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Open Platforms at Incumbents

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Abstract: Open platforms become an increasingly popular phenomenon in industry practice and have proven to disrupt established industries within only a few years. Incumbent firms started to progressively adapt underlying business principles of open platforms, which are mainly known from successful tech-companies such as the likes of Google, Apple, Facebook, or Uber. By studying five incumbents from different industry settings, which started to transform their product focused businesses into open platforms, we derive interesting and counterintuitive insights for research and management practice. Our results uncover that open platforms of incumbents are formed around the companies' existing infrastructure, do not exclude competitors to participate at the platforms' ecosystems and make customers of the core business users of the open platform.

Keywords: open platform; platform economy; incumbents; network effects; ecosystems; two-sided markets; industry transformation.

1 Introduction

We are living in the "age of the [open] platforms" (Simon, 2011; Van Alstyne, Parker, & Choudary, 2016). Their widespread popularity is evident from the large number of the world's most valuable enterprises betting on open platforms, including five out of the top 10 market capitalized firms (Amazon, Apple, Google, Facebook, and Microsoft) in 2015 (Feng & Furr, 2016). Open platforms are products, services or technologies, developed by one or multiple firms and serve as a foundation upon which a larger number of external

stakeholders can build complementary innovations and perform transactions (Frattini, Bianchi, De Massis, & Sikimic, 2014; Gawer & Cusumano, 2014). A platform is "open" as these external stakeholders are allowed to participate in its development and commercialization (Boudreau, 2010; Chesbrough, 2016). Infected by their success, an increasing number of firms are taking advantage of open platforms while their market share in the global economy is constantly rising (Evans & Gawer, 2016; Van Alstyne et al., 2016). Furthermore, a remarkable amount of start-ups are using open platforms, disrupting whole industries within only a few years and the likes of AirBnB, Uber, Spotify, Evernote, and Yelp are said to only have uncovered the tip of the iceberg of this entrepreneurial movement (Feng & Furr, 2016). This makes open platforms one of the most successful firm configurations yet (Chesbrough, 2012; Eisenmann, Parker, & Van Alstyne, 2011).

However, the success of these new companies poses challenges to various incumbent firms. On the one hand, they have to adapt to new business circumstances and digitalize their operations in order to take part of the "platform economy". On the other hand, they are usually not "digital native", and/or have huge assets and headcounts what makes them less agile than their emerging counterparts. Knowledge and practices how to adapt and transform such an established business into a business, taking advantage of open platforms, is yet lacking. Despite initial efforts (e.g., Eisenmann, 2008; Eisenmann, Parker, & Alstyne, 2006; Gawer & Cusumano, 2008), the platform literature is still missing aspects of e.g. organizational anchoring and necessary resources to unwind a platform at incumbent firms. Similar questions arise in the business model innovation literature, when new business models get integrated in an existing business. An important aspect in this regard is the competition for resources and assets at the introduction of a new business (Kim & Min, 2015). Furthermore, most authors publishing on platforms assume in their studies that platforms are pre-existing, already developed, and on the market. However, the stage of the emergence of platforms is yet under-researched (Gawer, 2014), especially in the case of incumbent firms. Thus, our research focuses on: How can incumbent, non-digital native firms introduce an open platform business?

For this study, we research five companies with different industry backgrounds. Each of them is incumbent in its respective industry and pursuing an open platform strategy. Based on our cases, we develop thought-provoking insights on the topic and condense them into three hypothesis. Subsequently, we integrate them into the bigger research context and showed avenues for future studies. Finally, we present implications for open platform research and management practice.

2 Literature Review

Open Platforms

Open platforms are a recent concept in management research that was mainly inspired by the engineering and economics driven literature. Wheelwright & Clark (1992) were amongst the first authors who described modular systems, what they called platforms, as a way to realize economies of scale and scope in product families. Thus, a common technological core is used to develop a stream of products (Meyer & Lehnerd, 1997). The economics driven literature describes the creation of multi-sided market places where platforms act as market intermediaries while quoting credit cards, malls or telecommunication systems as common research objects (e.g., Armstrong, 2006; Rochet &

Tirole, 2006; Rochet & Tirole, 2003). The open platform concept builds on top of both preceding perspectives on platforms and describes businesses that employ an ecosystem of independent actors who use and innovate a platform consisting of a technological core and complementary periphery components (Gawer & Cusumano, 2014). While technological aspects such as creating powerful interfaces (APIs) play an important role, even more complex questions concern the management of open platforms (Gawer & Cusumano, 2008). The ecosystem of open platforms consist of different main stakeholder groups. Typically, one or multiple firms develop a platform by providing a technological system and by performing the governance over the platform and its ecosystem (Gawer & Cusumano, 2014; Wareham, Fox, & Giner, 2014). This stakeholder group is called platform leader(s) (Gawer, 2014). Governance is defined as incentive and control mechanisms required to align the behavior of different parties in transaction and acts as the main coordination mechanism in open platform ecosystems (Adner & Kapoor, 2010; Demil & Lecocq, 2006; Wareham et al., 2014). Complementors add to the technological core of the platform by innovating periphery components that offer complementary products or services (Gawer, 2014). In this regard, they are competing for the third main stakeholder group, the users who consume the services and products, offered by or through the open platform (Boudreau & Jeppesen, 2015). Diverse stakeholder groups with different, sometimes even competing interests makes open platform governance a complex task (Gawer & Cusumano, 2014; Mäkinen, Kanniainen, & Peltola, 2014).

Entrance Strategies into Open Platform Markets

So far, the literature reviewed quite superficially entrance strategies into platform markets without separating between new and incumbent businesses. Aspects, such as the set-off and emergence of network effects in combination with pricing strategies are a major focus in the precedent literature. As open platforms create multi-sided markets (Boudreau & Jeppesen, 2015), complementors that produce complementary goods or services for the platform compete on the one side for users on the other side (Adner & Kapoor, 2010). It is thus the platform leaders' responsibility to design the platform governance in a way that complementors get attracted and network effects start to emerge (Gawer, 2014). A major instrument in this regard are price mechanisms (Hagiu & Hałaburda, 2014) favoring one over the other side(s) of the platform. Subsequently, the strategic questions rises, which side should be (more) charged to access and use the open platform as strong network effects rely on a growing users and complementors base what ultimately leads to a "chicken-egg problem" (Hagiu, 2007). While there is no one-solution fits all answer for this question, it is worthwhile noting that platform leaders should consider, which main stakeholder group is critical for the long term success of the platform as well as more price sensitive and accordingly, offer incentives to them to join and stay in the ecosystem (Eisenmann et al., 2006; Hagiu, 2014). Besides strategic decisions on pricing mechanisms and subsidies to one side of the market, the quality of platforms has been identified as driver for ecosystem growth. Zhu & Iansiti (2012) found in their study that not only the size of the ecosystem determines whether a platform will dominate the market or not but also the quality of the platform itself, using a large scale sample from the video console industry. Especially as a new entrant to the market, a superior platform quality might be a way to outweigh a smaller ecosystem and weaker network effects (McIntyre & Srinivasan, 2017). Similar, (Gawer & Cusumano, 2008) introduced the term "coring" as a strategy for new entrants to join a platform market. According to their research, the open platform has to solve an essential

industry problem, offering incentives to complementors to contribute and innovate, and maintain switching costs to prevent users from joining another platform ecosystem.

3 Methods

For our study, we seek to expand existing theory with evidence from real world cases (Eisenhardt, 1989). As there is only scarce insights on the topic of open platforms at incumbent firms, a qualitative research approach is suitable. By setting-up a multi-case study (Yin, 2014), we selected companies that got an established business, which has no digital focus but recently developed an open platform that fits the academic definition of recent publications on the topic (e.g., Boudreau, 2010; Gawer & Cusumano, 2014; Thomas, Autio, & Gann, 2015). All of our companies operate for at least 60 years what we weighted as criteria of being incumbent. In order to avoid an industry bias, we chose companies that operate in different fields of businesses.

For each case, between two and five interviews were conducted. Each interview lasted between 30 and 60 minutes. The interviews followed a semi-structured guideline with the goal to allow open answers that might entail additional, important information. The interviewed persons were in all cases executives that were directly involved in strategic decisions concerning the open platform. The questions focused on the description of functionalities of the open platform, its ecosystem including all relevant stakeholders, its business model, its connection to the core business, and the process of the market introduction. The interviews were transcribed for subsequent analysis and expanded through extensive desk research on public available information on the cases and companies (e.g., websites, company reports, press releases). This allowed us to triangulate our data to ensure credibility and avoid single respondent biases (Davis & Eisenhardt, 2011). We used tables and colour coding to identify interesting similarities between the cases to understand how incumbent firms integrate an open platform in their businesses.

4 Findings

FirmManufacturing1

The first case represents a leading car manufacturing firm. Its traditional business model bases on the roll out of large product families of cars for different customer segments with a global reach. The manufacturing is done in large plants with a focus on certain car models that get shipped worldwide. The ongoing digitalization and the increasing demand for customization from customers led the company to explore new manufacturing methods such as additive manufacturing. These new production capacities got integrated in an open platform. Internal and external entities can access and publish their capacities and correlated services or demand them. The car manufacturer creates the market place for these capacities and offers additional services such as consulting on printing methods and technologies through the platform.

FirmManufacturing2

The second case is represented by another car manufacturing firm. The traditional business model resembles in large parts the business model of FirmManufacturing1. However, the

ongoing urbanization and high demand for individual transport solutions makes it increasingly harder for customers to park and use their cars in cities. Thus, the manufacturing firm came up with a platform that allows users to easily find a parking spot by indexing parking spots provided by third-parties. Third-parties are usually owners of one of multiple parking spots who provides them for a certain time and price.

FirmTransportation

The firm, represented by this case, is offering public transportation solutions. However, the company is faced with changing customer demands for a more individualized way of transportation and door-to-door solutions. In the same time, new market entrants, such as UBER, Lyft, or other car sharing platforms are competing for customers. In the prospect of future technologies, such as self-driving cars, the company established a digital platform to cope with these challenges. The platform offers door-to-door travel planning and integrates various third-party offerings such as car sharing services, bike rentals, and other, local mobility providers.

FirmPharmaceutical

As pharmaceutical research is increasingly relying on data driven studies what creates the opportunity to research diseases from a new perspective, coming up with revolutionary solutions such as personalized medicine. For this reason, large data sets get evaluated and analysed. However, not just the amount but also the quality of the data is paramount to derive meaningful results. During the last years, pharmaceutical companies were able to acquire large sets of data from hospitals, studies, or wearables. Though, oftentimes, the data is incomplete and only focuses on e.g. one patient's treatment while it is isolated in terms of missing information on e.g. certain environmental factors or relatives and their diseases. In order to overcome this hurdle, an open platform seeks to integrate available data that is spread across the industry. Different research institutions can upload their data sets and in turn, can access data from other researchers. It is the purpose of this platform, to increase data quality and offer a place to share insights and research results to make diseases better treatable.

FirmHospitality

This firm is represented by an international hotel chain that acts in the luxury segment. The firm experienced increased pressures on its business by competing market entrants that offer alternative travel experiences such as AirBnB but also recognized the trend to book hotel rooms on online brokerage sites of the likes of Expedia, Booking.com etc. This not only means the firm is losing its face to the customer to other companies but also prevents the hotel chain to acquire data about their guests that would help to improve individual services. Thus, the management introduced an open platform with the purpose to offer a seamless travel experience to their guests. The users can not only book a hotel room but also tap into a wide variety of third-party offerings that include leisure activities but also e.g. bookings of conference or meeting rooms or food deliveries.

5 Discussion

The first imminent pattern that is observable in our cases is that each company, whether focused on physical products or services in its core business, builds its open platform on top of current operations. Moreover, the open platform is in most cases not directly connected to the core product or service of the incumbent but uses some parts of the company's infrastructure and makes it available to third party complementors. FirmManufacturing1 for instance uses its internal 3D printing facilities, which are mainly used for prototyping, opens them for external users by providing an open platform that manages capacities and leverages supply and demand. Similar FirmTransportation got a monopoly for public transport on its specific market and opens its booking and travel planning system for third parties to offer their transportation solutions for the platform leader's customers. Similar, the company in the hospitality business FirmHospitality opens its hotel booking system to third parties that offer complementary services and events. But even more, in cities where no hotels of the chain are available, services of competitors of the core business such as AirBnB complement the offering of the open platform. In general, we observed that in all these cases, the incumbents used their existing infrastructure to offer a service, which forms the core offering of an open platform. There is already a substantial body of literature on the subject of servitization (e.g., Visnjic Kastalli & Van Looy, 2013) or open service innovation (Chesbrough, 2011) describing the shift from product to product-service solutions that increase customer value and offer an escape path for the commodization of products, especially in the manufacturing sector. However, the literature mainly describes services which have been added to the product itself and the increased customer value in the product-service bundle. Yet, our cases show that incumbent companies create services based on their current infrastructure, which is used to create the core product. These services are realized through an open platform that leverages the existing infrastructure and makes it available to a wider, external ecosystem that can innovate and offer own products and services.

Hypothesis 1: Incumbents leverage their infrastructure to create open platforms that are of value for a whole industry or market.

Another aspect that seems initially counterintuitive relates to the pattern of incumbent firms, which do not keep the platform closed for competitors of their core products. FirmHospitatlity invites the disruptor of the hotel industry, AirBnB, to complement its platform, the public transport company FirmTransportation cooperates with car sharing services or coach travel agencies that have a similar impact on their core businesses while FirmPharmaceutical shares valuable data with its major competitors in a multi-billion dollars business. However, while some of these complements might cannibalize the incumbents' core businesses they also add value to the open platform and thus, to the platform users. Depending on the monetization strategy of the platform leader, the revenues of the open platform might even compensate the cannibalization effect. Likewise, all stakeholders win by an open platform without exclusion of (former) competitors. The platform leader has a wider variety of complements on the platform, being able to offer the highest quality possible by not excluding any complementors. The complementors gain access to a new market for their offerings. The users get potentially a higher quality of the

platform compared to an ecosystem that excludes some complementors that are in competition with the platform leader for another, different product. This insight supports the argument in the platform literature, that superior quality of the platform is an important factor when it comes to the emergence of network effects (Zhu & Iansiti, 2012). Our cases support the argument that incumbents, which are new to the open platform economy realized that they need their competitors in order to release network effects on their new business. Thus, by creating an open platform, incumbents create a new competitive arena where competitors of the core product can become complementors for joint value creation.

Hypothesis 2: Competitors of the core product of the incumbent are granted access to the open platforms because of the win-win outcome for all major stakeholder groups in the ecosystem.

The success of an open platform heavily relies on the ability to develop network effects and subsequently, enable a fast growth of the ecosystem. In this case, an open platform might be even able to create a monopolistic winner takes all market (Gawer & Cusumano, 2014). However, firms see themselves oftentimes confronted with the chicken-egg problem (Hagiu, 2007) at the outset of their open platform strategies. Our cases show that incumbents found an elegant solution for this problem by leveraging customers of their core products to quickly gain a user base for their open platform. FirmManufacturing2, for example, promotes the open platform amongst its customers who recently bought a car and offers them exclusive services such as guaranteed parking spots in urban areas with high demand for parking spaces, cheaper fares and up to one month advance booking of a parking spot. Similar, FirmTransportation integrates its open platform into the current online booking process and travel planner that gets accessed by thousands of users each day that are buying the core product, public transportation. If no public transport is available, for example on the last mile to the final destination of the traveller or if another way of transportation is preferred by user, additional transportation solutions, provided by third-parties, can be booked over the platform. Finally, the FirmHospitality similarly integrates the open platform into its current booking solutions and award program, which gives instantly access to a large scale of users. In this particular case, current customers of the core hotel business belong to the luxury segment and mainly book rooms on the company's website and not on rivalling platforms such as Expedia or Booking.com. By integrating the open platform into the current infrastructure, the thousands of hotel customers become users of the open platform. The large and existing user bases of these open platform businesses attract complementors and thus, release network effects.

Hypothesis 3: Incumbents leverage the customers of their core products to start network effects on their platforms.

6 Conclusion and Future Research

Even though some incumbents got caught by surprise by new market entrants that leverage the potential of open platforms to disrupt whole industries, our study shows that the platform economy is not anymore reserved to start-ups. Moreover, we presented cases of

incumbent companies that actively shape their industries and lead them into a less product, more service and open platform focused future. In our hypotheses we summed up our findings that hint at three major approaches of incumbents, which are transforming their businesses into an open platform. First, their open platforms are rather build around their existing company infrastructure than around their current core product. Second, current competitors are not excluded from the ecosystem but often become a complementor of the open platform. Third, incumbents leverage the customers of their core business to start network effects what is also an advantage over new businesses and start-ups.

We contribute to the platform literature by being the first authors who specifically address the creation of open platforms out of an incumbent business. Our results especially relate to the creation of network effects and competitive dynamics what both might be promising areas for future research. Thus, future studies could address different paths for the release of network effects depending on the origin of the platform leading company, either being incumbent or a new business. Furthermore, it would be interesting to research how companies compete with their core products while cooperating as complementor and platform leader on an open platform. This relates to the rich research field of open innovation, more specifically coopetition. Future studies could address coopetition in the specific case of open platform ecosystems of incumbent businesses.

Additionally, management practitioners gain important insights from our study that help them to transform their businesses into an open platform with an ecosystem of independent complementors that create value for users. Most counterintuitively, our research proposes to disengage from the common thought to protect the core business by creating a digital platform around the current product, while excluding competitors. Rather, our research proposes to look for assets and capabilities that can be used to create a new market where value gets created by an ecosystem that might also contain competitors from the core business.

References and Notes

Adner, R., & Kapoor, R. (2010). Value creation in innovation ecosystems: how the structure of technological interdependence affects firm performance in new technology generations. *Strategic Management Journal*, *31*(3), 306–333.

Armstrong, M. (2006). Competition in two-sided markets. *The RAND Journal of Economics*, *37*(3), 668–691.

Boudreau, K. J. (2010). Open Platform Strategies and Innovation: Granting Access vs. Devolving Control. *Management Science*, *56*(10), 1849–1872.

Boudreau, K. J., & Jeppesen, L. B. (2015). Unpaid crowd complementors: The platform network effect mirage. *Strategic Management Journal*, *36*(12), 1761–1777.

Chesbrough, H. W. (2011). *Open Service Innovation: Rethinking your Business in a New Era*. San Francisco, CA: Jossey Bass.

Chesbrough, H. W. (2012). Open Innovation: Where We've Been and Where We're Going. *Research-Technology Management*, *55*(4), 20–27.

Chesbrough, H. W. (2016). Striving for Innovation Success in the 21st Century.

Davis, J. P., & Eisenhardt, K. M. (2011). Rotating Leadership and Collaborative Innovation: Recombination Processes in Symbiotic Relationships. *Administrative Science Quarterly*, *56*(2), 159–201.

Demil, B., & Lecocq, X. (2006). Neither Market nor Hierarchy nor Network: The Emergence of Bazaar Governance. *Organization Studies*, *27*(10), 1447–1466.

Eisenhardt, K. M. (1989). Building Theories from Case Study Research. *The Academy of Management Review*, *14*(4), 532–550.

Eisenmann, T. R. (2008). Manging Proprietary and Shared Platforms. *California Management Review*, *50*(4), 31–54.

Eisenmann, T. R., Parker, G. G., & Alstyne, M. Van. (2006). Strategies for two-sided markets. *Harvard Business Review*, *84*(10), 91–101.

Eisenmann, T. R., Parker, G. G., & Van Alstyne, M. (2011). Platform envelopment. *Strategic Management Journal*, *32*(12), 1270–1285.

Evans, P. C., & Gawer, A. (2016). The Rise of the Platform Enterprise - A Global Survey.

Feng, Z., & Furr, N. (2016). Products to Platforms : Making the Leap. *Harvard Business Review*, *94*(4), 72–78.

Frattini, F., Bianchi, M., De Massis, A., & Sikimic, U. (2014). The Role of Early Adopters in the Diffusion of New Products: Differences between Platform and Nonplatform Innovations. *Journal of Product Innovation Management*, *31*(3), 466–488.

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

Gawer, A., & Cusumano, M. A. (2008). How Companies Become Platform Leaders. *MIT Sloan Management Review*, *49*(2), 28–35.

Gawer, A., & Cusumano, M. A. (2014). Industry Platforms and Ecosystem Innovation. *Journal of Product Innovation Management*, *31*(3), 417–433.

Hagiu, A. (2007). Merchant or Two-Sided Platform? *Review of Network Economics*, *6*(2), 115–133.

Hagiu, A. (2014). Strategic decisions for multisided platforms. *MIT Sloan Management Review*, *55*(2), 71–80.

Hagiu, A., & Hałaburda, H. (2014). Information and two-sided platform profits. *International Journal of Industrial Organization*, *34*, 25–35.

Kim, S. K., & Min, S. (2015). Business Model Innovation Performance: When does Adding a New Business Model Benefit an Incumbent? *Strategic Entrepreneurship Journal*, *9*(1), 34–57.

Mäkinen, S. J., Kanniainen, J., & Peltola, I. (2014). Investigating Adoption of Free Beta Applications in a Platform-Based Business Ecosystem. *Journal of Product Innovation Management*, *31*(3), 451–465.

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

Meyer, M. H., & Lehnerd, A. P. (1997). *The Power of Product Platforms*. New York: The Free Press.

Rochet, J.-C., & Tirole, J. (2006). Two-sided markets: a progress report. *The RAND Journal of Economics*, *37*(3), 645–667.

Rochet, J., & Tirole, J. (2003). Platform competition in two-sided markets. *Journal of the European Economic Association*, *1*(4), 990–1029.

Simon, P. (2011). *The Age of the Platform: How Amazon, Apple, Facebook, and Google Have Redefined Business*. Motion Publishing.

Thomas, L., Autio, E., & Gann, D. (2015). Architectural leverage: putting platforms in context. *Academy of Management Perspectives*, *3015*(1), 47–67.

Van Alstyne, M. W., Parker, G. G., & Choudary, S. P. (2016). Pipelines, Platforms, and the New Rules of Strategy. *Harvard Business Review*, *94*(4), 54–62.

Visnjic Kastalli, I., & Van Looy, B. (2013). Servitization: Disentangling the impact of service business model innovation on manufacturing firm performance. *Journal of Operations Management*, *31*(4), 169–180.

Wareham, J., Fox, P. B., & Giner, J. L. C. (2014). Technology Ecosystem Governance. *Organization Science*, *25*(4), 1195–1215.

Wheelwright, S., & Clark, K. (1992). Creating project plans to focus product development. *Harvard Business Review*, *70*(2), 67–83.

Yin, R. K. (2014). *Case Study Research: Design and Methods* (5th ed.). Thousand Oaks: Sage.

Zhu, F., & Iansiti, M. (2012). Entry into platform-based markets. *Strategic Management Journal*, *106*(May), 88–106.