An Advertisement-based Platform Business Model for Mobile Operators

Pieter Ballon°, Nils Walravens°, Antonietta Spedalieri*, Claudio Venezia+

°IBBT SMIT, Vrije Universiteit Brussel, Belgium.
E-mail: (pieter.ballon or nils.walravens) @vub.ac.be
*Telefónica I+D, Spain. E-mail: aspedal@tid.es
+Telecom Italia, Italy. E-mail: claudio.venezia@telecomitalia.it

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Abstract

The environment of mobile service delivery is undergoing significant changes when it comes to business models and the organisation of the value network. Different actors in the field strive to exercise control within the business model by applying diverging strategies. By elaborating the concept of gatekeeping roles this paper will highlight how major actors currently vie for dominance. It provides a brief overview of four current or emerging platform models for mobile service provision. After this analysis a fifth model is introduced, which attempts to balance the gatekeeping roles within the service delivery ecosystem.

1. Introduction

Emerging and near-future mobile service platforms are expected to achieve competitive advantage over rival approaches by providing extensive support and capabilities for service developers, and by providing end users with a large variety of rich services that can be consumed irrespective of time and place [1]. The European IST-FP6 project SPICE [2] (Service Platform for Innovative Communication Environment) addresses the problem of designing, developing and putting into operation efficient and innovative mobile service platforms for the rapid creation and deployment of intelligent and personalized mobile communications and information services. One of the key challenges is the design and validation of viable business models for next-generation mobile service platforms. In the context of this paper, a business model is defined as the architecture of a business, describing how a company or a set of companies intend to create and capture value with a product or service.

Currently, the central actor in this changing environment is the mobile network operator, hosting some of the most significant proprietary service platforms. Usually these platforms are conceived as integrated solutions with high entry barriers for third party content and service providers, and are referred to as walled gardens. Mobile network operators are confronted with limitations when trying to attract both users and service developers due to the walled garden approach, and are seeking ways to attract larger constituencies by adopting a more open approach for example. Open capabilities and enablers for third parties is one reason several internet companies such as Google and Facebook are currently attracting both a large number of users and many service developers. As successful internet actors and services are expanding and migrating to the mobile sphere, mobile network operators are challenged to provide equally compelling service delivery environments.

The intention of this paper is to:

- Evaluate existing business models in the telecom industry based on the analysis of several real-life cases of service delivery platforms
- Examine which actors play crucial value adding roles in these current or emerging models
- Explore a business model that considers and responds to these industry changes

First, the concept of platform leadership is outlined as a potentially successful strategy to deal with multi-sided markets such as mobile service provision. Subsequently, four current or emerging business models for mobile service delivery platforms are described. Finally, a fifth model is presented, suggesting ways in which a mobile operator can remain a central actor within the dynamically changing ecosystem, using an advertisement-based model.

2. Platform Leadership

Currently, various competing and highly diverging approaches to mobile service platforms can be observed in the market. Mobile service platforms range from fairly modest or specific platforms to all-encompassing service development and deployment environments integrating low-level as well as high-level telecommunications and IT capabilities [3].

However, there is not just a difference in features or scope. As the cases gathered here will demonstrate, entirely different business models for mobile service platforms can be observed. This paper will use concepts from literature on platform competition, multi-sided networks and modular architectures to describe the workings of these models. The objective is to illustrate and analyze the various ways in which current and emerging mobile service platforms cope with the characteristics of platform competition, using strategies centred on platform leadership and the control over crucial gatekeeping roles.

Platforms as technical as well as organizational concepts have received significant attention over the past decade. In recent literature on so-called two-sided or even multi-sided networks, platform competition has been described as being focused on a platform's ability to mediate and coordinate between two or multiple groups of customers [4]. In mobile service provision, distinct customer constituencies include mobile content and service developers, advertisers, and end-users. A successful platform coordinates the interactions between the various customer constituencies and is able to internalize the externalities created by one group for the other group. Business models in multi-sided platform markets, rather than to focus on profit maximization in a single market, primarily deal with getting the various groups on board, with balancing interests between these groups, and with single- or multi-homing of customers (i.e. whether customers are locked in to one or more platforms). This implies that whether a successful mobile service platform business model can be found is less a case of cost oriented prices but rather of setting pricing policies that maximize the quantity (and quality) of both application and content providers and end users, e.g. through cross-subsidization [5].

[6] have characterized the appropriate strategy for firms operating in these kinds of multi-sided markets as the quest for "platform leadership"; the objective being to control a central module around which other companies develop complementary technologies and products. Based on these authors it can be stated that the main levers of a platform leadership strategy include:

- fostering a thriving ecosystem of external complementary innovators,
- influencing architectural design through open interfaces combined with core intellectual property assets,
- balancing consensus and control strategies towards contributors of complementary innovations, and
- adopting a systemic and neutral mindset that extends to the whole industry.

This paper takes stock of four current and emerging cases of platform leadership strategies in the mobile service domain (see for a more extensive treatment of these case studies, i.e. [3]). It discusses how they may affect the mobile operator's business model and subsequently goes beyond these current cases, by presenting a potential new platform model that mobile operators may follow.

In our analysis, the concept of a gatekeeping role is used. The idea of a 'platform gatekeeper', controlling access in modular or semi-modular systems, can be seen as an extension of the concept of 'information gatekeepers', which is commonly used in media and information theories to describe persons and organizations filtering and packaging ideas and information. Usually, the concept is taken as a given, and no in-depth discussion is offered of the specific 'architectural advantage' that enables an entity to function as platform gatekeeper. This paper links the generic platform gatekeeper concept to specific value-adding and strategically important roles that enable platform owners to follow a platform leadership strategy. The following section will introduce the basic concepts used in this paper. Next, four business models for mobile service platforms are identified. For each model, the particular set-up and control of gatekeeping roles is briefly analyzed.

3. Methodology

The methodology used to outline and analyze these business models is based on the framework presented in [7]. This framework examines both value streams as well as shifts in power between a set of abstracted entities. These entities include roles, actors and stakeholders. A business role can be defined as a discrete set of responsibilities, actions, activities and authorizations that together have a coherent value-adding logic. A business actor is a marketplace entity that encapsulates a coherent set of roles. A stakeholder can be defined as a current real-life organization (a specific individual, institution, company, organization, etc.) with an interest or stake in the outcome of a certain action.

Depending on the business model, the roles each actor is taking up may shift, according to which actor controls most of the value-adding activities in that particular model. Significant roles that are estimated as crucial in delivering the value proposition to the user have been labelled 'gatekeeping roles' in order to indicate their structurally important position within the business model. In the context of mobile service platforms, the following four crucial value-adding roles are distinguished (see a.o. [1]):

- Service Creation Environment: A set of development and hosting tools for third-party service developers
- Profile/Identity Management: This is a component that manages general user data and user preferences for various services and user preferences for multiple user situations.
- Service Provisioning/Service Brokerage: The broker represents the reference point for end-users to retrieve, subscribe and use Services and Service Components.
- Charging & Billing: Charging and billing components are essential when considering service architecture development.

We argue that these four roles can be deemed crucial within the context of mobile service delivery business models and that they form a tool that allows us to analyze which actor(s) take(s) up most control within the value network. An actor exercising all or most of these gatekeeping roles is likely to be vying for platform leadership and dominance within the ecosystem. However, as we will see later on, there are quite diverging strategies among actors to obtain this dominance.

Data for the analysis derives from four case studies on which business and market data was collected, as well as from a series of in-depth interviews with business strategy representatives from various types of relevant stakeholders (i.e. mobile network operators, hardware and software vendors, and content and application producers), and from extensive business and technical architectural work carried out in the framework of the SPICE project.

4. Curent and Emerging Business Model Constellations

The following section will present four current or emerging business models in the field of mobile service delivery. In each model, different strategies to attain platform leadership become apparent, depending on which actor takes up the gatekeeping activities. The notation is based on the e^3 value notation [8]. As indirect revenues are mostly still hypothetical in these four cases, potential indirect streams are explained in the text rather than included in the four figures.

4.1. Telco centric Model

This business model is common in the mobile industry. A real-life example is the Vodafone Live! Platform. It places the majority of roles within a real-life stakeholder, the telecom carrier, which acts as portal provider, service aggregator, network operator and platform operator. The main characteristics of this model are:

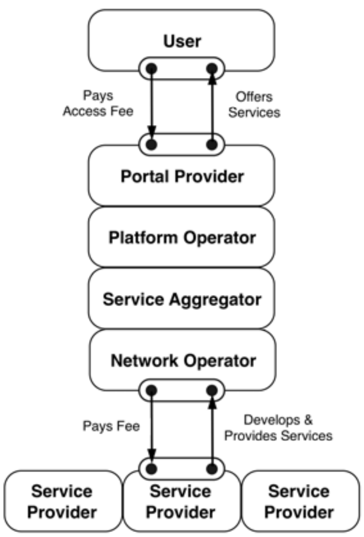

Figure 1 Telco centric model

- The user accesses services via a portal screen.
- The portal provider is incorporated in the network and platform operator. The platform operator provides technical tools to facilitate network access and portal provisioning. Service aggregation can also be carried out within the portal environment. These four actors in real life all coincide with the telecom carrier.
- The carrier typically makes specific and even exclusive deals with service providers and aggregators that can publish services on the portal.
- The user pays the carrier for access, and the carrier pays service providers for delivered services.

Within this model, all four gatekeeping roles are owned and controlled by the network carrier, which performs the actor activities of platform operator, portal provider and network operator.

- Service Creation: is not open to everyone. Whether services are made available on the portal is the result of specific negotiations with the mobile operator.
- Profile/Identity: this information is managed by the mobile network operator, as it knows the identity of the user accessing the network and can gather information on the user's activities on the portal.
- Service Brokerage: the mobile carrier plays a brokering role between service developers and end users. The carrier decides which service providers can create services for the portal.
- Charging & Billing: the customer has a direct billing relationship with the carrier for access to the network and to the portal.

4.2. Device centric Model

The device centric model is a model where the main service platform is incorporated in, or tied together with, the mobile device. A real-life example is the Apple iPhone. The introduction of this mobile device presented the industry with a number of business model innovations. The characteristics of this model are:

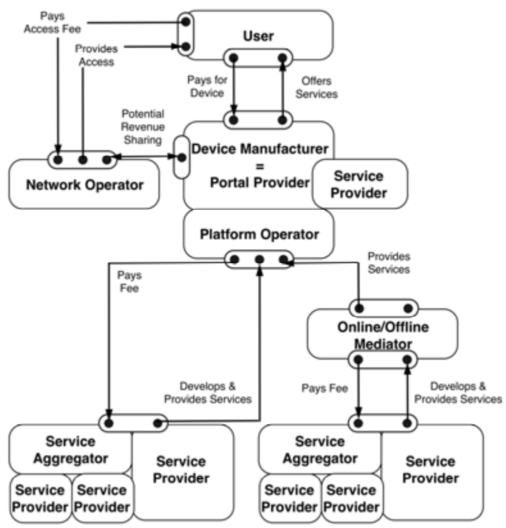

Figure 2 Device centric model

- The user purchases a device which offers several integrated services.
- The device manufacturer takes up the portal provisioning and platform operation activities.
- The device manufacturer offers mobile versions of services it already provides on other devices.
- The device can, but does not have to be, offered bundled with a subscription from a carrier.
- Services can also be sent to the device via an online or offline mediator like a PC.
- In this last instance, the mobile network operator does not provide access, but rather an ISP.

In this model, the device plays an active role in storing profile information and aggregating and brokering services. Billing and charging can be controlled by the network operator or by a third-party billing provider.

However, the device manufacturer has a central role in the revenue sharing model.

- Service Creation: may be open to any developer, but services have to be approved by the device manufacturer, and some revenue sharing deals may exist between the manufacturer and the providers.
- Profile/Identity: some identity information resides with the network operator, but most profile information is gathered by the device manufacturer, as he can access user activities on the device, i.e. content purchases.
- Service Brokerage: the device manufacturer keeps quite tight control on which applications and/or services can be placed on the device, e.g. through an applications store, thus brokering between service developers and end users.
- Charging & Billing: the user is charged by the network operator for access, but may also pay the device manufacturer for services directly.

4.3. Aggregator centric Model

A service portal is an obvious way to disclose services to a user, but this model takes it a step further, in the sense that the actor role of portal provider is taken over by a service aggregator independent of the mobile network operator. A real-life example is the Facebook Mobile platform. Its main characteristics are:

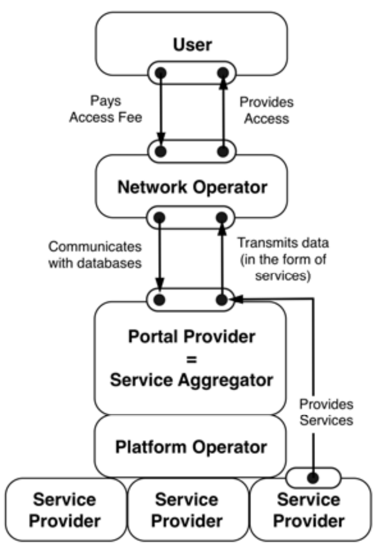

Figure 3 Aggregator centric model

- The user gains access to network via network operator.
- The service aggregator plays the role of portal provider, allowing the user to select individual services.
- The service aggregator is typically not bound to any specific network operator.
- The platform is operated by the service aggregator, who is defining the development language.
- The service developers create applications that can run on the portal.
- Some services can be accessed outside of portal, i.e. via the web browser.

In this instance, profile and identity information is kept and monetised by the service aggregator, who is also acting as a broker between the end user and individual applications. The advertising models and the associated revenue sharing mechanisms to be adopted in this model are at this moment still unclear.

- Service Creation: there is no tight control on the services that end up on the portal. Service creation is open to almost anyone without any authentication process from the aggregator. However, developers are still bound to the technical platform offered by the aggregator.
- Profile/Identity: these are the core activities of the aggregator, maintaining control while spreading the reach (through data portability) over the user data.
- Service Brokerage: the service aggregator plays a brokering role in delivering services to the user.
- Charging & Billing: the user has a direct billing relationship with the network operator for access, but not necessarily with the service aggregator. Monetization in this particular model is not clear and can for example rely on advertising revenues, or various customer groups could be charged for access to the portal.

4.4. Service centric Model

The service centric model constitutes a more or less theoretical model for now. It is a.o. based on plans and models surrounding Google's Open Social initiative regarding open API's for social networking applications. The main characteristics of this model are:

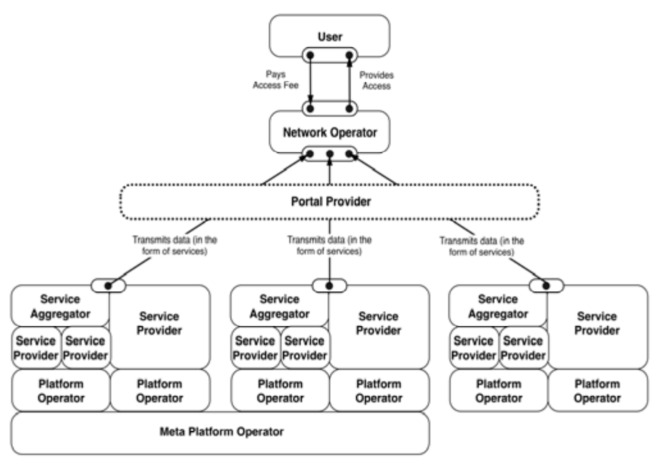

Figure 4 Service centric model

- The user connects via the mobile network operator and selects services on a case-per-case basis. The selection of services may be facilitated by a portal.
- Service providers each operate specific platforms.
- A meta-platform operator (e.g. Open Social) may allow developers to link services together and exchange information.

- Services outside of the meta-platform are available, but not connected.

In this model, profiles are managed by individual service providers and possibly exchanged between them. Open forms of identity management are used. Services are delivered to end-users directly or through a portal. Meta-platform operators may offer bridges between various online applications and services. As in the previous model, the dominant billing and charging mechanisms are currently still unclear.

- Service Creation: is open to anyone, as there is no central platform on which they are offered. If service developers want to make use of the meta-platform Operator, they however will have to take into account compatibility with this actor.
- Profile/Identity: this information is managed by the individual service providers to which the end users subscribe.
- Service Brokerage: there is no central brokering entity between service developers and end users. Some form of brokerage may reside with the meta-platform operator, an actor that allows for interaction between different services.
- Charging & Billing: the monetization models for this scenario have not crystallized in real life yet. There can be a direct billing relationship if a service developer charges the end user for access to the service, but other models, e.g. advertisement-based, are possible.

5. The Role of the Mobile Operator and an Advertisement-Based Model

The telco-centric model is currently prevailing for mobile data services and starts from a very integrated approach toward service delivery. It is a walled garden model, presenting services to end users via proprietary platforms and constricting service developers by offering limited tools to create new services. This model is increasingly being challenged by emerging models that offer more openness and appear to be, at least in the 'wired' internet environment, more successful in attracting both end users and service developers. As a rule, they do not confine a service developer to one programming language for example and facilitate development and distribution of services in a more flexible manner. These models are represented in Figures 2 through 4. Whereas platform ownership was clearly situated with the mobile operator in the first model, this central role is potentially shifting to new types of actors, like for example Google or Facebook. Mobile operators risk losing control over the value that is being created on their infrastructure, reducing their role to that of an access provider with none of the strengths or value adding capabilities that are present in the first model (Figure 1).

Based on this analysis a fifth model is outlined that attempts to capture the advantages from models 2 through 4 but ensures that some control over the gatekeeping roles remains in the hands of the mobile operator. Figure 5 depicts a model where the mobile operator provides the necessary service creation and provision tools and capabilities to interested parties, based on an advertising model. The model is described in terms of actors, roles and revenue streams and its logic is illustrated by the arrows that connect the different actors.

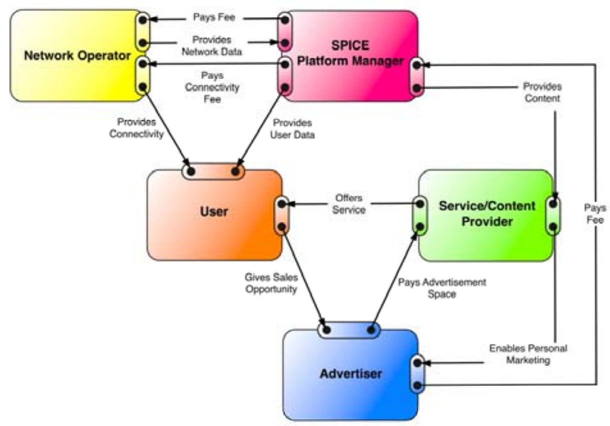

Figure 5 An Advertisement- Based Revenue Model involving a "SPICE" platform

It is hypothesized that this model presents a potential solution to the dilemmas faced by current mobile network operators aspiring to continue to play a crucial role within the value network, but without dominating the entire value network and stifling innovation. In this model, the network operator is not only providing connection to the end user, it is also providing valuable information such as user context to a third-party platform. In this case, the platform can provide the user with services and pieces of information that are adapted to his environment, preferences and behaviour. Since a third-party advertiser is involved in this model, some services could be presented to the user for free because the service provider generates revenue by selling advertisement space and in turn users accept advertisements. Fostering the exchange of information between customers and operators is a critical foundation for the model.

It can be expected that users will be willing to disclose personal information only if they gain a significant enhancement of their user experience. In this model we assume that the user is willing to give away his user data for free in order to experience the value of the context aware service. The user data will be sent over the network owned by the network operator so the user will generate traffic which has to be billed. In this model we assume that the user doesn't pay for this generated traffic but the context provider does. He needs to broker the information from the context enabler in order to sell his context to the service provider and therefore he is likely to be willing to pay the traffic generated by the user. Deployment of this or comparable business architecture(s) will have to carefully consider privacy issues. In fact the challenge of making the mobile service experience unique for users definitely goes hand in hand with a consolidating trust relationship between customers and service providers and/or operators.

In this particular model, gatekeeping roles are more equally balanced than the four previous examples. It can be expected that this balancing of critical roles will be an important feature of successful future service delivery business models. The gatekeeping roles are divided among the different actors as follows:

- Service Creation: service development is open in this specific scenario as one might imagine services running in a browser-like environment and not on a specific platform.
- Profile/Identity: in this scenario, profile and identity information is gathered by the network operator and by the platform. The end user agrees to give up pieces of personal information to service developers and advertisers in order to get access to free services in return. So while the platform plays a central role in profile and identity management it is more a brokering of information between advertisers and service developers. The network operator on his part has access to other profile management components like the user's location or context information. The platform in turn can purchase this information from the network operator should a service developer or advertiser request it.
- Service Brokerage: there is no specific service brokering role being played as services do not run on the platform directly in this scenario. In that sense it is comparable to the service centric model of figure 4.
- Charging & Billing: for the end user, no direct billing relationship is apparent as he receives his services for free. These are paid for via the advertiser, so billing relations exist between the service developer, the network operator, the platform and the advertiser. Depending on the scenario a user may be charged for specific services. In that case a direct billing relationship with a service provider can exist.

When considering the four gatekeeping roles it becomes clear there is no central entity dominating the entire value network. Gatekeeping roles are balanced among the different actors who all add value to the ecosystem. The network operator can sell customer information to interested parties (forgoing privacy issues for the moment), third parties can purchase this information to improve their services or business in general and users get access to more personalised and useful services, at a decreasing cost. This is one possible scenario that illustrates how mobile network operators could adapt to the changing mobile communications environment and still play a crucial role in a more balanced ecosystem.

6. Conclusion

This paper started by outlining how actors in the mobile domain are trying to cope with the changing service delivery environment. The concept of platform leadership provides insight into how different stakeholders are striving for dominance within the value network. It was then demonstrated that such platform leadership may be attained in very diverging ways by introducing the concept of gatekeeping roles. By exposing which actors control service creation, profile/identity management, service brokerage, charging & billing in four different business models, it becomes clear that various scenarios are possible for stakeholders to strive for platform domination.

After the analysis of these four models a fifth one was introduced, in which the gatekeeping roles are somewhat more balanced throughout the value network and do not reside with a single entity. In this more balanced scenario each actor partly exerts control and contributes value to the ecosystem in different ways, potentially allowing them to focus on key activities in a more specific way. It is obvious that mobile service scenarios remain uncertain, and that technologies and standards are rapidly evolving. However, in a near-future situation where demand for mobile digital services is expected to rise strongly, collaborative models, that aim to overcome antagonisms between operators and service developers, may provide a viable alternative.

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