting homes from their peers on Airbnb, sharing a ride through Uber, borrowing designer clothes through Tulerie, and experiencing homemade food with local hosts through EatWith. At the very core of the platform business model is the technology-enabled connectivity between service providers and customers, and a platform provider who orchestrates value co-creation for the entire ecosystem (Fehrer *et al.*, 2018; Rangaswami *et al.*, 2020; Wirtz *et al.*, 2019). Embracing the competitive advantage of indirect network effects (Hagiu and Rothman, 2016), a large number of platforms have effectively scaled their businesses and become key players across various industries, including lodging, transportation, food service and fashion.

This unprecedented development of platform businesses has resulted in significant strategic threats to traditional incumbents, subsequently referred to as pipeline businesses, which are at risk of being disrupted and forced to rethink the way they create and capture value (Zhu and Furr, 2016). Unlike platform businesses, which are nimble and view innovation as a critical driving force for their success and growth, pipeline businesses tend to be viewed as less agile and less ambitious in their approach to innovation with their more traditional offerings (Guttentag, 2019). In addition, pipeline businesses typically offer services at higher price points, which contributes to consumers' switching to more cost-effective platform offerings (So *et al.*, 2018). Also, consumers may perceive sharing as enabled by some types of platforms (e.g. Airbnb, Zipcar, and Tulerie) as more sustainable, supporting local communities, and offering additional benefits such as authenticity, uniqueness and convenience (Frenken and Schor, 2017; Liu and Mattila, 2017; Mody *et al.*, 2019).

Owing to the rapid growth of platforms, "by now, nearly every [pipeline] executive has navigated at least one discussion about whether his or her organization should strive to become a platform" (Brown, 2016, p. 2). Thus, to combat the rise of platforms, pipelines feel forced to consider adopting some of the defining characteristics of platform business models. For example, we later discuss a case on Marriott International which successfully entered the P2P home sharing market by integrating Homes and Villas into its distribution platform and loyalty program.

Similarly, platform businesses have been adopting pipeline characteristics and are expected to increasingly also own some of their offering (Eckhardt *et al.*, 2019). For example, and as discussed in a case later, Airbnb added hotel-like capacity to their platform to serve base demand in locations where they can expect virtually full occupancy rates. Platforms also add controlled capacity as the lack of owned or at least controlled inventory of their core business resources (e.g. rooms, cars, and designer clothes) can lead to supply constraints and affect their growth trajectory (Mody and Gomez, 2018). In addition, nascent platform regulation and taxation catch up and diminish platform businesses' price advantage over pipelines (Kathan *et al.*, 2016). Finally, concept-copying and multi-homing of providers and users across platforms has become prevalent. For example, both drivers and riders list on both Uber and Lyft and switch between them based on price and availability. Such multi-homing intensifies competition and is likely to lead to margin erosion (Wirtz *et al.*, 2019).

In view of these competitive threats, both pipelines and platforms are pushed to consider adopting some of the defining characteristics of each other's business models. While there are several examples of pipeline and platform businesses adopting each other's business model characteristics, academic research on this topic is nascent. Specifically, there is a lack of research on the factors that enable or impede the movement between and/or adoption of characteristics across different types of business models. Thus, the purpose of this article is to examine pathways for pipelines to adopt and integrate platform business models and vice versa for platforms, which we refer to as *convergence* of business models. In this article, we define the convergence of business models as a phenomenon in which a firm transitions from one type (either platform or pipeline) to a more integrated business model that adopts features from the other type. This shift in business model allows a firm to develop and/or diversify its business by using pipeline and platform characteristics and integrating them in a synergistic manner.

This article makes the following contributions. First, it identifies, describes and defines the phenomenon of convergence in the pipeline and platform business model context. Second, while specific convergence processes, especially convergence from pipelines to platforms, have been discussed before (e.g. [Van Alstyne et al., 2016](#); [Hagi and Altman, 2017](#); [Hacklin et al., 2018](#); [Ciulli and Kolk, 2019](#); [Zhu and Furr, 2016](#)), the transition from platforms to pipelines has hardly received attention (for a notable exception, see [Akbar and Tracogna, 2018](#)). Furthermore, past research has not differentiated between two very different types of platforms – those with platform-controlled assets and those with peer-provided assets ([Wirtz et al., 2019](#)). Our study is the first to make this distinction and shows that, for example, convergence from pipelines to platforms with controlled assets presents different issues than convergence to platforms with peer-provided assets. That is, our study is significantly more nuanced in its treatment of business model convergence than extant literature. Third, past research has provided largely prescriptive suggestions for how businesses can converge without grounding these suggestions in an analysis of the inherent characteristics of the firm's primary business model. By identifying these characteristics and how they might relate to potential synergies and challenges for convergence between business, this article offers new insights that are both theoretically grounded and managerially relevant.

The article is structured as follows. First, we identify the core characteristics of three distinct types of pipeline and platform business models. Second, we examine for three different pathways of convergence how the characteristics of our three business models potentially affect these pathways and their likelihood of success. In particular, we describe how these characteristics offer competitive advantages in the form of synergies and how these characteristics may present strategic challenges for the businesses adopting them. We further use two mini-case studies from the accommodations industry to illustrate and examine convergence between pipelines and platforms. Finally, we offer future research directions.

Characteristics of pipeline and platform business models

To better understand the phenomenon of convergence, we examine three predominant business models that firms pursue. They are (1) *pipeline business models*, (2) *platforms with asset control* and (3) *platforms with peer-provided assets* ([Wirtz et al., 2019](#)). Pipeline businesses follow conventional business model logic and “create value by controlling a linear series of activities—the classic value-chain model. Inputs such as materials from suppliers undergo a series of steps that transform them into an output that's worth more: the finished product” ([Van Alstyne et al., 2016](#), p. 56). Typical examples of pipeline business models include Avis' car rental services and Marriott's traditional hotel operations.

In contrast, platform businesses provide “the infrastructure and rules for a marketplace that brings together producers and consumers” (Van Alstyne *et al.*, 2016, p. 57). We differentiate two types of platform business models. First, platforms that serve as the providers themselves and supply the assets that they may either own or otherwise tightly control without necessarily having legal ownership. Examples of such platforms with asset control include Zipcar and WeWork. Second, platforms that rely on peer-provided assets where they have no ownership and less control over the assets and resources to be shared (Wirtz *et al.*, 2019). Examples include Airbnb and Uber.

We focus on pipelines and platforms that deal with capacity-constrained resources such as cars, rooms, and wardrobe as they have fundamentally different management challenges than those that deal with virtual resources and assets such as music and capital (Wirtz *et al.*, 2019). The reason for this focus is that the differences between the business models and their related operations differ more significantly for businesses with physical assets where capacity utilization, fulfillment, and quality control represent challenges for all players, and that platforms with their network effects, algorithms and ecosystems bring new approaches to dealing with these challenges.

Contrasting business model characteristics

To better understand the underlying characteristics of these three business models, we contrast them in Table 1 using key dimensions identified in the literature (Eckhardt *et al.*, 2019; Wirtz *et al.*, 2019). These dimensions include value creation and capture, asset orientation (owned and/or controlled vs peer-provided), economics of the business model, governance and trust, and sources of competitive advantage. While many articles compare manufacturers such as General Motors to platform providers, we focus on contrasting players in adjacent markets, such as car rental (e.g. Hertz), car sharing (e.g. ZipCar) and ridesharing (e.g. Uber). We chose this approach as we expect these players to show the most convergence over the coming years, and exploring players in adjacent markets allowed for a meaningful and direct comparison across the three business model types.

Summary contrast between business models

Table 1 illustrates that all three business model types differ significantly. Perhaps surprisingly, the differences between pipelines and platforms with asset control are not as pronounced as one might have assumed. The bigger differences are between platforms with peer-provided assets compared to the other two business model types. As much of the content in Table 1 is self-explanatory, it is not further discussed here. However, a few findings deserve highlighting as they are important for the discussion on business model convergence in the next section.

First, we can see that pipelines and platforms with controlled assets are similar on many dimensions, including aspects related to asset ownership and control (e.g. high fixed costs and the related risk of asset utilization). However, important differences to platforms with asset control include (1) the technology-enabled duration, time and location-specific service availability and the convenience of transaction (typically through a mobile app), (2) the added governance tasks due to increased consumer-consumer interaction and co-creation (e.g. handing over a clean car to the next user) to ensure service quality and safeguard brand equity, and (3) the focus on building a large member base to ensure platform thickness which is important in delivering better availability and coverage of service which are important for these platforms as they typically allow very short usage periods (e.g. use a car for 10 min for a single trip) for which convenience is critical for success (e.g. availability of capacity at a particular location and point of time).

Business model characteristics	Pipeline	Type of business model Platform with asset control	Platform with peer-provided assets
<i>Value creation and capture</i>			
(1) Market organization of value creation	(1) Usually one-sided markets, organized in traditional buyer-supplier relationships; centralized exchange of value from pipeline business to customer	(1) Usually one-sided; centralized exchange of value from platform to customer; often involves significant customer-customer co-creation (e.g. fill the tank and clean the car for the next user)	(1) Multi-sided with two or more types of actors transacting on a platform; value co-creation by individuals scattered across an ecosystem (Andreasen <i>et al.</i> , 2018)
(2) Value creation	(1) Creates value by tightly controlling a linear series of activities in a value chain. Centralized control over the value creation and delivery process (Van Alstyne <i>et al.</i> , 2016) (2) Largely homogeneous assets and services; market segmentation is key	(1) Creates value by tightly controlling a linear series of activities in a value chain (2) Largely homogeneous assets and services; market segmentation is key; has enhanced technology-enabled geographic, time and duration flexibility and reduced transaction costs (i.e. increased consumer convenience through mobile apps)	(1) Economic value is primarily created through interaction between the multiple sides of users; focus on developing an ecosystem that facilitates co-creation of value for all actors (Andreasen <i>et al.</i> , 2018; Dellaert, 2019) (2) Highly heterogeneous assets and services in addition to geographic, time, duration flexibility and reduced transaction costs; technology and liquidity (market thickness) enable matching of the heterogeneous assets and services with heterogeneous user needs (3) Focus on creating value for an extended ecosystem by facilitating interactions between asset/service providers, users, and complementors (4) Focus on developing all sides in the ecosystem to generate indirect network effects (which are of primary importance to value creation)
	(3) Focus on creating customer value through product features that deliver customer benefits	(3) Focus on creating customer value through a use- and availability-oriented value proposition (Fritze <i>et al.</i> , 2020)	
	(4) Pipelines create transactions; although its focus on building a loyal customer base (e.g. through loyalty programs), customer lifetime value, and distribution efficiency are key	(4) Focus on building a large user base that generates direct network effects; more users on a platform provide more liquidity and better coverage (frequently geographic in nature) and service availability	

(continued)

Table 1. Contrasting the characteristics of pipeline and two types of platform business models

Business model characteristics	Pipeline	Type of business model Platform with asset control	Platform with peer-provided assets
(3) Value capture	<p>(1) Focus on extracting value from the value chain (incl. complementors) with minimum value leakage to other members in the chain</p> <p>(2) Emphasizes sales-based revenues</p> <p>(3) Has price control</p>	<p>(1) Focus on extracting value from the value chain (incl. complementors) with minimum value leakage to other members in the ecosystem</p> <p>(2) Generates revenue through subscription and transaction fees</p> <p>(3) Has price control</p>	<p>(1) Focus on extracting a share of transaction value; multi-sided revenue models are common; focuses on optimizing revenue from the ecosystem rather than individual players; can subsidize one side of the market (typically the one that offers higher indirect network effects and is more price-sensitive; Chan, 2019)</p> <p>(2) Generates revenue through a commission-based approach</p> <p>(3) Sets the commission; may not control/set the price for the different players in the system</p>
<p><i>Asset orientation</i></p> <p>(1) Asset ownership and control</p>	<p>(1) Assets are owned or otherwise controlled (e.g. leased), enabling standardization and tight quality control</p> <p>(2) Holds the responsibility for managing and maintaining the resources and services</p>	<p>(1) Assets are owned or otherwise controlled (e.g. leased), enabling standardization; however, increased customer-customer interactions and co-creation loosens quality control</p> <p>(2) Holds the responsibility for managing and maintaining the resources and services</p>	<p>(1) Relies on peer-provided assets resulting in less quality control over assets and their level of specification; enforces quality through platform governance tools</p> <p>(2) The responsibility for managing and maintaining the resources lies with individual peer-providers of asset</p>

(continued)

Business model characteristics	Pipeline	Type of business model Platform with asset control	Platform with peer-provided assets
(2) Asset intensity	<p>(1) Asset and resource-intensive if assets are owned; has a high financial risk if assets are leased, typically on long-term bases (e.g. hotels)</p> <p>(2) Asset control can be difficult to imitate, serving as a competitive advantage</p> <p>(3) Rapid scaling is difficult due to high capital requirements; high expansion costs</p>	<p>(1) Asset and resource-intensive if assets are owned; has a high financial risk if assets are leased, typically on long-term bases (e.g. WeWork)</p> <p>(2) Asset control can be difficult to imitate, serving as a competitive advantage</p> <p>(3) Rapid scaling is difficult due to high capital requirements; high expansion costs</p>	<p>(1) Asset light as assets are provided by the community</p> <p>(2) Peer-provided asset base can be difficult to imitate, serving as a competitive advantage to the “chicken-and-egg problem” of two- or more-sided markets</p> <p>(3) Rapid scaling is common due to the asset-light business model; balanced scaling of multiple sides of the market is essential</p>
<i>Economics of business model</i>			
(1) Cost structure	<p>(1) Fixed costs are typically high through asset ownership or lease contracts</p> <p>(2) Marginal costs follow a step function; serving an incremental customer tends to have low variable cost, but servicing customers that require added capacity has high marginal costs; marginal costs can be lowered through economies of scale</p>	<p>(1) Fixed costs are typically high through asset ownership or lease contracts</p> <p>(2) Marginal costs follow a step function; serving an incremental customer tends to have low variable cost, but servicing customers that require added capacity has high marginal costs; marginal costs can be lowered through economies of scale</p>	<p>(1) Fixed costs are typically low; asset-light and no inventory costs</p> <p>(2) Marginal cost of servicing incremental customers and adding capacity is near-zero</p>

(continued)

Table 1.

Business model characteristics	Pipeline	Type of business model Platform with asset control	Platform with peer-provided assets
(2) Network effects, liquidity, analytics and heterogeneity	<p>(1) Network effects tend to be of lesser importance; target different customer segments for specific and relatively homogenous products that need to achieve sufficient utilization to amortize fixed costs (e.g. hotel inventory)</p> <p>(2) Largely standardized products; some supply-side heterogeneity is achieved through product lines (e.g. Marriott's many hotel brands and room types) that target different segments</p>	<p>(1) Primary network effects tend to be important to provide sufficient coverage and availability of service (e.g. Johnson, 2017)</p> <p>(2) Largely standardized products; some supply-side heterogeneity is achieved through product lines (e.g. ZipCar offering different car types) that target different segments</p>	<p>(1) Indirect network effects and transaction volume (i.e. liquidity) are critical, and the number actors on the platform need to be managed in tandem (e.g. number of drivers and riders need to grow in tandem) (Chu and Manchanda, 2016)</p> <p>(2) Providers have heterogeneous resources (e.g. their attributes and time and location availability) and buyers have heterogeneous needs which makes a sufficient level of liquidity a requirement for high-quality matching; sophisticated algorithms and analytics match provider and user needs, and reduce search costs for both parties</p>
<i>Governance and trust</i> (1) Governance and ecosystem orchestration	<p>(1) Dyadic relationships with consumers</p> <p>(2) Pipeline businesses' actor roles are well-defined, stable and relatively easy to orchestrate</p>	<p>(1) Typically has dyadic relationships with consumers, but customer-customer dependencies (e.g. hand over a cleaned car) are common and require governance</p> <p>(2) Requires some level of ecosystem actor orchestration and governance (e.g. community guidelines to ensure positive member interactions)</p>	<p>(1) Has multi-sided relationships, often with a number of ecosystem actors. The roles of the various actors can shift and be fluid</p> <p>(2) Requires a high level of ecosystem orchestration and enforcement of rules to ensure well-functioning value exchanges (c.f. Caldieraro <i>et al.</i>, 2018)</p>

(continued)

Business model characteristics	Pipeline	Type of business model Platform with asset control	Platform with peer-provided assets
(2) Sources of trust and branding	(1) Trust in the firm and its brand derives mainly from good customer interactions and firm responses to service failures	(1) Trust in the platform and its brand derives mainly from good customer interactions with the platform's service, incl. responses to service failures and the management of errant members where member co-dependencies exist	<p>(1) Trust in the platform and its brand derives mainly from good governance that ensures positive platform interaction and transaction experiences for all stakeholders. Quality of interactions depends largely on the platform's ecosystem governance (e.g. vetting of all actors on the platform, enforcement of standards and rules, dealing with member disputes, and reliable review and rating systems)</p> <p>(2) Platform may stimulate intra-platform competition (platform rivalry) to encourage participants to expend greater effort to improve service quality and differentiate services</p> <p>(3) Building brand equity and related trust may be faster than for pipelines as there is often a community esprit de corps. However, brand equity is largely dependent on community governance which can be challenging</p>

(continued)

Table 1.

Business model characteristics	Pipeline	Type of business model Platform with asset control	Platform with peer-provided assets
<p><i>Sources of competitive advantage</i> (1) Strategic focus</p>	<p>(1) Focus on developing and controlling scarce and inimitable resources (incl. brands, intellectual property, and distribution channels), supply-side economies of scale, and achieving differentiation and/or cost leadership (Wirtz and Zeithaml, 2018) (2) The five forces Porter (1980) are relatively defined and stable; the boundaries separating suppliers, customers and competitors tend to be clear</p>	<p>(1) Focus on signing up members quickly to build supply-side economies of scale, and achieving differentiation and/or cost leadership (2) Good platform governance is one important factor for achieving high-quality interactions (3) The five forces Porter (1980) are relatively defined and stable; the boundaries separating suppliers, customers and competitors tend to be clear, with the added liquidity requirement</p>	<p>(1) Focus on rapidly signing up providers and users to scale the platform (i.e. is asset-light) (2) Good governance is the most important factor for achieving high-quality interactions; can be an important source of competitive advantage (3) A platform ecosystem (incl. high-quality complementors) can be an important source of competitive advantage as it can be difficult to copy; Porter's (1980) five forces seem less relevant as the ecosystem is characterized by fluid and shifting boundaries between suppliers, customers, complementors and competitors</p>

(continued)

Business model characteristics	Pipeline	Type of business model Platform with asset control	Platform with peer-provided assets
(2) Nature of competition	(1) Business strategy has mostly been responding to between-pipelines competition; network effects often do not feature strongly	(1) Business strategy is often focused on building network size (i.e. available capacity) to lock in users and make entry of similar competitors costlier; primary network effects result in capacity buildup which enhances the overall attractiveness of the platform	(1) Business strategy is often focused on rapid scaling of peer providers and users (as secondary networks effects build competitive advantage); secondary network effects result in better quality matching of a platform's heterogeneous assets with the heterogeneous needs of users, enhancing its attractiveness to both providers and users
	(2) The basis of competition tends to be superior quality and reliability of service, driven by product development and innovation	(2) The basis of competition is often the availability of service, which is a function of network size, and (predictable) quality of service	(2) Attracting and integrating complementors can increase the stickiness for all actors, making it harder to copy and thus build competitive advantage
	(3) Competes against platforms on value-driven incumbency advantages (e.g. Hilton offering free Wi-Fi and breakfast at standard room rates); often adopt technology of platform competitors to enhance their value proposition (e.g. car rental and taxi firms adopting apps with value-adding functionality)	(3) Competes against pipelines on price, availability, and convenience of service, and against P2P platforms based on standardized high service quality	(3) The basis of competition is often the availability of service, the quality of matching and the effectiveness of a platform's governance; data and related analytics can an important competitive advantage as it improves platform governance and matching quality (Rangaswami <i>et al.</i> , 2020) (4) Competes against pipelines and platforms with controlled assets based on price and ability to mobilize underutilized peer-provided assets through high-quality matching; is able to cater to idiosyncratic user tastes

(continued)

Table 1.

Business model characteristics	Pipeline	Type of business model Platform with asset control	Platform with peer-provided assets
(3) Innovation and technology	<p>(1) Innovation is mostly internal and controlled, usually stemming from within the firm and/or is controlled by the firm</p> <p>(2) Technology is an increasingly important component to help optimize the pipeline and improve customer touchpoints</p>	<p>(1) Mostly internal innovation but with strong involvement of community; innovates rapidly</p> <p>(2) Technology streamlines production and enhances user experience; is instrumental for a more intense assets utilization, flexibility, and quality of service, and supporting governance (e.g. of member behaviors and interactions)</p>	<p>(1) Internal and external, open innovation to co-create value with ecosystem actors; innovation is rapid and supported by the players in its ecosystem, incl. complementors</p> <p>(2) Technology enables high-quality matching of heterogeneous assets with heterogeneous user needs in real-time; is critical for platform governance</p>
<i>Examples</i>	<p>Hertz (car rental), Hilton (hotel), Lawry's The Prime Rib (dining), and Herc Rentals (tool rental)</p>	<p>ZipCar (car sharing), WeWork (short-term office rental and sharing), and Ofo (bicycle sharing)</p>	<p>Uber (ride-hailing), Airbnb (accommodation), Tulerie (wardrobe sharing), EatWith (dining), and Rent Tools (tool rental)</p>
<p>Note(s): This table is largely based on the conceptual development of the authors and built on the foundation provided by Wirtz et al. (2019) who contrasted pipelines with P2P platforms. The authors added the contrasts to platforms with controlled assets. To avoid redundancy, characteristics and their descriptions are discussed only once in this table in their most relevant context</p>			

Second, platforms with peer-provided assets differ vastly from the other two business models on almost all dimensions. In particular, platforms with peer-provided assets are (1) multi-sided with all their related management challenges and different foci rather than being one-sided, (2) have a revenue model based on transaction value rather than rental fees, and focus on optimizing value-creation for the ecosystem, (3) thrive on highly heterogeneous assets and needs, and require high market thickness (liquidity) driven by indirect network effects, (4) require highly sophisticated technology, algorithms and user interface for high-quality matching, (5) have close to zero marginal costs and the asset-light nature of the business model allows rapid scaling and (6) require effective governance of the behaviors of all ecosystem players to ensure high-quality interactions and to build platform brand equity and trust.

Examining these differences suggests that a move from a pipeline to a platform model with asset control is mostly about adding technological and governance capabilities which may be a natural pathway for convergence. In contrast, platforms with peer-provided assets are vastly different from the other two business model types. This may suggest that a pipeline integrating and moving towards a platform with peer-provided assets requires the acquisition of very different skills, capabilities, and resources, which may be a tall order and will be discussed in the next section.

Determinants of convergence

The convergence of business models has garnered attention in the strategic management literature under a variety of related concepts. These include *business model portfolios* which refer to a business model that engages in at least two ways of creating and monetizing value (Aversa et al., 2017); *business model diversification* defined as firms operating distinct and yet complementary business models (Guyader and Piscicelli, 2019); *business model innovation* is explained as firms innovating in multiple, parallel, and partly even conflicting business models as a mechanism for hedging risks and creating opportunities (Hacklin et al., 2018); *business model renewal* as a main outcome of strategic agility (Doz and Kosonen, 2010); *competing business models* in which established players that succeed in entering new markets do so by developing radically different business models from their own core as well as from those of their disrupters (Markides and Oyon, 2010); and *multiple business models* where firms operate several business models that are targeted at different customer segments (Casadesu-Masanell and Tarziján, 2012). In a platform context, two types of convergence have been discussed. The first focuses on how pipeline businesses can incorporate characteristics of a platform (Zhu and Furr, 2016). The second examines the mirror process of a platform incorporating the characteristics of a pipeline (Akbar and Tracogna, 2018).

All articles above focus on businesses moving into adjacent fields, reconfiguring capabilities, and building on synergies. Even articles that promote adoption of a “second” and “sufficiently different” business model emphasize the need for synergies for such a strategy to succeed (Markides and Oyon, 2010). In corporate strategy terminology, these studies focus on concentric diversification where there are synergies between the business models that mitigate the high risks of any new venture. We examine the convergence between platforms and pipelines in related fields of business (versus a true conglomerate strategy without synergies between business models). That is, we use the term convergence to refer to a business adopting the characteristics of another business model by pursuing concentric diversification with the aim of leveraging synergies of the existing business model.

Theoretically, given that we have three distinct business models, convergence can occur in six different permutations across two separate stages as shown in Figure 1. In this article, we focus on a subset of the three pathways and on stage 1 to discuss convergence between platform and pipeline business models. We consider these pathways to be the most important

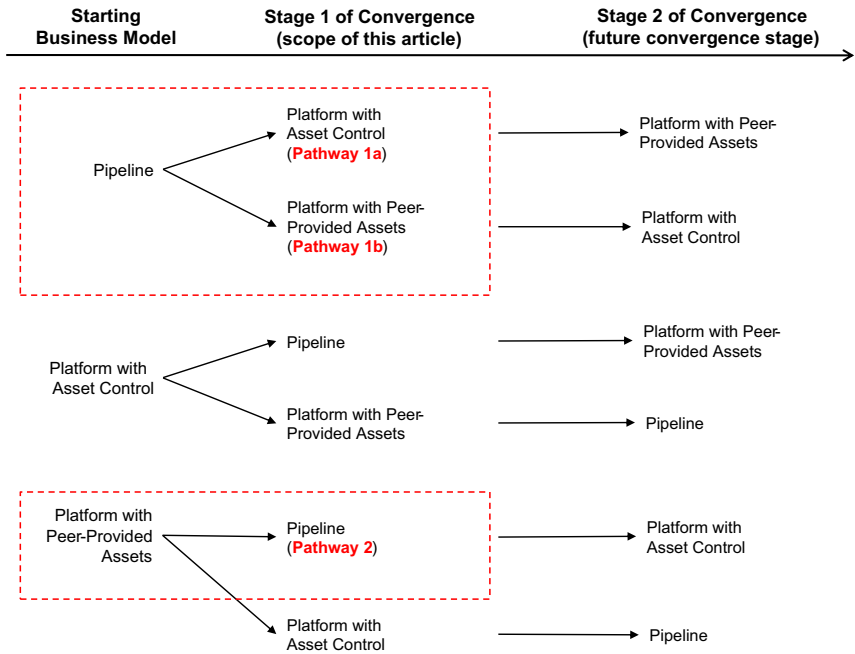


Figure 1.
Different pathways of convergence

Note(s): The pathways inside the dotted-lined boxes are the focus of this article

and interesting ones for the following reasons. First, pipeline businesses feel the pressure to respond to platform disrupters. Interestingly, pipelines have significant strengths (e.g. large customer loyalty programs, strong asset base, and well-known brands) that might help them to challenge platform businesses on their own turf. Therefore, we examine the pathways from pipelines to both types of platform business models (i.e. Pathways 1a and 1b in Figure 1). Second, we examine the shift from a platform with peer-provided assets to pipeline (Pathway 2) to examine the potential synergies and challenges platforms may face. Notably, the move from a platform with asset control (e.g. ZipCar) to a pipeline business (e.g. Hertz) is less extreme and seems relatively easier (e.g. ZipCar can easily add longer-term rental from fixed locations such as airports to its existing portfolio). As such, we focus on contrasting the three pathways (Pathways 1a, 1b and 2) and exclude other pathways from the scope of this article. We hope these three contrasts will provide a foundation for examining the other possible permutations in future research.

Requirements and objectives for pursuing a convergence strategy

In generic terms, firms need to develop competitive advantage to be able to achieve a level of profitability above the standard industry rate of return. A convergence strategy that does not build competitive advantage is unlikely to generate above industry rates of return and carries an increased risk of failure. This means, convergence needs to result not merely in an additive new configuration of capabilities, assets and other benefits but needs to show a positive interactive effect. In other words, a convergence strategy needs to result in synergies that significantly enhance the converged business model by making it deliver superior value and/ or be more cost-effective compared to existing players. The key characteristics of the

business models examined in Table 1 give rise to a number of sources of potential synergy when mapped against a generic list of potential sources (e.g. Wirtz and Ehret, 2019). Those relevant for convergence between pipelines and platforms (see Table 1) can include a combination of:

- (1) *Marketing-related synergies* that make converged services an easier sell, cross-sell and up-sell, including (1) lower distribution cost due to leveraging existing channels, and virtual and physical points-of-sale (e.g. existing websites, apps, booking engines, customer contact centers, and retail sites); (2) leveraging on brand equity, customer and complementor goodwill, (online) brand communities, and an existing base of engaged customers; (3) and loyalty programs and their member base.
- (2) *Critical mass and volume-based advantages* and related enhanced primary and/or secondary network effects.
- (3) Related to items 1 and 2, added *customer, transaction and asset data combined with capabilities in analytics* can result in improved matching, targeting and selling, and enhanced stakeholder convenience.
- (4) *Asset-related synergies* that result in enhanced revenue per available asset unit through better asset utilization and/or higher average rates achieved.
- (5) *Operational synergies* and *economies of scale* that result in lower cost of service provision (e.g. having operational units on the ground and utilizing existing loyalty program IT infrastructure can lower the cost of providing added services).

Firms can have multiple motivations for pursuing a convergence strategy. For pipelines, motivations are likely to include pursuing exciting growth opportunities with the potential of rapidly scaling (e.g. by adding peer-provided capacity), competing more effectively with platform disruptors (e.g. by mobilizing their existing large customer bases and loyalty programs), and being able to address new segments (e.g. bespoke service options). For platforms, incorporating pipeline characteristics may result in reduced inventory costs. For example, for market segments that operate at high levels of asset utilization year-round, the variable cost of adding owned capacity is lower than that for peer-provided capacity. That is, the optimal mix may be owned capacity for serving the baseload and using peer-provided capacity for shoulder and peak demand.

Before going into more depth, we use two mini-case studies to illustrate and examine the convergence between pipelines and platforms. Specifically, we use two cases in the same industry (i.e. accommodation) who move into each other's turf from opposite ends of the pipeline-platform business model spectrum. Specifically, we explore how Marriott (i.e. a pipeline) moves into platforms with peer-provided assets, and how Airbnb (i.e. a platform with peer-provided assets) moves into a pipeline business. The cases were developed based on industry publications and the cited academic literature and were mapped to the potential synergies of convergence as identified above.

Illustrative mini-case: Homes and Villas by Marriott

Homes and Villas by Marriott International, an example of convergence from *pipeline to platform with peer-provided assets (Pathway 1b)*, marked Marriott's entry into the P2P home sharing market. Homes and Villas connected individuals who want to rent out their homes (i.e. peer-provided assets) with guests looking for short-term home-rental. Under this model, an individual homeowner paid a commission to a third-party property management company (e.g. Turnkey) to manage their listing(s) on the platform; everything from pricing and distribution to customer service was handled by the property management company. That is, unlike an

Airbnb listing, homeowners could not list their properties directly which resulted in professionalized P2P home sharing and enhanced convenience for homeowners (Ting, 2019b).

The property management company was not restricted to listing exclusively on Homes and Villas but could also offer the same property on other platforms. It is noteworthy that individual homeowners did not pay the property management companies beyond what they typically would have paid for listing on other P2P platforms. Thus, Homes and Villas offered both management companies and homeowners, the key players in this ecosystem, superior value compared to the industry while ensuring higher quality standards compared to other P2P platforms (c.f. Shulman, 2019). Providing this added value increased cost but also had revenue benefits through enhanced willingness to pay by guests supported by the added quality assurance and professionalized service, and higher occupancy rates.

Working with a select group of property management companies offered Marriott a number of advantages. First, this strategy added quality control of listings and service levels. For example, it established strict quality standards for any property being added (i.e. every home had to include high-speed Wi-Fi, premium linens and amenities, and family-friendly amenities) as opposed to properties being listed without quality prerequisites as on Airbnb and other platforms. Interestingly, the ensured quality of listings allowed Homes and Villas to leverage on Marriott's brand equity. It adopted an endorsed branding approach whereby the signature "by Marriott International" was added to Homes and Villas (Aaker and Joachimsthaler, 2000).

Second, its strategy enabled Marriott to efficiently leverage the services of property management companies. Airbnb listed many unvetted properties, whereas Accor managed all Onefinestay accommodations directly (i.e. without using complementors) which made it resource-intensive and hindered rapid scaling. Third, working with property management companies allowed Homes and Villas to achieve higher average rates as professional property management companies tended to outperform amateur hosts (i.e. individuals) in terms of pricing and occupancy rates (Kwok and Xie, 2019). This led to higher commission revenues. Finally, unlike the multi-sided revenue models for most home sharing companies (e.g. Airbnb and VRBO), Marriott only charged property managers a platform fee and did not charge guests. This approach not only made the platform attractive to its guests, but the pricing model was also aligned with what Marriott's existing customer base was familiar with and eased cross-selling.

One of Marriott's objectives was to keep loyal customers within the Marriott ecosystem (O'Neill, 2019) and allowed its loyalty program members to redeem their points for Homes and Villas stays. Furthermore, the added platform was asset-light, allowed rapid scaling, plus could accommodate much higher asset heterogeneity compared to its existing hotel room inventory while still ensuring quality. In sum, creating a platform with peer-provided assets with operations managed by via third-party allowed Marriott to achieve marketing-related, volume-based, and asset-related synergies of convergence.

Illustrative mini-case: Airbnb

Airbnb is an example of convergence from *platform with peer-provided assets to pipeline (Pathway 2)*. Founded in 2008, Airbnb emerged as one of the fastest growing companies in the accommodations industry with growing room capacity by over 100% year-over-year (Dogru et al., 2019) and a twelfold increase in sales from 2013 to 2018 which made it the second largest accommodation provider in 2018 globally after Marriott International (Gessner, 2019).

As the company approached the maturity stage of its lifecycle, it increasingly sought convergence with pipeline business characteristics to sustain growth. For example, Airbnb acquired last-minute hotel booking platform *HotelTonight*, which enabled it to offer HotelTonight's independent and boutique hotel offerings directly on the Airbnb platform. It furthermore added some of its hotel-like private accommodation inventory (from *Airbnb Plus*)

onto the HotelTonight platform (Ting, 2018b), thus benefitting from the ease of cross-listing inventory. Instead of having to work individually and directly with boutique hotels and bed and breakfast owners to list their properties, Airbnb could through the acquisition of HotelTonight lower the cost of integrating a large amount of hotel inventory onto the Airbnb platform. This was achieved through technology integration at the back end between HotelTonight and Airbnb. Offering these hotels and vacation rentals on one platform allowed Airbnb to enjoy *marketing-related synergies* associated with cross-selling. In particular, Airbnb found that guests who first booked a hotel on Airbnb were highly likely to return and also book peer-provided rooms in the future (Schaal, 2019).

The increasing professionalization of Airbnb's hosts – i.e. the high proportion of professional property managers and investors with more than one listing on the platform – led Airbnb to offer professional hosting tools and features. These included integration of existing property management systems, stricter cancellation policies for tighter capacity management, enhanced pricing tools, availability rules and on-demand performance data, and professional marketing support. These hosting tools and features allowed professional hosts to leverage Airbnb's *data on customers, transactions, and assets*, combined with its *capabilities in analytics* to better match supply and demand (at optimal pricing), cater to seasonal demand overflow from hotels and even stimulate additional demand in some destinations (Li and Srinivasan, 2019).

For individual hosts, Airbnb strived to incorporate a higher level of control over pricing via revenue management tools such as Smart Pricing which allowed hosts to automatically set prices based on changes in demand for their listings. Thus, Airbnb attempted to regain pricing control very much like pipeline businesses which tend to have complete price control (see on value capture in Table 1).

Airbnb started pipeline-like product innovation with an emphasis on standardizing products and creating sub-brands to better communicate quality and service positioning to potential guests. For example, Airbnb designed and built a homes for its sharing platform (Del Valle, 2018). Furthermore, it launched *Airbnb Plus* which listed quality-inspected homes that include everyday essentials. While these homes commanded a price premium over regular Airbnb listings, they offered the traveler closer to hotel-like consistency with a specified minimum level of comfort, amenities, and design. *Airbnb Luxe* was another sub-brand that offered “extraordinary homes with five-star everything”. These homes had to adhere to over 300 brand standards, including design features such as high-vaulted ceilings, attractive art, and closets with matching hangers (Taylor, 2019), thus enabling Airbnb to develop branded accommodation services that are closer in nature to their pipeline competitors. These standardized sub-brands enabled Airbnb to achieve higher room rates. Airbnb subsequently added more standardized, hotel-like capacity by partnering with real estate developers for *Niido Powered by Airbnb* which offered apartments with hotel-like services such as home cleaning, keyless entry, five-star amenities and weekly events such as wellness classes and social gatherings. Airbnb also experimented with an apartment-hotel hybrid concept offering 200 luxury suites located at New York's 75 Rockefeller Plaza which moved Airbnb closer to its pipeline-like hotel competitors.

Finally, Airbnb expanded beyond accommodation and leveraged its platform to develop services that complement its core such as *Airbnb Experiences, Restaurants, Adventures* (Ting, 2019a). At the heart of Airbnb's move towards becoming a travel superbrand are its technology and analytical capabilities. Specifically, they are leveraged to optimize its ecosystem interactions, processes and governance, which together enabled it to offer better front-end customer experiences and an overall more powerful value proposition (Ting, 2018a). In sum, Airbnb's convergence towards pipeline-like features and business models has

allowed the company to benefit from synergies related to marketing, assets, economies of scale, and its data trove and capabilities in analytics.

It is important to note that in addition to convergence to pipeline business models, some of Airbnb's convergence initiatives relate to convergence to platforms with asset control (a pathway not discussed in the scope of this article). To provide a more complete picture, we included both convergences in this case study.

Contrasting potential benefits of and requirements for a successful convergence strategy

The two mini-cases in the previous section provide evidence of all five synergies that emerge from the convergence between pipelines and platforms. We use these cases together with the key characteristics underlying the three types of business models as described in [Table 1](#) to examine synergies and challenges for business model convergence as summarized in [Table 2](#).

Summarizing the findings from [Table 2](#) suggests that the convergence from pipelines to platforms with asset control (Pathway 1a) seems to be a natural extension that offers a lot of synergies and relatively minor challenges. Specifically, pipelines can benefit from substantial synergies when adding asset-controlled platforms which rest especially in marketing (e.g. distribution, brand equity, customer base, and loyalty programs), asset management and expertise, and the existing operations they have on the ground. Key challenges relate to acquiring the necessary technology and analytical skills the platform requires with its increased needs in terms of flexibility and user interface. In sum, pipelines are likely to be able to pursue this convergence strategy successfully and unlock growth opportunities that address new customer needs while mobilizing existing large customer bases and loyalty programs.

In contrast, convergence from pipelines to platforms with peer-provided assets (Pathway 1b) seems to be fraught with serious challenges and few synergies. In particular, the technological and analytical capabilities of effectively managing volumes of multi-sided interactions and transactions, and the related ecosystem governance are likely to be highly challenging to acquire for a typical pipeline business. Furthermore, potential synergies are mostly in distribution and existing customer base and loyalty program members, whereas other competencies of pipelines lose their relevance in a P2P platform context (e.g. asset-related competencies and operational capabilities with "feet on the ground"). Based on this analysis, it appears onerous for pipelines to converge with successful P2P platforms. However, some pipeline providers are still likely to pursue this strategy as it offers growth opportunities with the potential of rapidly scaling (e.g. by adding peer-provided capacity) and offering new services to its customer base (e.g. bespoke service options) by mobilizing its existing large customer base, loyalty program, and brand equity. While the potential payoff is high, the significant challenges suggest that investments and risks of this strategy are high, too. In our mini-case study, Marriott mitigated these risks by working with an intermediary first. Another risk-mitigating approach might be to first pursue Pathway 1a and build related technical capabilities and only then move in a second phase to P2P platforms (see [Figure 1](#)).

Finally, the synergies and challenges of convergence from P2P platforms to pipelines (Pathway 2) seem to be in between Pathway 1a and 1b in terms of synergies and challenges. Platforms have strengths in technology (incl. customer interface) and analytics that they can deploy effectively in pipeline contexts, and if they have a strong brand and user base, cross-selling should be effective. The key challenges platforms face are asset-related (e.g. their acquisition, financing, and management). In our mini-case study, Airbnb showed that with its strong brand and access to funding, it managed to implement this strategy successfully. Likewise, even food delivery platforms such as Uber Eats which traditionally connected restaurants with diners at home started to experiment with adding their own industrial kitchens for the most profitable and commonly requested items (e.g., drinks, burgers, and pizzas) to increase their margins. They use an algorithm-driven optimization of advanced

Sources of synergies and challenges	Pipeline → Platform with asset control (Pathway 1a in Figure 1)	Business model convergence pathway Pipeline → Platform with peer-provided assets (Pathway 1b)	Platform with peer-provided assets → Pipeline (Pathway 2)
Marketing and customer base	<ul style="list-style-type: none"> + Distribution: has a wide reach and effective existing channels compared to platform competitors; can leverage its distribution power and lower distribution costs + Brand equity: has strong brands with focused value propositions; can leverage its brand equity in new markets; brand equity extension and fit seem good (platform value proposition is close to existing business) + Loyalty programs: Pipelines often have the largest loyalty programs in their space; a significant advantage over competing platforms as pipelines allow collection of points for business travel which can then be redeemed on new platform services + Cross-selling: allows cross-selling of new services to existing customers and addition of new customer segments + Pricing: becomes more flexible and value-based (e.g. short-term use, more flexible use) 	<ul style="list-style-type: none"> + Distribution: has a wide reach and effective existing channels compared to platform competitors; can leverage its distribution power and lower distribution costs o Brand equity: has strong brands with focused value propositions; can leverage its brand equity in new markets, but the P2P nature of the platform may be a stretch for extending the pipeline's brand + Loyalty programs: Pipelines often have the largest loyalty programs in their space; a significant advantage over competing platforms as pipelines allow collection of points for business travel, which can then be redeemed on new platform services + Cross-selling: allows cross-selling of new services to existing customers and addition of new customer segments o Pricing: potential for multi-sided revenue generation, but giving up pricing control to sellers may undercut pipeline sales, resulting in cannibalization 	<ul style="list-style-type: none"> o Distribution: has effective online channels; likely be at a disadvantage compared to pipelines on other channels o Brand equity: tends to have a strong brand; can leverage its brand equity in new markets, but the pipeline nature of the new service may be a stretch for extending the platform's brand - Loyalty programs: likely be at a disadvantage with their smaller loyalty programs compared to its pipeline competitors + Cross-selling: allows cross-selling of new services to existing customers and addition of new customer segments + Pricing: captures the full revenue and not just a commission

(continued)

Table 2. Determinants of convergence: potential synergies and challenges of pipeline and platform convergence

Table 2.

Sources of synergies and challenges	Pipeline → Platform with asset control (Pathway 1a in Figure 1)	Business model convergence pathway Pipeline → Platform with peer-provided assets (Pathway 1b)	Platform with peer-provided assets → Pipeline (Pathway 2)
Assets	<ul style="list-style-type: none"> + Existing assets may be suitable to be added to platform inventory leading to increased asset utilization and higher revenue per available unit of capacity; possibly lower marginal costs by redeploying assets across pipeline and platform models + Is at an advantage due to expertise and capabilities related to asset acquisition, funding, and management + Has low asset-related entry barriers due to the expertise to scale relatively faster than platform competitors + Large customer base helps new platform to achieve sufficient market coverage (primary network effects) and capacity utilization 	<ul style="list-style-type: none"> – Peer-provided assets may cannibalize existing asset utilization and pricing especially when sold via the same distribution channels (e.g. a hotel's pricing power during peak season may be reduced as peer-provided capacity is made available) o Asset management-related capabilities are less relevant o Controlled assets are not relevant o Large customer base can be cross-sold on new platform; however, recruiting asset providers poses a challenge as it has no base on this side of the market 	<ul style="list-style-type: none"> – Platform has high entry costs of acquiring controlled and more homogeneous capacity – Is at a disadvantage due to lack of expertise and capabilities related to asset acquisition and management – Has high asset-related entry barriers (e.g. high capital requirements, slower scaling compared to its existing business) + Large customer base allows cross-selling of new pipeline capacity; has sufficient market coverage (primary network effects) to achieve good capacity utilization
Network-effects and liquidity	<ul style="list-style-type: none"> + Large customer base helps new platform to achieve sufficient market coverage (primary network effects) and capacity utilization 	<ul style="list-style-type: none"> o Large customer base can be cross-sold on new platform; however, recruiting asset providers poses a challenge as it has no base on this side of the market 	<ul style="list-style-type: none"> + Large customer base allows cross-selling of new pipeline capacity; has sufficient market coverage (primary network effects) to achieve good capacity utilization

(continued)

Sources of synergies and challenges	Pipeline → Platform with asset control (Pathway 1a in Figure 1)	Business model convergence pathway Pipeline → Platform with peer-provided assets (Pathway 1b)	Platform with peer-provided assets → Pipeline (Pathway 2)
Technology, data, and analytics	<ul style="list-style-type: none"> o Requires some reengineering technology beyond rigid, linear value chain optimization to leveraging data and advanced analytics (e.g. AI and machine learning) to personalize user experiences and enable superior value co-creation in the platform ecosystem 	<ul style="list-style-type: none"> - Requires substantial reengineering technology beyond rigid, linear value chain optimization to leveraging data and advanced analytics (e.g. AI and machine learning) to personalize user experiences and enable superior value co-creation in the platform ecosystem - Technology has to facilitate multi-sided platform interactions and scalable platform governance 	<ul style="list-style-type: none"> + Has highly sophisticated technology and customer interaction technology; can leverage platform's superior technology capabilities to optimize processes and enable a better front-end customer experience compared to pipeline competitors
Ecosystem governance and trust	<ul style="list-style-type: none"> o Has some data and analytical capabilities to effectively target, price and sell platform capacity; still has to develop added analytical capabilities to sell the new features of platform capacity (e.g. shorter usage duration and flexible geo-coverage for car rentals) o Does not have a significant disadvantage over platforms as technologies and capabilities in managing ecosystems are of limited relevance for controlled capacity 	<ul style="list-style-type: none"> - Is at a disadvantage compared to platform as it has neither the volume of data nor the analytical capabilities platforms have 	<ul style="list-style-type: none"> + Has data and analytical capabilities that can be easily extended to effectively target, price, and sell new pipeline capacity
	<ul style="list-style-type: none"> + User trust with strong existing pipeline brands can be extended to the platform 	<ul style="list-style-type: none"> - No capabilities in managing ecosystems; needs to embrace stakeholder engagement, including “enthusiastic participation” that leverages two-sided prosumers - No capabilities in developing social, institutional, and legal governance mechanisms that build trust across multiple sides of the platform + User trust with strong existing pipeline brands can be extended to the platform 	<ul style="list-style-type: none"> o Technologies and capabilities in managing ecosystems are of limited use for controlled capacity
		<ul style="list-style-type: none"> + User trust with strong existing pipeline brands can be extended to the pipeline 	<ul style="list-style-type: none"> + User trust with strong existing pipeline brands can be extended to the pipeline

(continued)

Table 2.

Sources of synergies and challenges	Pipeline → Platform with asset control (Pathway 1a in Figure 1)	Business model convergence pathway Pipeline → Platform with peer-provided assets (Pathway 1b)	Platform with peer-provided assets → Pipeline (Pathway 2)
Operational infrastructure	<ul style="list-style-type: none"> + Has existing operations and infrastructure on the ground that can serve added platform assets 	<ul style="list-style-type: none"> o Existing operations and infrastructure have limited use for peer-provided assets 	<ul style="list-style-type: none"> - Has to build operations and infrastructure to manage its controlled capacity
Industry examples of convergence	<ul style="list-style-type: none"> • Avis acquired Zipcar and deploys the same fleet across its pipeline car rental and platform with asset control (car sharing) businesses to achieve asset synergies 	<ul style="list-style-type: none"> • Marriott added Marriott Homes and Villas, a P2P home sharing platform, to its core hotel business • Accor acquired and integrated Onefinestay, a P2P home sharing platform 	<ul style="list-style-type: none"> • Airbnb added pipeline capacity by acquiring HotelTonight • Uber added pipeline capacity by building a fleet of self-driving, autonomous cars

Note(s): The contents of this table are based on the authors' conceptual thinking and deduction from integrating the characteristics of the business models in Table 1 and potential synergies discussed in the section "Requirements and objectives for pursuing a convergence strategy". "++" refers to potential synergies and benefits; "-" refers to challenges, new resources and capabilities required; "o" refers to neutral points

food preparation combined with underused real estate (Bradshaw, 2019). In balance, this analysis suggests that P2P platforms should find it, relative to the other two pathways of convergence, moderately challenging to move into the pipeline business. The payoffs include higher capture of value through a more optimized mix of peer-provided and owned capacity, and higher revenues through improved quality assurance of controlled assets.

Two-directional
convergence of
business
models

Conclusions, implications and further research

That businesses need to evolve to remain competitive is inevitable. This means for most businesses that they must embrace business model diversification in some form (Casadesu-Masanell and Tarziján, 2012). While the generic issues of business model diversification have been covered extensively in the literature (e.g. Aversa *et al.*, 2017), the more specific case of business model convergence between pipelines and platforms has not yet received sufficient attention. Our study addresses this gap. Its findings suggest that convergence from pipelines to platforms with asset control seems to be a natural extension that offers many potential synergies and relatively minor challenges. In contrast, convergence from pipelines to platforms with peer-provided assets may encounter more serious challenges and few synergies. Finally, the synergies and challenges of convergence from platforms with peer-provided assets to pipelines seems to be in between the other two in terms of synergies and challenges. There are a number of implications of our study as discussed next.

Implications for theory and practice

The present study is the first to identify, define and describe convergence as a mechanism of business model diversification in the context of pipeline and platform business models. Beyond identifying and defining convergence as a diversification strategy, the present study provides criteria for examining the movement of businesses between three predominant business model choices: (1) pipeline business models, (2) platforms with asset control and (3) platforms with peer-provided assets. We identified six key determinants that either provide potential synergies or present challenges to pipeline and platform business model convergence: (1) marketing and customer base; (2) assets; (3) network-effects and liquidity; (4) technology, data, and analytics; (5) ecosystem governance and trust and (6) operational capabilities and infrastructure.

Extant research has summarily differentiated between pipeline and platform business models (e.g. Van Alstyne *et al.*, 2016) or focused on only one type of model – either pipeline (e.g. Johnson *et al.*, 2008; Zott *et al.*, 2011) or platform (e.g. Fehrer *et al.*, 2018). In contrast, the present study is the first to identify and delineate the pipeline model and two types of platform business models – platforms with asset control and those with peer-provided assets (c.f. Wirtz *et al.*, 2019) – and finds that convergence synergies and challenges differ significantly for both. In this regard, our study is significantly more nuanced in its treatment of business model convergence.

While the convergence process has received recent academic attention, particularly from the perspective of how incumbent pipelines can fight back against increasingly disruptive platform competitors by embracing the platform business model and its features (Van Alstyne *et al.*, 2016; Hagi and Altman, 2017), literature on the evolution of the platform business model as it incorporates the characteristics of pipelines business models remains scant. This lack of academic attention to this convergence process is natural given the relative recency of platform business models in comparison with many incumbent pipelines that have been in existence for centuries. In our discussion of how platforms become more pipeline-like, we begin to answer one of Fehrer *et al.*'s (2018) key questions on the evolution of platform business models: “how does [platform] business model innovation take place on a systemic

level?” (p. 559). Moreover, we answer this question in the context of all fixed asset-type platforms, whether they own or control the assets they offer or rely on peer-provided assets (Wirtz *et al.*, 2019).

Firms looking to embark upon convergence as means of business model diversification should examine potential synergies as identified in our article. They must pay particular attention to the determinants that may offer challenges and/or require the acquisition or development of new resources and capabilities. Neglecting these determinants may make the difference between convergence failure and success. Moreover, while this article identifies three pathways of convergence that offer strategic diversification options, firms must carefully consider the *nature* of the convergence process, i.e. how the firm will execute the most promising convergence option(s). Should the firm substitute key elements of the primary business model or launch a secondary business model in parallel (Hacklin *et al.*, 2018)? For example, Avis has retained its primary car rental model while adding Zipcar’s car sharing services as a parallel business model. However, without integration synergies will be harder to materialize. Firms should also recognize that convergence is fluid and takes place along a continuum. Thus, they need understand the implications of the extent to which they substitute, complement, develop and/or diversify their primary business model, or operate the new business model entirely in parallel as a portfolio investment. The mini-case studies provided earlier on Marriott International and Airbnb offer a glimpse these mixed strategies and we are likely to see more of these.

While efficient firms naturally establish business models of increasing stability (and therefore rigidity) over time, the current competitive landscape demands that leaders demonstrate strategic agility that enables the renewal and transformation of their firms’ business models in the face of strategic disruptions (Doz and Kosonen, 2010). The pathways of convergence presented in Figure 1 thus represent the pathways to strategic agility. We anticipate that in the long run, most firms may be required to pursue business model diversification along one or more of these pathways. However, irrespective of the pathways they choose to adopt, firms will recognize that “waiting for the time to be right means waiting until it’s too late” (Wolcott, 2016). Thus, some firms may want to consider adopting *transitional business models* that serve as an in-between stage of business model experimentation and provide the launchpad for future emerging business models via the pathways of convergence as technologies, customer behaviors, regulations and other factors evolve. In this regard, one might consider Uber’s current platform with peer-provided assets as a transition to a more pipeline-heavy model that could serve the base load demand in a more cost-effective manner using autonomous vehicles (identified in the present article as an example of Pathway 2) than using peer-provided rides. The latter may then increasingly be activated for shoulder and peak-demand periods for which owned capacity may be less profitable due to low capacity utilization during these periods.

Similarly, before the launch of its Homes and Villas brand (Pathway 1b), Marriott’s transitional business model for its home sharing platform involved a one-year experiment with a single property management company called Hostmaker via *Tribute Portfolio Homes* – a sub-brand of its Tribute Portfolio soft brand collection. Based on Marriott’s learning from this pilot, the company then launched its Homes and Villas platform via Pathway 1b at a much larger scale with eight different property management partners (Ting, 2019b). To be successful in business model conversion, firms increasingly may need to demonstrate such nimbleness in business model renewal to reel in value migration across industries and between firms (Hacklin *et al.*, 2018).

Further research

As our conceptual article is the first to explore convergence of pipeline and different types of platform business models, it offers a number of broad areas for future research. First, while

the present study discussed three types of movement (Pathways 1a, 1b, and 2), we encourage future researchers to explore the other pathways as shown in Figure 1. Also, research that explores the second stage of convergence shown in Figure 1 can provide a more complete picture of the synergies and challenges of convergence in light of the various permutations of business model choices available. For example, Airbnb moved from its initially all peer-provided asset model into controlling the quality of listed assets to businesses where Airbnb directly controlled and owned asset, demonstrating the company's adoption of multiple avenues of convergence.

Second, the impact of convergence on a firm's organizational design and overall firm performance deserves attention. Wan *et al.* (2017) suggested that successful convergence requires firms to balance between leveraging the synergies and benefits provided by convergence, and developing new resources and capabilities required by convergence (as discussed in Table 2). Thus, it is of interest to identify how convergence impacts a firm's organizational design, and relatedly its resource allocation and development (Fjeldstad and Snow, 2018). Also, some authors (Münzel *et al.*, 2018; Zhao *et al.*, 2019) suggested that future research examines the impact of convergence on firm performance. For example, Mogharabi (2019) argued that Uber's position in the autonomous vehicles race (Pathway 2) will allow the firm to capture gross revenues rather than only a commission after no longer needing to pay drivers for base-load demand (see Table 1 on value capture), which may lead to higher firm profitability.

Third, what can we learn from failures of convergence? Our study focused mostly on successful convergence. As much can be learned from failures, we suggest closely examining convergence strategies that did not succeed. Such a study would help to better understand the relative importance of sources of synergies and the challenges these strategies entail. Such an analysis would help us to gain insights into the relative importance of the various determinants identified in Table 2, plus it could point towards certain constellations of these determinants that have to work together for a successful convergence or that predict an unsuccessful one. Examples of the failures of convergence attempts include Accor's *marketplace initiative* for independent hotels (Ting, 2017) and Uber's *Xchange Leasing* (Griswold, 2017). Failures and successes are perhaps best explored with in-depth case studies working with a selected groups of organizations (c.f. Benoit *et al.*, 2019).

In closing, we believe that the convergence of platform and pipeline business models will become increasingly common and bring enhanced asset utilization through an optimized mix of controlled assets (that run at high capacity utilization) and peer provided assets for peak and shoulder demand. Furthermore, we believe further that the enhanced analytics typical for platforms and their generally intuitive and high-quality customer interface will become ubiquitous also for pipeline businesses (c.f., Wirtz *et al.*, 2018; Lu *et al.*, 2020). These developments are likely to move organizations closer towards delivering cost-effective service excellence (Wirtz and Zeithaml, 2018), and through price competition in the medium to long term will translate into higher consumer welfare (cf. Wirtz *et al.*, 2018). However, much development and research is needed to get there, and challenges surrounding privacy and ethics related to issues ranging from data capture to algorithm-based decision making and AI will have to be mitigated (Lobschat *et al.*, 2020; Lwin *et al.*, 2016). Exiting times lay ahead of us with plenty of research opportunities for the service community.

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Two-directional
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