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PLATFORM EXPANSION DESIGN AS STRATEGIC CHOICE: THE CASE OF WECHAT AND KAKAOTALK

Research

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Abstract

In this paper, we address how the strategic choice of platform expansion design impacts the subsequent platform strategy. We identify two distinct approaches to platform expansion – platform bundling and platform constellations, which currently co-exist. The purpose of this paper is to outline the main characteristics of the two approaches and to identify the potential trade-offs associated with the selection of particular expansion mode. To this end, we construct the Platform Strategy Framework and apply it to two exemplary cases – WeChat, which functions as a feature bundling platform, and KakaoTalk, which evolves as platform constellation. Our analysis shows that there is not any preferable design as each approach has its positive and negative aspects, which need to be carefully out-weighted when a platform owner designs its expansion strategy.

Keywords: Multi-Sided Platforms, Platform Expansion, Platform Strategy, Case Studies.

1 Introduction

Multi-sided platforms (MSPs) have emerged as some of the most powerful and valuable business models around (Hagiu and Wright, 2011). Despite their growing popularity, successful platforms are the exception rather than the norm (Hagiu, 2013) as platform owners need to address various issues when building their platform business. Even though a platform manages to gain a critical mass of users after its launch, it can still reach a point of stagnation. In order to remain competitive, a platform owner needs to ensure the constant evolvability of the platform by providing new services to the existing user base, and thus achieving significant lock-in effects (Evans, 2009; Hagiu, 2006; Olleros, 2008; Shapiro and Varian, 1999; Tiwana, 2014). The existing literature on MSPs prescribes that platforms expand by bundling features (Hagiu, 2006), launching an envelopment attack (Eisenman et al., 2011), attracting complementors (Evans, 2009). In this paper, however, we argue that MSPs can adopt a new expansion design as the rapid spread and adoption of new digital technology, the smartphone, led to the emergence of mobile digital platforms (Eaton, 2012) which exist in an environment different from the environment in which physical (shopping malls) and digital platforms (Facebook) operate.

To accommodate to the specific characteristics of the mobile environment, several platform owners (Dropbox, Foursquare, LinkedIn, Google) started offering successful lightweight and simple apps (e.g. Facebook's Messenger, Foursquare's Swarm) that replicate features which established digital platforms has buried inside complex applications, suggesting that digital platforms operating in a mobile context may need different strategy. We observe that some of these standalone, single-functionality apps function as multi-sided platforms (e.g. Facebook Messenger, Swarm). Furthermore, several of these new platforms seem to be offered under one brand umbrella, while co-existing in parallel, and to be closely connected to one another due to single log-in credentials. As these new connected constructions consist primarily of platforms, we refer to them as platform constellations (e.g. Foursquare and Swarm constitute one platform constellation). Yet, despite this ongoing trend, there are still mobile digital platforms such as the Chinese messaging app WeChat, which expand by bundling features and additional services to its initial value proposition; thus transforming into single, multi-functional app. Thus, we identify two different approaches to platform expansion design, which mobile digital plat-

forms could adopt – feature bundling platforms and platform constellations. We argue that there is not any preferable expansion design; instead, each approach has negative and positive implications. Thus, we try to establish the potential trade-offs which a platform owner faces when choosing a particular design of expansion. We define the following research question:

What is the impact of the platform expansion design (feature bundling platforms vs platform constellations) on the subsequent platform strategy?

In order to answer this research question, we first design a platform strategy framework and then apply it to two selected cases each of which has adopted one of the identified platform expansion designs. By investigating these two case studies, we outline the main characteristics of the two approaches in order to facilitate the strategic choice which platform owners need to make. The rest of the paper is organized as follows. First, we review the existing literature on multi-sided platforms and develop the platform strategy framework. Then, we describe our research approach and methodology and proceed by presenting and analyzing two exemplary cases. We then discuss our findings and draw some conclusions in the final section of the paper.

2 Multi-Sided Platforms as Modular Systems

The literature on MSPs has studied platforms from different theoretical perspectives. Under the economic perspective, platforms are investigated as two-sided markets (Evans, 2009; Hagiu, 2006, 2014; Rochet and Tirole, 2003). Platforms are also studied as technological architectures (Gawer and Cusumano, 2007), which can be modular (Baldwin and Woodard, 2009) or layered (Yoo et al., 2010). Recently, Gawer (2014) proposed a new conceptualization of platforms as evolving organizations or meta-organizations that coordinate multiple agents, create value by generating and harnessing economies of scope, and consists of a core and a periphery.

In this paper, we investigate platforms as modular systems which enable direct interactions between multiple constituencies affiliated to them (Hagiu and Wright, 2011). A string of researchers has defined MSPs as systems (Baldwin and Woodard, 2009; Gawer, 2014; Krishnan and Gupta, 2001; Meyer and Lehnerd, 1997), characterized by a certain degree of modularity (Baldwin and Woodard, 2009; Olleros, 2008). In particular, a platform can be described as a ‘set of modular components that can be selectively used and reused across multiple platform complements’ (Boudreau and Hagiu, 2009). Thus, modular systems are particularly good for facilitating innovation as they allow for modules to be changed and improved over time which enables the emergence of multiple design options (Baldwin and Clark, 2006).

2.1 Equifinality

Modular systems can also be characterized by the concept of equifinality, or the principle that the same end goal can be reached from different initial starting conditions and in different ways (Katz and Kahn, 1978). Datta (2003) demonstrates the significance of equifinality in modular systems by stating that “because the modular systems perspective creates a flexible and reconfigurable standpoint for viewing systems, the same end state may be achieved through a variety of mediating process configurations, even if they use similar input condition” (p. 37). Thus, as the principle of equifinality stipulates that a system can get to the same end (or goal) from various different routes, different subsystem configurations (designs) can be used to achieve requisite productive results. Equifinality also implies that strategic choice (Child, 1972) or flexibility is available when creating and selecting particular configurations or designs in order to achieve high performance. By applying the principle of equifinality to MSPs, we argue that platform owners can adopt different designs for their expansion strategies. Equifinality suggests that there is no one best way to reach a goal; instead, there are multiple, different ways to achieve the same goal (Wilson, 1992).

2.2 Platform Design as Strategic Choice

As Hagiu (2006; 2014) points out determining the design of a platform is one of the key strategic decisions, which a platform owner should make. Platform design is usually defined as decisions, which needs to be made with regards to number of features, number of affiliated distinct group of participants, order of attracting groups of participants (i.e. depth and breadth, see Hagiu, 2006; 2014), structure of the platform (lean core (Olleros, 2008); core-periphery (Baldwin and Clark, 2004; Tiwana, 2014; Staykova and Damsgaard, 2015)), design of entry (one-sided, two-sided or multi-sided) and design of expansion (Staykova and Damsgaard, 2015). In particular, a platform owner needs to decide which features to incorporate and which additional groups of participants to affiliate when designing an expansion strategy (Hagiu, 2006). Platform owners, however, are now facing another strategic choice with regards to design of expansion, which has recently emerged as a trend and has not been addressed in the current literature on MSPs. Apart from bundling features (Shapiro and Varian, 1989) to their initial value proposition either by proposing their own functionalities or by enveloping adjacent markets (Eisenman et al., 2011), platform owners can now adopt a new expansion mode, which we define as platform constellations. Thus, we identify two different platform designs, which platforms can adopt in their expansion strategies— platform bundling and platform constellations. In this paper, we argue that there is no one best way for a platform to expand. Both modes of expansion will help a platform owner to achieve its goal. Instead, the choice of specific mode of platform expansion will have different implications for the platform strategy. Thus, a platform owner needs to carefully assess the various benefits and risks when choosing a specific expansion mode.

3 Platform Strategy Framework

In order to evaluate the impact of each design mode on the platform strategy, we first identify the key elements of a platform strategy. There is a lack of comprehensive research, which provides an overview of what constitutes a platform strategy as most of the research papers discuss separate strategic issues. Most of the researchers' efforts in the area are focused on designing pricing strategies (Julien, 2005; Rochet and Tirole, 2003; Weyl, 2006) and investigating the strategic dynamics of the platforms such as achieving same-side and cross-side network effect (getting two sides on board), platform envelopment and platform design (Eisenmann et al., 2006, Evans, 2009; Gawer and Cusumano, 2007; Hagiu, 2006; 2014). A string of papers studies platform entry strategy (Eisenmann et al., 2006; Evans, 2009; Kim et al., 2013) and platform evolutionary models (Evans, 2009; Gawer and Cusumano, 2007; Hagiu, 2006; Staykova and Damsgaard, 2014). Researchers also analyze the formation and evolution of platform ecosystem (Ceccagnoli et al., 2011; Cennamo and Santalo, 2013; Isckia and Lescop, 2013; Makinen et al., 2014; Sorensen, 2012; Tiwana et al., 2010; Yonatany, 2013), platform business models (Eisenmann et al., 2011; Evans and Schmalensee, 2008; Evans, 2013; Hagiu, 2014; Tiwana, 2014) and platform governance (Boudreau and Hagiu, 2009; Hagiu, 2014; Tiwana, 2014). Several authors, however, have tried to provide a holistic understanding of the strategic decisions, which a platform owner needs to address. Hagiu (2014), for example, points out that a platform owner needs to carefully plan the number of the sides to bring on board, the platform design, the pricing structure and the governance rules. Parker and van Alstyne (2014) define platform strategy as the mobilization of a platform to expand and operate in a given market and point out the different areas around which the platform strategy literature is anchored (launch strategies, governance and competition).

In order to design the Platform Strategy framework, we combine (and rename some of) the platform strategic elements as identified by Hagiu (2014) and Parker and van Alstyne (2014) and add other elements, which we identified by synthesizing the existing literature on MSPs. The key criteria whether an element is part of the platform strategy is whether it can impact the ability of a platform to expand and operate in a given market (i.e. we follow the platform strategy definition of Parker and van Alstyne, 2014). We manage to identify five key elements which constitute a platform strategy (plat-

form design, platform adoption, platform governance, platform innovation, platform ecosystem) and summarize their main characteristics (see Table 1).

Platform Strategy	
Elements	Characteristics
Platform Design	Features (Hagiu, 2006, 2014)
	Number of sides (Evans, 2009; Hagiu, 2006)
	Order of sides – the order in which the sides are added to the platform (Hagiu, 2006, 2014)
	Platform Architecture (Tiwana, 2013; Gawer, 2009)
Platform Adoption	Platform Size / Critical mass (Evans, 2008)
	Network effects (Evans, 2008; Shapiro and Varian, 1999)
	Switching costs (Shapiro and Varian, 1999)
	Multi-homing costs (Shapiro and Varian, 1999)
Platform Governance	Pricing (Evans and Schmalensee, 2008; Evans, 2011)
	Subsidy Side
	Revenue Side
	Non-pricing (Boudreau and Hagiu, 2009; Parker and van Alstyne, 2009; Tiwana, 2013)
	Openness (proprietary vs closed)
Platform Innovation	Decision Rights
	Control
	Regulation of access
	Regulation of interactions
Platform Ecosystem	Provided by the platform (Eisenmann, 2011; Hagiu, 2006)
	Provided by complementors (Gawer and Cusumano, 2007)
	Evolvability (Baldwin and Woodward, 2009; Hagiu, 2006)
	Incorporation costs
Platform Ecosystem	Number of complementors (Parker and van Alstyne, 2009)
	Orchestration (cooperation vs competition) (Ceccagnoli et al., 2011; Cennamo and Santalo, 2013; Isckia and Lescop, 2013)

Table 1. Platform Strategy Framework

4 Methodology

In order to provide an answer to the research question, we apply the Platform Strategy Framework to two selected cases, which represent the identified platform expansion designs. Our research approach relies on case studies, which are rich, empirical descriptions of particular instances of a phenomenon that are typically based on a variety of data sources (Yin, 2003). Case studies require the use of one or several cases to create theoretical constructs, propositions and/or midrange theory (Eisenhardt, 1989).

In order to outline the impact of the expansion mode on the subsequent platform strategy, we select two cases, which illustrate each of the identified expansion designs. We select to study the instant messaging apps KakaoTalk and WeChat, as they both are exemplary digital platforms that pursue the same goal (becoming a lifestyle platform (Chan, 2015) by adopting two different approaches. While WeChat choose to expand by bundling features to its initial platform (platform bundling), KakaoTalk added variety of additional services which are organized in separate platforms (platform constellations).

Our research is informed by secondary data collected from publicly available sources: annual reports, press releases, online news, academic articles, and interviews. The data was gathered in the span of 8 months and imported in software. We then coded the data for each of the elements in the Platform Strategy Framework and controlled for the emergence of new elements. Finally, we compare the data for each of the selected platforms in order to identify the key differences and similarities between them.

5 WeChat – Platform Unbundling

5.1 Case Description

The messaging app WeChat was released in 2011 by the Chinese online services provider, Tencent. The app's monthly active user numbers reached 600 million in the first half of 2015. WeChat provides text and voice messaging, group messaging, video conferencing, video games, sharing of photographs and videos, and location based check-in. In April 2012, Tencent launched a new WeChat service called Moments, or "Friends' circle" which allows users to share and get access to accepted WeChat friends' information, creating an intimate and private communicating circle within the users' choice of closefriends. WeChat opened its public platform in August 2012, allowing brands to apply for public account (either subscription or service account). Users can subscribe to brand accounts by scanning their QR code or searching for their ID via the tool "Adding a Friend." Apart from communicating with subscribers and sending them multi-media messages, public account owners can develop sophisticated services via WeChat's APIs such as booking hotels or purchasing goods.

In August 2013, Tencent incorporated a game center and a sticker store to WeChat (Hong, 2013). WeChat Wallet was introduced in 2014 as a mobile payment platform, which allows users to order taxi, book cinema tickets using the user's location, get geo-targeted coupons, execute P2P transactions, make utilities payments and pay for items in stores via QR code/barcode scanning. In May 2014, Tencent allowed official account owners to set up an online shop within the app. Initially, only major brands and retailers were allowed to have online stores in WeChat Store, but since May 2014, small business and merchants also joined the service. In March 2015, WeChat launched City Services in selected towns across China, where users were presented with a wide array of additional services that may be accessed from within the app - booking doctor appointments, paying home electricity and booking long-distance transportation to getting traffic camera feeds, monitoring air quality and reporting incidents to the police. In 2015, Tencent continued to expand its services by launching two official accounts for fitness trackers. Users can follow the official account WeChat Sport and receive information from their fitness tracker devices or certain phones in order to share it with friends and compete (Millward, 2015). Later, Tencent launched WeRun, an official account that records the number of steps taken per day and sends users a daily message notifying how far they are to reaching their goal. By incorporating variety of services, WeChat is trying to address the daily needs of its users by focusing on building a mobile lifestyle platform (Chan, 2015).

5.2 Case Analysis

5.2.1 Platform Design

WeChat was initially launched as one-sided platform, which connected one distinct group of users. As WeChat's core functionality is instant messaging, the majority of the initially released features were intended to provide better experience around it such as voice and video messaging, sticker shop, P2P payments. With the introduction of public accounts and customizable APIs, WeChat managed to attract numerous complementors, which developed their own services. For example, China Southern Airline's WeChat account features functions of voice weather forecast, interactive mileage check and membership display, while China Unicom's (Chinese state-owned telecommunications operator) WeChat account allows its subscribers to conduct inquiry and payments, file complaint and ask for consultation and assistance. Later, WeChat allowed public account holders to set up a WeChat store from within their account and send ads to their followers, thus building upon the feature. WeChat also partnered with other companies (e.g. taxi booking Didi Dache app) and incorporated exclusively their services within the app. WeChat users can book a taxi by accessing their WeChat Wallet and selecting 'Order Taxi' option which brings up the Didi Dache mobile website, where users can request a taxi. Another example is the integration with the Weiyang's app WePiao which allows users to buy tickets

from within WeChat Wallet. Thus, WeChat's value proposition is a combination of offering its own services (messaging, WePay, public accounts such as WeSport, WeRun, City Service), services offered by partners (Order Taxi, Book a movie ticket) and various, specific services offered by holders of public accounts. With the addition of new distinct group of participants (official accounts, partners, advertisers) WeChat was transformed from being one-sided to being multi-sided platform. WeChat's platform architecture is complex with its platform core developed around messaging and a large periphery consisting of various services provided by multiple actors.

5.2.2 Platform Adoption

WeChat's platform adoption should be measured on each of the affiliated to the platform group of participants. By doing this, we want to outline the adoption strategies which WeChat applies for each side (same-side network effects), but also to examine the drivers for platform adoption across sides (cross-side network effects). As WeChat was launched as one-sided platform, initially it had only one side to cater to – its users. Upon its launch, WeChat proved to be extremely popular as it attracted more than 100 million users within its first 15 months (Upton, 2014). WeChat releases a series of features in order to encourage the easy adoption of WeChat among users – from incorporating phone contacts and QQ accounts and tracking people by their WeChat ID to enabling geo-location Friend radar, scanning a unique QR code and allowing users to connect with their LinkedIn accounts. Despite the efforts to allow users to easily discover and add new contacts, WeChat limited the number of contacts a user can have to 5000 per account to avoid spamming as most of these personal accounts were also used by businesses (instead of the public accounts). At the same time, WeChat enabled interactions between large groups of users by increasing the number of chat groups' participants from 40 people to 100 people.

As WeChat's user base grew, it became attractive to a second distinct group of participants (businesses). Thus, in 2012 WeChat launched a public platform, which allowed businesses to set up public accounts in order to get access and interact with the platform's user base. Currently, there are 8.52 million public accounts on WeChat (Xiang, 2015) and approximately 80 % of the WeChat users follow at least one public account (Haoting, 2015). However, despite their sheer size, public accounts can reach only the users who choose to follow them. Less than 0.3 percent of all the public accounts have more than 100,000 followers and 97 percent of public accounts have less than 10,000 fans (Haoting, 2015). On average people subscribe to around 50 accounts (Rita, 2015). Thus, despite the large number of businesses, which WeChat managed to attract, the cross-side network effects, which connect users to public account holders, appear to be weak. This is further complicated by the low visibility of the public accounts, as users need to know the name of a brand or a business they want to follow and search it on WeChat or see it from a friends' circle. Thus, the ability for users to discover new accounts is limited. Businesses' reachability to users is further restricted by the different types of public accounts, which WeChat offers: subscription and service accounts. Subscription accounts are immediate and allow businesses to interact with their followers more frequently as they can send one message every 48 hours, which will be visible in the public account folder. A service account allows business to send one message to their followers every week, which will get an alert via a push service.

There is a clear distinction between the ability to reach users and the ability to interact with them. While business can follow simple rules to reach users (set up an account in case business have Chinese business license), WeChat has imposed rules on the frequency of interactions between public account holders and users depending on the specific account. As public accounts are associated with various rules, which enable some opportunities, while restricting others, business owners need to invest time in understanding the benefits and risks of each type of account before choosing which one to set up. Thus, WeChat exhibits relatively high homing costs for businesses (together with the possession of Chinese business license) which want to be affiliated to the platform.

In using WeChat, businesses are addressing the closed, intimate social circle of their followers rather than a mass audience, thus the audience-making abilities of WeChat are limited. In order to address

this shortcoming, WeChat launched a couple of services in cooperation with partners, which target WeChat's user base. The most prominent of these services is WeChat Wallet, which has app. 200 million users (Wang, 2015). WeChat introduced more features in order to increase customer's switching costs by making the platform more appealing to them. However, most of the added services provided by external partners such as booking a taxi or buying a movie ticket are available as separate services on platforms other than WeChat (Didi Dache app and WePiao). Thus, users can easily multi-home to other services.

5.2.3 Platform Governance

WeChat is free to download and use, including the core messaging and voice services, Moments and even some games. Tencent make 90% of its revenues from added value services, mostly through online games sales and virtual stickers. Since 2014, Tencent registered revenues from ads as public accounts were allowed to target ads to their followers. The WeChat revenue from advertising is based on initial registration fee and click-per-view model (6% of the revenues is from ads in 2014 (Doland, 2015)). WeChat also receives revenue from charging annual subscription fees from its public account holder and from WeChat Pay, where it charges 0.6% per transaction. WeChat subsidizes some of its services such as WeChat store, where merchants can set up a store free of charge. WeChat also subsidizes taxi drivers in order to popularize its taxi-ordering service.

WeChat has a relatively high degree of openness as it has opened its platform on several levels. In 2012, it first opened its platform by providing customizable APIs to public account holders, who can develop more sophisticated features. According to data releases in 2014 there are app. 100 000 developers using WeChat APIs (Smith, 2015). The large number of complementors affiliated to WeChat requires strict rules for platform curation in order to ensure the quality of the platform interactions. For example, although WeChat announced in October 2013 that it will open a number of APIs to verified account holders, it kept a series of APIs such as WeChat payment API, message sending API etc. closed to most of the accounts and opened some of them only later.

WeChat imposes restrictions on both access (who and how many can join) and frequency of engagement (how often business can engage with their followers). WeChat's access rules include various levels of verification and initial fees. Users are required to sign-up with a phone number. Before business can apply for public account, they need to accumulate 1000 followers and apply for verification procedure. Developers and business owners who want access to WeChat's APIs need to undergo 4-step verification process for API and pay a security deposit. Apart from regulating the access to the platform and the frequency of interactions (two different types of public accounts, see section 5.2.2), WeChat also monitors and censors content on the platform. More than 32,000 plagiarized articles were deleted and 497 public accounts were punished by Tencent between February and April 2015 (Xinhua, 2015). WeChat possess the majority of the decision rights as it can decide who can join the platform, under what conditions and can monitor and sanction unregulated behavior. At the same time, it also gave significant decision rights to users, who can decide which public account they want to follow, and to business, which can decide which features they want to include in their public accounts.

5.2.4 Platform Innovation

WeChat's platform innovation is provided by WeChat (WePay, WeRun), complementors and partners. By relying on complementors and partner companies to design innovative features, WeChat out-sources to a certain degree the innovation on its platform. Most of the innovative services are provided by complementors who access WeChat's APIs, but as such services are targeted only to the followers of a specific public account, they are highly customized and their reach is limited. WeChat's innovation strategy relies on coining partnership with the right innovators who wants to benefit from WeChat's large user base. For example, WeChat partnered with the taxi booking app Didi Dache and with the Weiyang's app WePiao which allows users to buy movie tickets. When users access Order Taxi and Book a movie ticket features from WeChat Wallet, they are redirected to the apps of the

WeChat's partners where users complete the actions. Thus, the complete user experience is provided by WeChat's partners. This reliability on external partners limits WeChat in providing more innovation around a particular feature. Instead, WeChat has to rely on innovative services which are developed by its partners. Thus, if WeChat wants to further innovate around this particular service, it has to rely on DiDi Dache to offer new services. At the same time as DiDi Dache released new services and transformed from being a taxi booking app to a transportation platform where users can find and book all means of transportation (car pooling service, bus service etc.), all these features became available to WeChat users as well. However, as the previous integration with WeChat Wallet was only for ordering taxi, the new services cannot be incorporated within this feature. To solve the problem, WeChat had to offer the new bus service as an official account (Didi Bus) which users can follow in order to use the service. This leads to partitioning of the user experience across the platform. The situation is further complicated by the fact that the services offered by external partners on WeChat compete with the same services offered by the same partners on their own platforms. Didi Dache (later Didi-Kuaidi) became a transportation platform, where users can find all of the platform's features (taxi booking, car pooling, bus service) integrated, thus delivering coherent user experience. Thus, both WeChat and Didi-Kuaidi offer the same services, but in a different way, which may lead to competition between them.

5.2.5 Platform Ecosystem

Due to its open APIs strategy, WeChat managed to attract huge number of complementors. Currently, there are app. 67 000 apps connected to WeChat (Smith, 2015). The large amount of complementors drive the innovation on the platform, but it also results in conflicts and tension among complementors themselves and between the platform provider and complementors. For example, in 2015 Uber reported that its account has been blocked on WeChat. The official explanation from WeChat is that the Uber account was not accessible due to technical issues, but, as none of the other public accounts were blocked, Uber CEO Travis Kalanick openly accused WeChat of censorship (Milward, 2015b). The blocking of the Uber account also came at times when Tencent partnered with Didi Dache, one of the most popular Chinese apps for taxi booking.

6 KakaoTalk - Platform Constellation

6.1 Case Description

KakaoTalk, a mobile instant messaging application which offers free text and free call features, was launched by KakaoCorp. (later Daum Kakao) in 2010. KakaoTalk users, who currently amount to 170 million (Cheng and Lee, 2015), can share diverse contents and information from photos, videos, voice messages, URL links and contact information. KakaoTalk began expanding its services in 2010, launching its first non-chat service, the Gift Shop, in December. In October 2011, the platform introduced "Plus Friends", a feed feature, which allows users to receive special contents and updates from brands and artists they choose as their "Plus Friends". With "Plus Friends", businesses can send news, updates and discount coupons to their followers. Another feature KakaoPay was launched in September 2014, which allows users to register up to 20 cards to their accounts via the KakaoPay menu found within KakaoTalk's Settings. Apart from adding more features in the main KakaoTalk app, in March 2012, Kakao Corp. launched KakaoStory, a separate app with different functionalities in order to diversify its business model (KoreaMarketing, 2012). Kakao Story, which allows users to share pictures and status updates via their phone with KakaoTalk friends, reached 5 million subscribers just three days after its launch (Rousse- Marquet, 2013). In November 2012, KakaoStory added KakaoStory-Plus, which opened up the social network service for businesses to create brand profiles and bypass the current limit of just 500 friends (Tebay, 2013). After the enormous success of KakaoStory, KakaoCorp. started looking for additional sources of revenue by launching separate services, the majority

of which function as platforms. In total Kakao launched 15 separate apps with various value propositions such as Kakao Music, KakaoStyle, KakaoPage, KakaoPlace, KakaoPick, KakaoBankWallet etc. Thus, Kakao formed a constellation of separate apps (platforms) around its main platform KakaoTalk in order to fulfil its goal of becoming a ‘full-fledged mobile lifestyle platform that makes everyday life more convenient’ (Kakao Blog, 2015).

6.2 Case Analysis

6.2.1 Platform Design

KakaoTalk was launched as one-sided platform providing instant messaging service and managed to reach critical mass of users (5 million) (Statista, 2014) in just 9 months after its launch. The sheer size of KakaoTalk’s user base increased the attractiveness of the platform and retailers soon joined the platform by participating in a gift shop. Thus, KakaoTalk was transformed from being one-sided to being two-sided platform. The third side was added in October 2011 when KakaoTalk enabled a feature (Plus Friend) to allow businesses to target users. Instead of bundling new features in KakaoTalk, however, Kakao Corp. decided to offer new services as separate apps, which as they facilitate the interactions between one or more distinct group of users, function as either one-sided or two-sided platforms. As Sergio Lee, one of the co-CEOs of Kakao, explained in an article the developers in Kakao did consider bundling features to KakaoTalk, but later abandoned the idea as this could have made the KakaoTalk experience clunky and confusing; instead, they created a separate app, KakaoStory (Lee, 2014). In the following years, Kakao Corp. released various services as separate apps, each of which functions as a platform with its own features, business models, user base. KakaoTalk’s Platform Constellation consists of approximately 15 standalone platforms, which are all connected to the KakaoTalk’s user base through the use of Kakao Account. Having several platforms, which target niche markets (KakaoMusic, KakaoStyle, KakaoTaxi), allows the platform owner to keep the services simple, thus guaranteeing maximum user experience and appealing to different users’ preferences.

6.2.2 Platform Adoption

KakaoTalk managed to attract a critical mass of users relatively fast as it relied on significantly high same-side network effects. KakaoTalk automatically synchronizes the user’s contact list on their smartphones with the contact list on KakaoTalk to find friends who are on the service. Users can also search for friends using the KakaoTalk ID, which is a way for users to identify themselves from others without revealing their phone number. Kakao Corp. also attracted a second distinct group of participants with the help of official accounts “Plus Friend”. Users can choose to follow a ‘Plus Friend’ account, which is recommended to them either by a friend or by KakaoTalk. In 2013, there were over 100 million PlusFriend accounts, with on average 350 000 users following a specific brand (Asiance, 2013). In 2014, KakaoTalk launched a second type of business accounts – Yellow ID, which targeted small merchants. Yellow ID differs from “Plus Friend” in that it allows account holders to chat one on one with individual users and it is free of charge. Thus, by adding Yellow ID Kakao Corp. tried to strengthen the cross-sided effects on the platform.

With the launch of new separate platforms, Kakao Corp. had to ensure that some of KakaoTalk’s users migrate to the new platforms in order for the new solutions to achieve critical mass. The ability of the KakaoTalk users to use the new apps with their KakaoAccount, as well as the ability to migrate their KakaoTalk friends with the use of social graph, helped the new platforms reach critical mass. For example, the high integration between the KakaoTalk and KakaoStory created the possibility for users to multi-home which resulted in 9.2 million users signing up for KakaoStory in the first week of its launch; in contrast, it took KakaoTalk a month to reach 10 million users. Every platform can constitute an entry point from which a user can start exploring the universe and continue navigating through the platform constellation. Users can enter from the main platform (e.g. KakaoTalk) and migrate towards additional platforms (KakaoMusic) or enter additional platforms (KakaoMusic) and then adopt other

platforms (KakaoTalk). As the new platforms target niche markets, they have smaller user bases in comparison to the main platform KakaoTalk. For example, KakaoMusic has 3,8 million users, Kakao Pay reached a bit over 1 million users, Kakao Pick was used by 892 000 users (Jung, 2015). Thus, every new platform requires a separate adoption strategy. Furthermore, as evident from KakaoStory, KakaoTalk users are encouraged to multi-home on other platforms in order to drive adoption, while business and advertisers cannot easily multi-home as Kakao Corp. introduced two different accounts for business on KakaoTalk (Plus Friend) and KakaoStory (KakaoStoryPlus).

6.2.3 Platform Governance

In 2012, KakaoTalk functioned as multi-sided platform and offered its basic services for free. Its revenue came from three models: transaction fees, sales of stickers/emoticons and targeted advertising. The most profitable feature was selling stickers/emoticons. In 2012, in a bid to diversify its business model, Kakao Corp added KakaoStyle, which connects users to fashion and cosmetic brands. The platform does not take a percentage of each sale, but it sells access to KakaoStyle as a form of ad inventory. In 2013 KakaoTalk added several new platforms which turn to be also sources of revenue. Kakao Page distributes revenue to application store operators (30 %) and the content creators (50 %) after which it requires 20 % cut from Kakao Page sales. Users can also upload content they have created by paying an annual membership fee of 50,000 won. KakaoMusic charges users for buying a song from the catalogue available on the service. Thus, each of the additional platforms has a revenue and subsidy side of their own. This allows for Kakao Corp. to experiment with various business models in search for additional revenue streams.

Kakao Corp. has a tight control over the separate apps in order to guarantee the proper functioning of the platform constellation. The tight control also presupposes a certain degree of platform closeness. Although Kakao Corp. operates several APIs, the separate platforms remain closed to external innovators. The only exception is KakaoGame, which is open to external developers through an API as the platform relies on external game developers to provide new games. KakaoLink API allows developers to send messages and links from external apps or mobile webpages to KakaoTalk and KakaoStory. As Kakao's platform constellation is relatively closed and under tight control, Kakao Corp. has the majority of the decision rights. KakaoTalk has introduced some strict rules in order to guarantee good quality of the users' interactions. For example, KakaoTalk has a number of protective measures to restrict spammers - block and report spam. KakaoTalk's Smart Link Blocking System sends warning message for potentially dangerous links instead of actually connecting to them (Uy, 2014). Kakao Corp. also maintains strict rules for access. As each app from the platform constellation has its own affiliated sides, value proposition, business models, they also have their own rules. Unlike users, who are encouraged to multi-home across the various platforms, advertisers can have access only to the KakaoStory's users through their account KakaoStoryPlus, which is valid only for this particular platform.

6.2.4 Platform Innovation

KakaoTalk as a main platform has 4 sides and offers 9 main features and functionalities, while the platform constellation in which KakaoTalk is part of consists of 15 different platforms each of which offers its own functionality. Thus, platform constellations can facilitate the testing and offering of many innovative features simultaneously as these constructions benefit from division of labour by reducing the degree of dependency between the additional platforms and the main platform. All platforms are offered by KakaoTalk's platform owner. Some platforms, however, are offered in cooperation with other partners such as KakaoMusic, which has licensing agreements with music providers. Our analysis also indicates that every platform is an innovation effort in itself. Thus, if newly launched services proved to be unpopular, they do not jeopardize the health of the entire platform constellation. For example, KakaoLink was launched in 2011 to increase the use of KakaoTalk, but it did not prove to be a success story and the business model of the app was significantly modified (KoreaMarketing,

2012). As each platform can evolve on its own (that is it has a separate evolutionary path due to its independency from the main app) and enhance its initial value proposition by adding new sides and functionalities, the platform constellation has many possibilities to capture new additional value for the platform owner.

6.2.5 Platform ecosystem

KakaoTalk has partnered with various external actors such as content creators, shops, musicians, advertisers, but it organized these partnerships around separate platforms. Kakao Corp. also manages a vast network of game developers affiliated to its gaming platform KakaoGame.

7 Discussion

In this paper, we investigate the different expansion designs (platform bundling and platform constellation) which a mobile digital platform can adopt and the impact of such a choice on the overall platform strategy. Our analysis of two selected cases indicates that the choice of an expansion design has implications for the subsequent platform adoption, innovation, governance, business models and orchestration of the platform ecosystem.

Platforms, which bundle features, rely on the sheer size of their user base to attract complementors and external partners. As WeChat’s user base grew in size, it became more attractive to other distinct group of participants. Platform Constellations, which consist of several platforms sharing the same log-in credentials, however, require the design of complex adoption strategies for each of the new platforms, which upon launch do not have any users. As the main platform has reached a critical mass of users, the platform owner needs to migrate some of these users to the other platforms. The ability of the users to multi-home across various platforms is achieved with the introduction of single log-in credentials. Although this results in partitioning of the user base, every platform can constitute an entry point from which a user can start exploring and continue navigating through the platform constellation.

The feature bundling strategy of WeChat is built upon the integration of various apps developed by external complementors which use WeChat’s official accounts. However, these accounts have limited audience-making abilities as users have limited possibilities to discover accounts (search the name of the account after they have heard it first from friends or advertisements etc.). Another limitation is that only users who choose to follow them can receive updates, which restricts the platform’s ability to generate cross-side effects. On the other hand, platform constellations such as KakaoTalk amass and organize various distinct groups of participants around separate platforms. For example, KakaoPage connects users and digital content providers, while KakaoMusic facilitates the interactions between users and music license holders. Thus, by launching separate platforms which facilitate the interactions between two distinct groups of users, the platform owner manages to reduce the search costs between the affiliated participants and enhance the cross-side effects between them. A good example of this is Kakao Music, which allows its users to choose from a ready-made playlist which suits their mood or receive personalized recommendations for music tracks and artists.

Our analysis indicated that both WeChat and Kakao’s platform constellation have diversified business models with various revenue streams. We found that the main difference between the two approaches is the possibility for platform constellation’s owner to experiment more easily with various business models. Each of the platforms which form platform constellations has a subsidy and revenue side of its own. Some of them are profitable (KakaoMusic, KakaoGame), while other are non-profitable (KakaoAlbum). A potential peril for this expansion design is the presence of too many subsidy sides, which can jeopardize the revenue of the constellation if not executed properly. A more investigation into the matter, however, is needed.

Platform Strategy	Platform Bundling (WeChat)	Platform Constellation (KakaoTalk)
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Adoption	Limited audience-making abilities High search costs for complementors	Risk of partitioning the user base Need for mechanism allowing users to multi-home across platforms The adoption of one platform drives the adoption of others Reduces search costs
Innovation	Difficulty to build upon a feature Dependency on partners Competition with partners' platforms	Easy to build upon a feature Lower innovation risk Coordination costs between platforms
Governance	Difficulty monetizing cross-side network effects	Various business models Various subsidy and revenues sides (on each platform)
	High degree of openness High degree of monitoring and censorship	Less degree of openness Selective openness on some platforms High level of initial control and less monitoring
Ecosystem	Multiple external complementors and partners Conflict among complementors and between complementors and platform owner	Fewer external complementors External partners organized around separate platforms

Table 2. Comparison between feature bundling platforms and platform constellations

Platform Constellations require strict coordination. Platform owners, who pursue platform constellation strategy, tend to exert tight control over the separate platforms in order to ensure the health of the whole constellation. This is necessary because the platform owner needs to orchestrate the coordination between the different platforms by designing access rules and rules regulating the interaction between affiliated constituencies across various platforms (e.g., advertisers affiliated to KakaoTalk cannot interact with users on other Kakao Corp. platforms). The strict initial rules result in less monitoring of the ongoing activities at a later stage. This is in contrast to feature bundling platforms, which rely on external innovators to provide additional services (public accounts). Although these platforms also have access rules, there is a need to monitor and regulate carefully the ongoing activities of the multiple complementors, most of which have the liberty to offer their own services via APIs. Thus, platform constellations exercise more control when designing the separate platforms, while feature bundling platforms control and sanction more the behaviour of already affiliated participants. The level of control is also associated with the level of platform openness. As feature bundling platforms rely on external complementors and partners to provide innovative services, they require high degree of openness, which evokes the need for strict control and monitoring. Platform constellations, on the other hand, tend to be more closed structures in order for the platform owner to be able to maintain the health of the constellation. Platform owners can choose which separate platforms can be opened to external innovation (e.g. KakaoGame), while keeping others closed.

Our analysis shows that the choice of expansion design has clear implications for platform's innovation strategy. Both WeChat and KakaoTalk rely on public accounts to manage the affiliated to them businesses. However, while KakaoTalk limited the functionality of its official accounts, WeChat opened its platform and allowed the public account holders to provide their own services. Platforms, which bundle features such as WeChat, rely on the innovative efforts of the affiliated complementors and partners, while platform constellations invest on their own to develop innovative solutions, which give them more control over the user experience. By relying on external innovators to provide new services, feature bundling platforms do not have to invest in developing these services on their own. Due to the dependency on external innovators, platforms, which bundle features, however, face challenges when it comes to incorporating new innovative services to their current value propositions as WeChat found out when tried to integrate the new bus service from DiDi Dache. WeChat had to offer the new bus service as an official account (Didi Bus) which users can follow in order to use the service as it cannot build upon the Order a Taxi feature (single-purpose feature, which guarantees a specific user experience). On the other hand, platform constellations allow specific service to be offered as a standalone platform, where new features can be easily incorporated without partitioning the user experience. An example of this is KakaoTaxi, a taxi ordering and hailing app released by Kakao Corp. as

part of their platform constellation strategy, which incorporated a feature for taxi-booking services for luxury vehicles within its platform. In case KakaoTaxi wants to follow DiDi Dache app's approach and become transportation platform, it can easily do so by providing integrated user experience at the same time. Thus, unlike separate platforms where platform owner can build upon the user experience by introducing new features, platform bundling allows only separate features to be added, thus limiting the possibilities for future evolvability. It is interesting to note that recently WeChat has adopted a new approach to innovation. Instead of partnering with external actors and incorporating a new feature to its menu, WeChat offered the new service by launching two official accounts, WeSport (read motion tracking data from users' phone that's pulled in from gadgets like a Fitbit, Nike Fuel, or a Xiaomi MiBand) and WeRun (a step tracker from within the app). This approach allows the platform owner not to overburden the main platform (WeChat) with too many features, while at the same time the high customization of the official account allows for introduction of new features. The user experience, however, remained partitioned as the functionality of the two accounts are not only overlapping, but also even competing.

As feature bundling platforms manage vast ecosystem of complementors and partners, conflicts among complementors and between platform owner and complementors are more likely to appear (e.g. WeChat and Uber). Platform Constellations are more selective with regards to the partners they work with and tend to organize them around separate platforms.

8 Conclusion

In this paper, we view the selection of a platform expansion design as a strategic choice, which platform owners have to consider carefully. The focus of this paper is not to explain how a specific platform design is selected (e.g. by investigating various contingency factors). Instead, we focus on investigating the impact of a specific expansion approach on the existing platform strategy. In order to conduct our research, we first construct a Platform Strategy Framework by synthesizing the existing literature on MSPs and then apply it to study the impact of the expansion design choice on the platform strategy of two selected cases: WeChat and KakaoTalk. We found that although both platforms pursue the same goal, they choose to adopt different approaches to their expansion, which has an impact on the subsequent platform adoption, governance, business model, innovation and orchestration of the platform ecosystem. Our analysis indicates that there is not any preferable design as each approach has its positive and negative aspects, which need to be outweighed carefully when a platform owner selects a future expansion design.

The paper has both theoretical and practical contributions. This research investigates the strategic implications of the selection of specific design of expansion (platform bundling vs. platform constellation), which has not been addressed in the prior literature on MSPs (see Table 1). Our findings can also inform platform owners who contemplate on the next step in the evolutionary path of their platforms. Platform owners can consult our research in order to take a better decision concerning the platform expansion mode and become aware of the various strategic challenges and benefits, which such choice presupposes.

Our study, which presents a first attempt to identify and compare two different approaches to platform expansion design, is not without limitations. The analysis, which we conduct, studies only two specific cases, whose expansion strategies are still in the making, and relies extensively on the use of publically available secondary data. Future research may try to identify other cases of these expansion designs (e.g. the platform constellation of Line) in order to validate or modify our findings. In the future, we may see other expansion designs emerging (e.g., Facebook acquired various innovative companies and organize them as platform constellation) as well as potential convergence between the feature bundling platforms and platform constellations approaches (e.g., WeChat launching separate app and KakaoTalk providing APIs for the 'Plus Friend' feature, thus opening its platforms).

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