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Innovating Platform Business Models: Insights from Major Tech-Companies

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Abstract: Digitalization, connected products and services, and shortening innovation cycles are widely discussed topics in management practice and theory and demand for new concepts. Platforms are such a concept and find successively entry into a growing number of companies. However, research did not yet address how business models for platforms can be innovated. Thus, we build on a multi-case study and analyze how three major companies, Amazon, Apple and Google innovated their business models. We found out, that each company still runs its original platform business model, which got innovated through the addition of new business models, when the platform's scope got expanded. Strategically, this was done out of offensive, defensive and opportunistic reasons. Furthermore, each business model of a platform is interrelated with the core business model, being in a one-sided or mutually beneficial relationship to each other.

Keywords: Business Models; Business Model Innovation, Platforms; Business Model Portfolios; Google; Apple; Amazon; Platform Business Models, Digital Businesses; Industry Convergence

1 Introduction

The ongoing digitalization, interconnectivity of products and services as well as the uprising of platforms are important factors to run an innovative business nowadays. Namely platforms have recently received increased interest from scholars in management research, particularly in general management (e.g., Thomas, Autio, & Gann, 2015; Zhu & Iansiti, 2012), organizational studies (e.g., Boudreau, 2012; Gawer & Phillips, 2013) and innovation management (e.g., Frattini, Bianchi, De Massis, & Sikimic, 2014; Gawer & Cusumano, 2014). Besides, the topic also became subject to multiple publications of practitioner oriented periodicals (e.g., Accenture, 2015; Deloitte, 2015) underlining the importance of platforms in management practice. However, even though the body on platform literature is growing rapidly, many aspects are still in need for better

specification. One of these aspects is the understanding how platform business models work and get innovated, as new and creative approaches are needed to run a successful platform business (Gawer & Cusumano, 2014).

Multi-sided platforms have ecosystems where participants are organized in lose networks (Adner & Kapoor, 2015). This makes them a complex construct and it is a difficult task to manage and innovate (Scholten & Scholten, 2012). This is also reflected in their respective business models, which describe interdependent activities of the focal firm and partners (Amit & Zott, 2015). Moreover, the environment of platforms and their ecosystems is usually very volatile due to the fast technological progress and the constant change of market conditions in platform economies (Nambisan & Baron, 2013). Hence, the business model of such a platform firm needs to be correspondingly and continuously innovated in order to maintain competitive advantages. So far, platform business models have been only superficially explained in the context of mainly two-sided market platforms (e.g., Brousseau & Penard, 2007; Hagiu & Wright, 2015). Nevertheless, research did not emphasize how platform business models can be innovated. Hence, we address this gap in our research in order to (1) strengthen the promising but so far mainly neglected link between business model and platform research, (2) gain a better insight how platform business models can get innovated, and (3) what drives business model innovation in platform markets.

In order to derive patterns of business model innovation for platform companies, we build on insights form three highly successful platform businesses, Amazon, Apple, and Google. The companies, each of them connected to at least one iconic business model (Mikhalkina & Cabantous, 2015), are ideal candidates for this research as every firm claimed their position for almost 20 years in a highly fast moving and innovative environment. Moreover, these companies, even though they were founded with completely different business models, started to converge in business and are becoming successively competitors. This demands ongoing business model innovations.

This topic is of high practical relevance. Platform businesses are becoming increasingly important and growing in many industries. Nevertheless, management research so far failed to contribute implications how business model innovation in the platform context can be achieved.

In theory, the platform concept still lacks of a deeper theoretical foundation (Gawer, 2014). By combining the platform literature with the business model (innovation) stream, we deliver new insights on the phenomenon and subsequently contribute to its rootedness in the management literature. Moreover, it also addresses how competition affects the scope of a platform and respects strategic trade-offs that have be made at platform governance (Cennamo & Santalo, 2013).

Literature

Building-up on the former, mainly engineering driven publications on platforms (e.g., Baldwin & Clark, 1997; Meyer & Lehnerd, 1997; Robertson & Ulrich, 1998; Wheelwright & Clark, 1992), recently a new platform notion emerged focusing on rather business driven platform types, which allow agents to connect and exchange in an efficient way and even create completely new markets (e.g., Armstrong, 2006; Gawer & Cusumano, 2008; Hagiu & Spulber, 2013). These platforms are built in a modular fashion with a stable technical core and periphery components, which can be innovated by

independent, external developers (Chesbrough & Van Alstyne, 2015; Gawer & Cusumano, 2014; Gawer, 2014; Thomas et al., 2015). Each platform has a platform leader, platform users, and independent innovators. These entities form the platform ecosystem (Adner & Kapoor, 2015; Gawer & Cusumano, 2008; Mäkinen, Kanniainen, & Peltola, 2014). In a platform ecosystem, the platform leader takes a special role as important governance functions are performed by this company (Gawer, 2014; Scholten & Scholten, 2012). Hence, decisions on the technological core and interfaces as well as the platform business model have to be well elaborated. The system has to be built so that it incentivizes users and innovators to use and contribute to the platform what results in ecosystem growths, and the release of network effects (Armstrong, 2006; Parker & Alstyne, 2005). Strong network effects are an important value driver for platforms as they might create "winner-take-all" situations amongst competing platforms (Eisenmann, Parker, & Alstyne, 2006; Gawer & Cusumano, 2014). In theory, two types of network effects can be distinguished, direct and indirect. Direct network effects describe the increased value for platform users when more users join the ecosystem (Cennamo & Santalo, 2013). Indirect network effects emerge when new applications for the platform get introduced what increases the value for users to join the ecosystem (Zhu & Iansiti, 2012). Both types of network effects can be described as positive feedback loops. Each time the ecosystem grows by new users or applications, the value to be part of the ecosystem gets increased what attracts new users and developers for new applications. However, a good governance of the ecosystem through the platform leader is essential as network effects can also turn negative and ruin a platform and its ecosystem.

The business model literature found its origins in the entrepreneurship and strategic management literature describing the phenomenon of fast growing internet businesses, which outperform traditional companies (Amit & Zott, 2001; Baden-Fuller & Morgan, 2010; Lecocq, Demil, & Ventura, 2010). Subsequently, research on business models aims to answer the question how companies create value and has been either described as a concept from a firm centric perspective (e.g., Morris, Schindehutte, & Allen, 2005) while other authors highlight boundary-spanning aspects (Shafer, Smith, & Linder, 2005; Zott & Amit, 2007, 2010). Despite the fast growing body of literature, there is still a very vivid debate on the theoretical foundation and the conceptualization of business models (Amit & Zott, 2015; Baden-Fuller & Mangematin, 2013). Zott, Amit & Massa (2011) argue that no theory fully describes the value creation through business models, while different domains on the topic developed independently, resulting in various concepts and definitions. Nevertheless, a basic agreement amongst researches was achieved as the elements value creation, value delivery and value capturing are widely regarded as describing parts of a business model (Casadesus-Masanell & Ricart, 2010; Winterhalter, Zeschky, & Gassmann, 2015).

Besides the discussion about the theoretical perspective on business models as such, a sub-stream focusing on the innovation of business models emerged (Amit & Zott, 2012; Chesbrough, 2007; Spieth, Schneckenberg, & Ricart, 2014). Hence, business model innovation has been researched in various industry contexts ranging from manufacturing, to retailing or insurance (e.g., Casadesus-Masanell & Tarziján, 2012; Chesbrough & Rosenbloom, 2002; Desyllas & Sako, 2013; Sosna, Trevinyo-Rodríguez, & Velamuri, 2010). Following the notion of Kim & Min (2015), business model innovation is often the response to a new, disruptive business model in the industry and can be either original or imitative. Hence, original business model innovation describes the creation of a new business model derived from own technological achievements or the reconfiguration of

how to pursue businesses (Amit & Zott, 2012; Johnson, Christensen, & Kagermann, 2008). Imitative business model innovation is the addition of new business models that has already been invented by another firm (Kim & Min, 2015; Markides & Charitou, 2004; Markides & Oyon, 2010). In this context, scholars discuss how new business models can be put into action in a company and propose e.g. spin-offs for the new businesses or the a structural integration into the ongoing business (Kim & Min, 2015). In this regard, multiple business models can be organized in a portfolio what helps companies to easily reallocate resources and initiatives regarding firm development and the evolving environment (Sabatier, Mangematin, & Rousselle, 2010).

Methodology

In this article, we study how incumbent platform companies innovate their business models. Such research calls for a case study because of its exploratory nature (Punch, 2005; Yin, 2014). We build on a multi-case study consisting of three cases, what is suitable if only little is known about the phenomenon, existing aspects are incomplete and fragmented and need to be further specified or if new perspectives on an already researched topic are needed (Eisenhardt, 1989).

The cases represent the business models of three major platform companies, Apple, Amazon, and Google. Each of them runs a highly successful platform business and belongs to the list of the world's top innovative companies (Wagner, Taylor, Zablit, & Foo, 2013). Following the notion of Gawer & Cusumano (2014), we define the core business activities of these companies as platform businesses as they are "products, services, or technologies developed by one or more firm, […] which serve as foundation upon which a larger number of firms can build further complementary innovations and potentially generate network effects" (p. 420). Such complementary innovations are e.g. products or services, especially developed and/or marketed through the Amazon retail platform, applications written for the iPhone of Apple, or products or services especially marketed through the Google search platform. Furthermore, all companies obtain the status of established and incumbent in their industries. This is why they are the ideal candidates to research how their business models where successfully innovated.

Table 1: Case overview

Company Name	Platform	Revenues (2015)	Founding year
Amazon	Online retail platform	$ 107 billion	1994
Apple	iPhone	$ 234 billion	1976
Google	Search engine	$ 75 billion	1998

To study the business models and their evolution through innovation, we systematically collected a broad range from media coverage on the firms published in the years 2005 to 2015. The reports were written from respective industry correspondents of know magazines such as The Economist, Wired, the Telegraph, Harvard Business Review etc. Additionally, these information were complemented with an also broad range of publications from the respective companies. In this respect, reports where selected whether they were focusing on business model (innovation) aspects or not. In total, more than 160 reports got analyzed.

Subsequently, each company's business model gets described according to the three dimensions value creation, value delivery and value capturing. We follow thereby a widely accepted notion on the elements of a business model (Casadesus-Masanell & Ricart, 2010).

Findings

Amazon

Amazon started its business as a book retailer and markets its goods via an online store. Fast, the store got complemented by additional goods why Amazon is nowadays one of the biggest online retailers in the world. Amazon's main revenues are generated through the online retail store. The online store also builds the technological stable core of the platform. Users can easily access it via the internet while complementors can offer their products through especially designed shop interfaces. These interfaces, also known as API (application programming interface), allow a seamless integration and processing of product sales via the platform. The value for users gets mainly created by the offering of a wide assortment of various goods, convenient shopping form home, the suggestion of associated products by Amazon, and the logistics, provided by the company. The value can get delivered because of intensive user monitoring and analysis of their buying behavior, the strong IT infrastructure and the logistics centers, which were built around the globe. Amazon captures value for the company mainly by offering many products despite storing them in many cases, this lowers costs compared to competitors. Also, for each product sold by third party merchant, Amazon keeps a share.

Subsequently, Amazon came up with a new business model. Because of high requirements at the IT infrastructure during peak shopping times such as Christmas, Amazon started to build up huge server farms. However, since these servers run idle during large times of the year, Amazon came up with a business model to commercialize these spare capacities, called Amazon Web Services (AWS), what was introduced 2002. Hence, customers can use Amazons storage and calculation capacities, even short time what is of value for many companies, such as Dropbox. The value is also delivered by API which allow access to the capacities of the infrastructure. To capture value from its AWS business model, Amazon implemented different pay per use and subscription models.

In 2007, Amazon implemented two more business models that are connected to its online retail platform. Firstly, Amazon introduced hardware devices, which allow customers to access the platform and buy products from there, namely the Kindle e-book reader and subsequently following tablet computers. They get produced by big contractors in Asia and use, for the tablets, a modified version of Google's Android operating system, but with an own store for applications. Amazon hardware is sold relatively cheap to customers while it is not even sure, if Amazon captures monetary value with this business model.

Closely related is the Amazon business model that markets digital goods on Amazon's platform, called the Kindle Store. Digital goods are all sorts of files that can be used on Amazon's hardware devices such as e-books, music, movies, applications etc. Users can simply buy them via an app-store and independent publishers can sell them there. Amazon captures value by keeping 30% royalties for each sold file.

Apple

Apple incorporated 1976 with its computer business. The corner stone for Apple's platform business model was laid 2001 with the first iPod music player and substantially fueled with the introduction of the iPhone six years later. Thus, the platform is built around hardware devices that run an operating system, programmed exclusively for Apple products, upon which independent innovators and contributors can publish their products.

The hardware business, today at the center of the platform business model, is still responsible for Apple's main income stream. The value for customers get created through premium devices with a regularly updated and innovative operating system. For that reason, Apple created a big supplier network that produces devices according to its designs and quality standards exclusively for Apple. The devices are either sold via own flag-ship stores, online or third-party retailers to premium prices.

In close relation to its hardware device business, Apple introduced the iTunes store 2003. While offering mainly music in its early days, the business model was subsequently expanded and nowadays, together with the App-Store, the place where users can buy all kinds of digital content for their Apple devices. The big amount of content is mainly achieved through independent third-party contributors who publish for on iTunes or the App-Store in order to get access to the millions of customers of Apple devices. In return, Apple asks for a certain percentage of the returns, depending on the type of content.

In 2010, Apple introduced an advertising business model to the platform. With it, Apple seeks to publish innovative advertising formats on their devices. To get the highest degree of individualization, Apple uses data acquired through the platform and matches them with the subject of the respective advertisings. The advertising content providers pay Apple a fee depending on how many people were clicking on the commercial. This revenue is also shared with programmers of e.g. free applications in the App-Store, motivating them to further contribute content to the platform.

Finally, to complement their mortar-brick stores, Apple takes advantage of an own online retail store, which is also closely connected to the platform. Devices and third-party goods can easily be purchased on that website, making the entry to Apple's platform as easily as possible. Also refurbished products can be bought, making the entry to the platform ecosystem possible for people who would like to spend less money. Thus, Apple earns twice at the refurbished products, once it gets actually sold and a second time when it gets resold, and earns a share at third-party products and gadgets.

Google

Google's platform is the widely known search engine, which is, in the meanwhile, much more than just a directory of website addresses, but builds still the technological and business core of the company. Since its early days, it got equipped with an innovative advertising business model. While users get a broad range of services for free, such as weather, directories, navigation, and website, pictures or video search, Google acquires big amounts of data on users and their behavior via its platform. This data is used to optimize the display of advertisings through the three services AdWords (for commercials on the Google platform), AdSense (for commercials outside the Google platform) and AdMob (for commercials on mobile devices). Advertisers pay Google each time someone clicks on the commercial or gets it shown. Prices also vary depending on the keywords the advertiser is connecting its commercials to.

Besides the search business, Google introduced “Google Apps” on its platform, which is a set of productivity software for professional and private users that includes document, presentation and spreadsheet editing and creation as well as a calendar, email etc. The service is mainly for free but the range of functionalities can be increased paying a monthly fee.

Comparable to Amazon, Google also maintains a huge IT infrastructure to run all its services. They started to commercialize it in a similar way to private and business customers who can get storage space or calculation capacities. Private users can mainly use the service for free but have to pay once a certain storage limit has been reached, businesses users pay per time they use the service or amount of storage they occupy.

To reach out for the growing mobile market, Google introduced a business model for mobile devices. Thus, they offer an operating system for handhelds that is innovative, easy to use, widely distributed, and called Android. To achieve that, Google partners with changing producers of smartphones and releases flag ship hardware devices with the latest version of Android. Besides smartphones, Google offers a solution for home entertainment called Chromecast and Chromebooks, which is notebook produced Samsung. They run an adapted version of Android. Google distributes the source code of Android for free what lead to a broad distribution of the system, mainly amongst smartphone manufacturers.

Connected to the hardware business model, Google runs a business model for digital content, which gets distributed for the Android operating system via Google’s Play Store. This contains all kind of media such as movies, music, e-books, digital magazines, and applications. The content gets mainly created by third-party contributors while Google participates with a certain percentage at every sale.

Discussion

By analyzing the business models of the three researched companies, we came up with implications regarding the type of business model innovation as well as the strategies behind.

First of all, the incumbent platform firms innovated their business models several times during their existence. By doing so, business model innovation was mainly achieved through the addition of new business models, despite minor innovations at the configuration of the business model itself (e.g., Amazon that subsequently expanded the assortment of goods on their retail platform). Thus, we could observe that platforms, as they grow over time, get systematically complemented with additional business models. This is similar to mature firms, which tend to grow portfolios of business models as introduces by Sabatier et al. (2010). Despite the growth of the platform and the expansion of the business model portfolio, we recognized that the core business models, which were initially designed for the respective platform, is in every case still in place. It got merely complemented by additional business models as the scope and functionality of the platform grew. Thus it details the notion of Eisenmann, Parker, & Van Alstyne (2009) who describe the responsibility of the platform leader to further develop and improve the platform’s core technology. However, we observed that just developing the technology is not enough but innovating the business model through the addition of business models is also necessary. Thus, in our regard we propose:

Proposition 1: If a platform emerges, a platform leader not only need to develop the underlying core technology but successively the business model to broaden the scope of the platform.

Subsequently, Sabatier et al. (2010) note that business models, organized in a portfolio, are complementary and do not follow a hierarchy. Our cases show, that business models follow a hierarchy to a certain point as by any case, the platform core business model is linked and supported by the other business models that were added to a later point. Apple, for example, built its platform around its core business model for hardware products. The business model that markets digital goods, such as music or applications, is closely related to the core business model as it provides content for the hardware devices, what motivates customers to buy them. But even more, without the hardware devices, the digital goods business model could not exist as the operating system is necessary to run all the content and to provide the user experience that makes Apple so successful. The advertising business model is also strongly dependent on the hardware business model as all the data for advertisement targeting stems from the physical devices and their operating systems, which forwards information about user behavior and preferences. Lastly, the online retail business model mainly serves the platform as easy access and sales point of the hardware devices. Without them, people would rarely shop on the website. Similar patterns are observable for the other companies. This leads to the conclusion, that there is a hierarchy when it comes to the business model portfolio incumbent platforms. Thus, we propose:

Proposition 2: If an incumbent platform has a portfolio of multiple business models, the core business model of the platform gets supported by the other business models and follows stands therefore on top of them, on a higher hierarchy level.

As Sabatier et al. (2010) observed in their case study, interrelatedness can play a role for business model portfolios. Our cases even more show, that business models of a platform are at least strongly connected to the business model, which represents the core offering of the platform. Other business models share or contribute important resources while they do not always work profitable in monetary terms but are always beneficial to the whole platform.

Proposition 3: If an incumbent platform has a portfolio of multiple business models, they are always strongly interrelated with the platform core business model.

To undermine our points, Figure 1-3 show the business models of the three platforms we analyzed. In each case, the initial business model is linked to the peripheral business models while one-way or mutual connections exist.

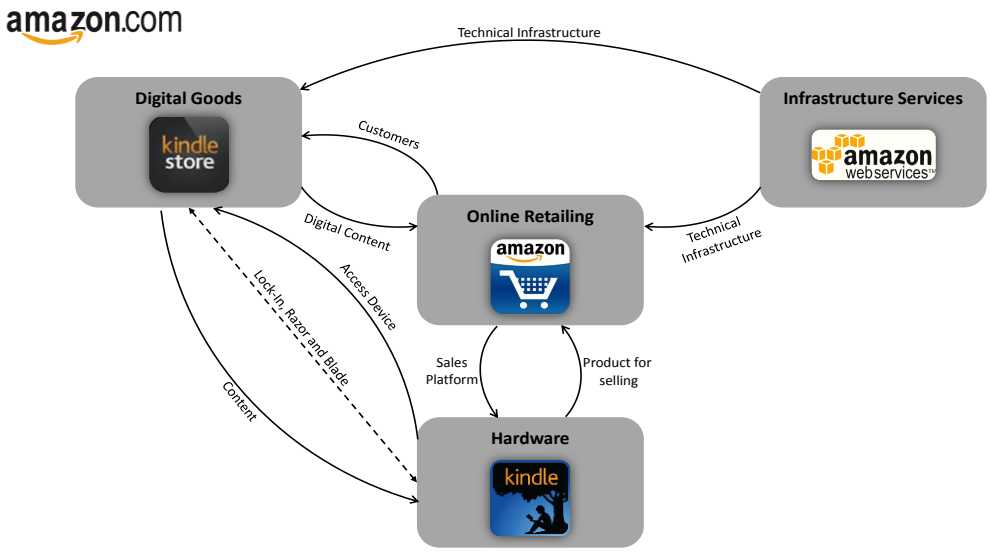


Figure 1: Interrelated business models of the Amazon platform

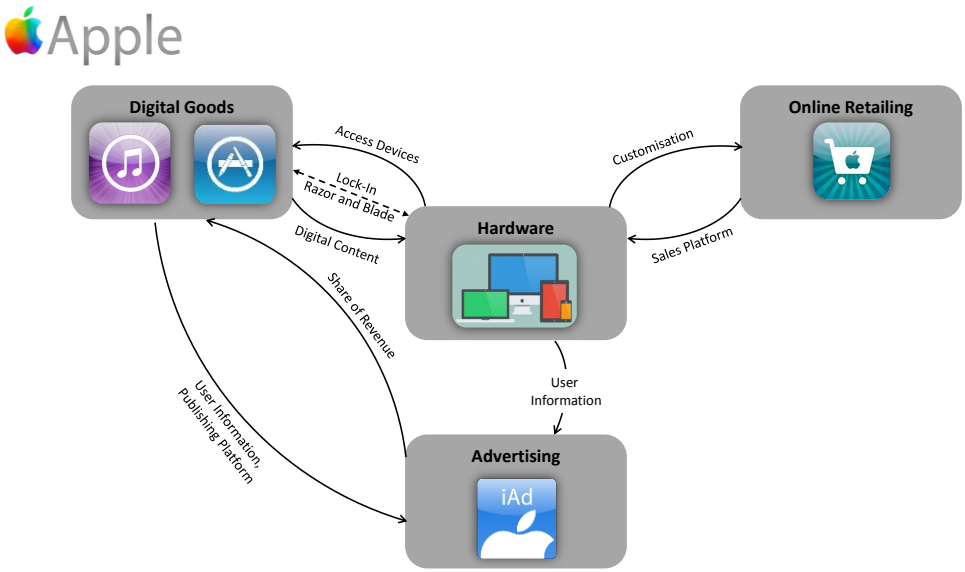


Figure 2: Interrelated business models of the Apple platform

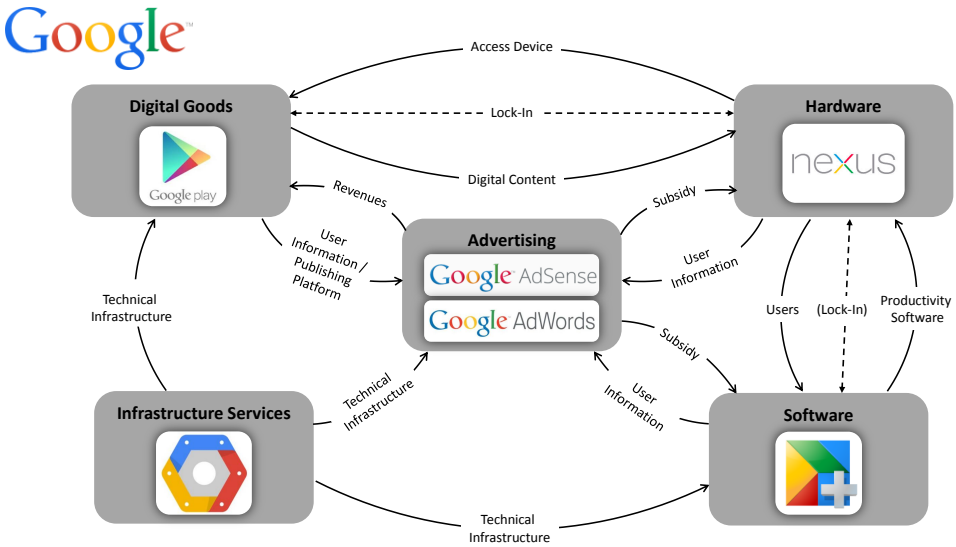


Figure 3: Interrelated business models of the Google platform

Our cases furthermore reveal, that each business model was not randomly added but out of three distinct reasons, also explaining the aforementioned convergence of the three platform business models. As a first reason, business model innovation was pursued because of offensive motives. This is always the case, if the core business model and, thus the platform's existence is in danger. When Apple became successful with their smartphones, the market for mobile advertising was growing rapidly, the home market of Google. Even though Google was represented through standard applications on the iPhone, such as its search engine or Youtube, the danger to be kicked out from the Apple platform was always imminent. To avoid losing access to this so important market and to become less reliable on other players, Google bought the Android start-up and scaled it up to a world-wide leading operating system. An offensive move was undertaken by Amazon. With the growth of Apple's platform and the integration of digital media to their business, Amazon leveraged its own connections to the media industry and built up an own business model for digital content. Google on its turn has similar computing power for its services as Amazon through its AWS business model. To get a piece of this pie, Google is attacking the Amazon platform on this end and is starting to succeed. Recently, the big music streaming platform Spotify left Amazon and joined Google. Lastly, the platform's business model can get innovated out of opportunistic reasons as it happened with Amazon and its infrastructure business model. Because the platform requires a strong IT infrastructure during peak times, massive server farms were built. Because the infrastructure ran idle but nevertheless cost money, the commercialization was a logic consequence.

Proposition 4: Incumbent platform companies innovate their business models through the addition of new business models out of offensive, defensive or opportunistic reasons.

Conclusion, limitations, and further research

In this article, we analyzed and discussed three major and incumbent platforms and their business model. We found out that each platform still runs its original business model, which got, over time, complemented by additional business models. Each of them is, at least, connected with the core business model. The business models were innovated by adding new business models to the platform out of offensive, defensive or opportunistic reasons.

As every research, our article is also subject to limitations. Most prominently, we derived our data from secondary data, which allows only a very high level analysis of the topic and provides no further insights on the exact decisions, made by managers when innovating the platform business model. Moreover, the cases represent only major technology companies in the United States of America. Different innovation patterns could be derived from smaller companies operating in different industry contexts. Hence, insights on the topic could be refined by more than just three cases.

However, the combination of business model innovation and platforms promises some fruitful paths for future research. While this article merely addresses, how business model innovation works for platforms on a very superficial level, future research could address how connections between different business models of a platform are established and what patterns they follow. Furthermore, different patterns of offensive, defensive and opportunistic behavior could be observable when it comes to business model innovation in a platform context. Additionally, it could be of interest how managers identify threats and chances for their platforms, what suggests the application of the attention based view (Ocasio, 1997) on this research topic.

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