

# Opportunities and Threats from Business Models Perspective

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**Abstract**—The IST project *MobiLife* (IST-2004-511607) is investigating mobile applications and services to support families in their everyday lives. Successful innovations often demand innovative business models. This document introduces the identified opportunities and threats for modeling the business in the mobile sector. The analysis is conducted according to different perspectives, namely user, applications and services, earnings logic, resources, suppliers, processes and regulative.

**Key words:** user needs and attitudes, applications and services, business model, convergence, marketplace dynamics, value creation system, regulation.

## 1. INTRODUCTION

Successful innovations often demand innovative business models at least as much as innovative technology. This is the reason why this paper reports about marketplace dynamics analysis: in the converging world of ICT, market phenomena have a great impact on the future business models; as such, they have to be taken into account in making assumptions and defining the components of a framework for a business model. The specific approach of *MobiLife* is to study new business models in conjunction with user research, so that user needs and requirements are defined from an integrated standpoint.

Drivers and hurdles perceived from the marketplace mean both opportunities and threats for *MobiLife* and should be considered in the development of the framework for *MobiLife* business model. As a consequence, the conclusions from mapping the marketplace review findings on the business model are presented here as opportunities and threats for modeling the business in the mobile business sector.

## 2. METHODOLOGY

The marketplace dynamics description codified the state-of-the-art academic, market research and media material from a series of different perspectives, covering the key facts and trends from diverse angles or point of views, so that the resulting picture is truly multidisciplinary and as rich as possible. Under each perspective the main drivers and hurdles that shape the marketplace have been identified; their interaction will have a major impact on the future success and failure of new mobile applications and services.

The foundation of a business model has been seen as a set of basic assumptions about the components describing the theoretical framework for a business model. However, the aim is not to go through a complete set of approaches to determine the components of a business model but to understand the framework to be used in investigating the business models for applications and services in *MobiLife*.

To have a comprehensive representation of marketplace dynamics we have described the marketplace from different perspectives: user perspective, society perspective, applications and services perspective, technology perspective, industry perspective and regulative perspective. This research and findings were then followed by the definition of the components needed for the future business modeling activity in the form of opportunities and threats.

## 3. A FRAMEWORK FOR A BUSINESS MODEL

The conceptual framework of a business model has dimensions that can be connected in various disciplines. It is very obvious according to the marketplace dynamics that the phenomena of value nets, variations and enlargements of traditional value chains have to be taken into account when defining a business model.

In modeling the business, the user's role is essential. Several market actors, service providers, content providers, operators and terminal manufacturers are affecting strongly the value creation for the users/customers and at the same time capturing value for themselves. The usefulness of market actors to be part of a value net can be reasoned e.g. according to resource based point of view, positive externalities of networks point of view or capabilities point of view.

In a business model all the important parts for the business of a company should fit together. In the value creation system the clarification of the concept and its utility for *MobiLife* is considered by using the following basic components of a business model:

- user and customer
- products and service offering
- earnings logic
- resources (technology, capability and knowledge)
- supply, network of actors
- organization and orchestration
- processes and provisioning

These components exist and have to be defined also in case in which the industrial structures change from vertical to horizontal and the value creation is based on networks of providers. In a value network different actors take the needed roles and take care of different functions.

## **4. OPPORTUNITIES AND THREATS**

### **4.1. Users/customer's Central Role in the Definition of Mobile Business Models**

Users/customers have an extremely important role in future business models. Their expectations and needs have an impact on how the other components of a business model should be defined.

MobiLife's marketplace dynamics analysis from a user point of view points to a range of opportunities with often conflicting requirements. Usefulness and convenience have demonstrated to be taken in the highest regards by the users, both in the mobile business and in the Internet world [1]. On the other hand, emotional and irrational needs are important drivers as well. The balance of these factors should be searched at the specific application and service level.

This complex mix of rational and irrational needs and attitudes is neither homogenous nor fixed. Customer's expectations are not stable but changing [2]. Segmentation and mass customisation are strongly needed to be able to satisfy different needs of different people. Also a deeper understanding of emerging informal social structures is needed. Mobile applications and services should support also informal communities and new types of user-groups defined by interests and cultural preferences.

A number of threats have also to be considered relating to the user component in modeling the business in MobiLife. Innovation in the mobile business has quite often been dampened by the predominance of technology-led approaches. Price barriers, cultural and educational gaps, usability constraints, vague marketing actions all have contributed to undermine the potential success of new enabling technologies. MobiLife could well avoid this mistake by clearly identifying the expected user's benefit for each designed application and services concept, testing it in user research cycles that complement social acceptance and business viability analysis in a newly integrated fashion.

### **4.2. Applications and Services in Mobile Business Models**

Applications and services reviewed in the marketplace dynamics analysis are spread across different domains, either characterized by some vertical approach (e.g. automotive in the case of telematics) or horizontal, i.e.

by broadly defined functions – even if some overlaps should be taken into account.

The domains investigated include communication and messaging solutions, pictures and video, custom and personal content, music, gaming, broadcasting, shopping, telematics, public services, mobile and collaborative work solutions. Key facts and trends shaping marketplace dynamics in these domains allowed to identify a set of opportunities and threats.

First of all, personal communication needs and desires still appear as one of the major drivers in the usage of mobile personal devices [3]. The opportunity is then to devise innovative ways to extend voice and messaging services beyond what is currently available, starting with group communication, multi-modality and multiple device support.

Secondly, personal and semi-professional publishing is a huge online sector whose boundaries are increasingly blurring with the professional realm. Hence the opportunity is to empower user content production, elaboration and delivery, including the cycle of individual and group interactions that is related to that context. Similar considerations apply to media sharing – especially music. New technological capabilities could well bring more enhancements in the sharing domain but what it currently lacks is business sustainability and appropriate regulations in the service lifecycle, based on commonly accepted standards and agreements.

In more general terms, free access to applications and services based on marketing and advertising strategies has a central role in the Internet world. Several constraints, ranging from device limitations to the costs of mobile data, have restrained so far the emergence of analogue trends in the mobile environment.

As for the threats, marketplace dynamics analysis identified some existing hurdles that could inhibit the development of MobiLife applications and services. The major ones are limited interoperability, terminal complexity and general uncertainties about the effective success potential of applications and services other than voice and messaging.

### **4.3. Earnings logic in Mobile Business Models**

The earnings logic-component of the business model spells out how the value net creates revenues and how the network partners share costs and revenues among themselves [4]. It should be noted here that creating revenues ('making money') is not the only way of capturing value from mobile service provisioning. Quite often also intangible benefits, like image building or cross-selling opportunities, are equally important.

Familiar business roles and revenue models have to be reconsidered as new opportunities arise, and, at the same time, competition increases.

New business roles and revenue models become feasible, especially those already underlying current services on the Internet, such as the advertising or brokerage models. For example a context broker collects context information from customers (e.g. location or status), and then processes that information and finally distributes it to service providers to adapt or personalize their applications.

Adoption of services by customers and especially their 'willingness to pay' for provided services depends heavily on the perceived value of the services [5]. Value based pricing, as opposed to cost-based pricing, appears necessary for adoption of mobile services. As consumer valuations show considerable variation, value based pricing may be linked to service differentiation, in which customers are provided only with those service elements they value and are willing to pay for.

Service providers in the 3G arenas are well aware of the fact that there is not a single 'killer application' enticing people to quickly adopt new mobile services. Rather, a carefully composed bundle of services is required, that will be different for each customer (segment) and that varies with the customer's context. Complementarity between bundled services may stimulate demand whereas cost sharing provides for cost reduction arising from economies of scale and scope [6].

Measuring, monitoring and visualizing the performance of mobile services and their business models, may provide extra value to customers, as well as providing value network partners with the possibility of optimizing the value network. For example 'online bill inspection', based on available usage data, provides added value to customers. On the other hand metrics for actual service usage may help to target or refine the service offering. Integrated business model metrics, i.e. performance indicators that measure network performance by linking performance and resource utilization at individual companies, may be used to optimize the value network, e.g. leading to cost efficiencies. Performance indicators usually exist at the company level but are mostly lacking at the network level.

#### **4.4. Resources in Mobile Business Models**

New technologies place opportunities and threats for mobile industry. Allocation of resources and usage and development of core competences are in a key role to create new business models to utilize those technologies.

As a result of convergence (fixed-wireless convergence, mobile media convergence, home technology convergence) technologies that were applied in one area of applications, can now be applied to another area. This creates new competition and can create competing business models.

Unlicensed frequencies like WiFi make wireless access provisioning possible for new entrants. On the other hand, mobile operators can extend their current cellular service to broadband access.

P2P environments utilize resources contributed by the participating nodes. Control and coordination are at the edge of the network. P2P systems enable new types of applications and business models. Disruptive substitutes may appear for existing services and distribution models.

Easy identification becomes important when consumers are accessing multitude of systems and services. Identity management can be a valuable asset and control point.

Without a key application technology innovations do not enter the mainstream market. A business model framework should be based on applications that clearly have value to the user rather than purely technological relevance.

Difficulties in service discovery, finding and initiation of services, prevent services from becoming widely used. A business model framework should enable methods for promotion and advertising of services.

As part of convergence, the mobile space is exposed to the negative aspects of openness evidenced in the current Internet: spam and viruses. Successful management of the openness and protection from the negative aspects may become part of a business model framework.

Collective learning and coordination skills – core competencies – and core beliefs that signify the company's way of doing business, are company's basic advantages in competition [7]. A successful business model needs to accommodate companies with suitable core competencies. For mobile services, relevant competencies and related players include: equipment development, marketing, manufacturing and logistics (terminal vendors, network vendors, consumer electronic vendors); subscriber management (operators, merchants, banks); application development (IT companies); content production (media companies, advertisement agencies); content distribution (broadcast companies).

#### **4.5. Suppliers – Value Nets in Mobile Business Models**

Despite promising business opportunities, most industry players lack the resources and capabilities to exploit new mobile services by their own: to be able to develop as well as provision these services, cooperation between different stakeholders will be necessary. Therefore, so called value nets for emerging mobile services are expected to be more dynamic and complex than the old, rather static telecom centric value chains for mobile services like voice communication. In value nets, a

group of actors (e.g. companies, end-users, non-profit institutions) perform a set of activities that should create value for all actors in the value network. The new mobile service value nets will include players from different industries that are increasingly operating in each others, formerly separated, markets like IT, telecom, consumer electronics, and media. However, cooperation between different industries is difficult because of differences in culture and business logic. This is related to the fact that, in the end, a viable and feasible business model of a mobile service should always deliver value to the customer as well as to all other important participating actors in a value net. Each of these actors has different requirements and strategic interests which need to be constantly taken into account (from the beginning to the end of a service life cycle) in order to organize or orchestrate collective action that is needed for the offering of mobile services and the creation of value for all actors. In value nets often one or more leading actors (nodal companies or orchestrators) can be identified [8]. These actors are the most powerful and therefore define where the centre of gravity and power of these value nets are and play an important orchestration role. Especially actors with critical roles (like taking care of payment) can have relatively powerful positions.

Successful innovations often demand innovative business models at least as much as it requires an innovative product offering. Therefore, it is not enough to experiment with product innovation itself: rapid business model prototyping is critically important to the future of technological innovation [9]. To develop insight into how organizations can design 'balanced' and well orchestrated business models, researchers as well as practitioners need to go beyond identifying simple success prescriptions and should pay more attention to understanding and governing the evolution of business models and value nets of mobile services over time.

#### **4.6. Processes and provisioning in Mobile Business Models**

Properly defined processes can help in boosting both strategic and operational work of a company and thus to enhance business performance and to achieve better cost-efficiency.

The importance of well-defined processes has grown when products and services are not any more developed and produced by single companies working in a stable business environment. When value nets become more and more complex and at the same time product and service lifecycles shorten, it is not possible to handle the business without properly defined provisioning.

Also the roles of different players in business are changing. It is important to move from the older customer care or service orientation to a customer

relationship management orientation that emphasises customer self-management and control, increasing the value customers contribute to the enterprise and the use of information to customise and personalise the offering to the individual customer.

Another challenge is to recognise that enterprises interact with external parties, and that the enterprise may need to interact with process flows defined by external parties, as in ebusiness interactions. The whole process of service planning, deployment and assurance needs to be easy, quick, systematic and reliable. This calls for efficient and interoperable tools in the service creation, deployment and assurance areas.

Processes and provisioning are not nearly as flexible or adaptable as resources. Thus it is important to start defining them already at the product development stage to be able to utilise processes properly when launching services or products. It is important to find out which changes in processes and procedures are necessary to produce new kinds of value and/or address the needs of new kinds of customers. However, markets are changing continuously and it is extremely important to follow the changes constantly and to design processes in a way that they can be easily modified when needed.

#### **4.7. Regulative Topics Impact on Mobile Business Models**

Regulative topics form a frame against which a business model can be assessed. The assessment can be considered from two main viewpoints: intra-chain and extra-chain.

**Intra-chain.** An actor in the value chain assesses its rights and obligations with respect to other parties in the value chain, i.e. legal relationships with its partners. Of course, the binding laws may significantly affect the relations, but usually the value chain is largely governed by contracts.

**Extra-chain.** An actor considers what sort of liabilities it might have in relation with third parties. For example, if the business somehow infringes a third party's copyright, the actor can be liable regardless of agreements, disclaimers, and indemnities between the members of the value chain.

The regulative drivers, if taken properly into account, can bring the business model competitive advantage. The regulative hurdles, on the other hand, may seriously harm the participants of the value chain.

A business model can benefit if intellectual properties are allocated fairly. On the other hand, unbalanced legal rights form a severe threat to businesses. Unbalanced legal rights, outdated or technology-biased laws, and unclear status of new communities are among the most severe legal hurdles that may harm the business model.

From regulatory perspective, business models have significant opportunities. Especially, if a company takes

care of legal requirements, it may achieve valuable competitive advantage. A company that shows off its compliance with rules that benefit end-users achieves trust and thus speeds up its business. Privacy protection is a good example: end-users appreciate a company that has a reasonable privacy policy.

For business models that are based on new technologies, technology-biased laws may introduce extra costs. Laws cannot be completely technology neutral and more biased they are more risky it is to entry markets with different technologies.

## 5. CONCLUSIONS

This paper has described opportunities and threats from business models perspective analyzing them from users, applications and services, resources, suppliers, processes and regulative points of view.

User experience will determine the success of new services. Consumer empowerment is becoming more and more important and consumers are sometimes even called prosumers to emphasise their role in fulfilling the service.

As for applications and services, potential innovations enabled by context, multi-modal and personalisation capabilities could well enhance a number of established and emerging domains, driving the transformation of mobile offers, still based on voice and messaging, into a more articulated range of pervasive and differentiated solutions for the end users.

The earnings logic of new mobile (data) services will be different from that of traditional telecom services. What people are willing to pay for will be service specific. Important concepts like pricing and revenue sharing therefore need to follow a more value based approach.

New developments in mobile technology like convergence, use of unlicensed frequencies and P2P networks enable new business models and disruptive changes. For technologies to enter the mainstream market key applications are required. A successful business model needs to accommodate companies with suitable core competencies.

In a fast changing and converging information services industry, there seems to be a lot of opportunities for innovative, user centric, mobile services. However, for the provisioning of these services, different players, mostly from different industries, have to work together in order to be able to develop and exploit these services in different service life cycle phases. This means that the underlying value nets and business models of these new services will be more complex and dynamic compared with the current value chains for services like telephony. Therefore, having a good overview of how mobile services business models and value nets evolve over time and

how these dynamics can be governed is expected to be crucial.

For provisioning the new services the needed processes should be concretely described in a business model. Processes are very much dependent on what the services developed will be and what are the roles of different actors. A common way to structure the processes (e.g. like eTOM in telecom industry) is needed in doing business in an open value creation system and open market.

From legal point of view, both the avail of opportunities and the management of threats require that a company tries to get as much information on legal rules as possible. Legal knowledge diminishes risks and enables opportunities exploitation.

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