

INVITING NEW PLAYERS TO THE MULTIMEDIA M-COMMERCE ARENA

*An approach to enhance the current M-Commerce business
model with regard to emerging DVB-T networks*

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Abstract: Digital Video Broadcasting (DVB) using the same terrestrial infrastructure (DVB-T) as traditional analogue television has become a mature technology with a growing number of users. Different activities have been started (e.g. DVB-H) in order to apply that infrastructure for distributing multimedia content and interactive services to mobile devices. DVB (i.e. the television industry) and 3G mobile networks (i.e. the mobile telecommunications industry) are therefore becoming competitors from a value proposition point of view. On one hand there is the television industry with its close relation to the movie and media industry as well as its often advertising based business model. On the other hand there is the mobile telecommunications industry with its focus on direct revenue models for data and services (referred to as M-Commerce), targeting on mobile subscribers. The paper will show that currently the television industry applies different business models more flexibly than the mobile telecommunications industry does. Looking at the likely upcoming competition between the both industries, the paper proposes an approach to expand the business model that is currently applied in the mobile telecommunications industry in order to make it competitive against broadcasted mobile multimedia services. As research in progress the paper addresses the question, which concepts could be applied in order to redesign the current M-Commerce business model for the sake of higher user adoption.

Key words: Mobile multimedia; M-Commerce; business models; 3G; digital television.

1. INTRODUCTION

Up to now Mobile Network Operators (MNO) and television companies have hardly any interdependencies in terms of markets or value chains. Due to current technological convergence it is likely that this situation is going to change and will most probably end up in making mobile phones and mobile TVs competitors when it comes to the mobile distribution of mobile multimedia services. For these services third generation mobile cellular networks (3G) are commonly regarded to be the technological foundation (UMTS Forum, 2001), while market analysts have hardly shown interest in current developments in the area of digital video broadcasted by using the terrestrial infrastructure (DVB-T) which in most countries already exists for analogue broadcasting (DVB Project Office, 2003a).

For the current market situation, in which the value proposition of M-Commerce services and digital television is becoming increasingly similar, the paper proposes a new business model for Mobile Network Operators to allow the application of indirect revenue models in order to expand the set of applicable business models for multimedia M-Commerce services. The proposed business model is based on the concept of a mobile usage situation that constitutes a dynamic mobile identity. The so called situation description allows a time-specific view on that dynamic mobile identity and enables Mobile Service Providers to judge and value mobile customer relationships with regard to their business relevance. By that a new implementation approach for indirect revenue models is explored in the context of mobile telecommunication markets.

The paper is structured as follows: In the next section the terms business model and mobile multimedia service are defined. In section 2 the current situation in mobile service provisioning is introduced. The German market is taken as an object for investigation, while most of the results are also valid in a European perspective. In section 3 an approach for the mobile telecommunications industry is presented to expand the current business model. Finally, section 4 concludes the paper and provides an outlook on future issues.

1.1 Business Models

The business model concept is a common research topic in economic literature (Timmers, 1998; Osterwalder et al., 2002; Pigneur, 2002; Faber et al., 2003). Nevertheless, an agreed ontology providing a meta-model for designing business models and defining the building blocks has not been achieved. For the purpose of this paper a business model comprises value proposition, revenue model and architecture for value provisioning. The

value proposition describes the utility generated for clients and business partners. The revenue model defines income channels and pricing models, while the architecture for value provisioning describes the way the involved parties are arranged in the value chain.

This paper focuses on a new revenue model by introducing new revenue sources for mobile multimedia services. As a revenue model is understood as an essential part of a business model, the paper is accordingly introducing a new business model. This also applies as the proposed revenue model implies changes in terms of the value proposition generated.

1.2 Mobile Multimedia Services

A mobile multimedia service (as potential bearer for value propositions within business models) in the context of this paper shall be defined as a digital mobile data application that is distributed via a wide area wireless data network to a mobile terminal while providing enough bandwidth to enable simultaneous video and audio streaming. By that definition applications based on data bearers like Wireless LAN, Bluetooth, analogue television or GSM are meant to be excluded.

There are two technical distribution paradigms that can be applied for mobile multimedia service provisioning: Point-to-point and Broadcasting (Tanenbaum 2003, p. 14). While point-to-point addresses the communication between two communication partners, broadcasting in the first step allows a one-to-many communication as any party in reach is able to receive data that is sent. These distribution paradigms immediately affect service provisioning in 3G (i.e. point-to-point) and television networks (i.e. broadcasting). Due to the necessary identification in point-to-point networks, accounting, billing and charging is easier in 3G infrastructures than in broadcasting networks. In broadcasting networks, lacking an obligatory identification concept, indirect revenue models (e.g. based on advertising) are easier to apply and therefore the straightforward choice.

2. CURRENT MOBILE MULTIMEDIA SERVICE PROVISIONING

2.1 Mobile Telecommunications Market

The German GSM market counted 64.8 million GSM subscribers at the end of 2003 being worth € 24 billion (Regulierungsbehörde für Post und Telekommunikation, 2004) of revenue through the delivery of mobile voice,

messaging and data services. At the same time the high investments in mobile Internet and 3G infrastructures turned out to be related to the problem of missing billable and accepted M-Commerce applications. Revenues from mobile Internet, e.g. for the globally acting Vodafone Group, are commonly still less than 2% of the total revenue (Vodafone, 2004).

To increase usage and workload in terms of mobile Internet data, operators are currently marketing mobile service portals in the context of brands like i-mode, Vodafone live! or t-zones. Most applied revenue models are oriented towards the model introduced by i-mode in Japan (Bohlin et al., 2003) in which the MNO receives commission on revenues generated through the mobile service portal.

Concerning the architecture for value provisioning within this market it is a characteristic property that the MNOs have exclusive control over important assets (Camponovo and Pigneur, 2003), such as licenses or mobile network infrastructure. MNOs have only recently started to open these assets to third parties, referred to as Service Providers, for the sake of decentralised and specialised service provisioning. While the MNO focuses on providing an appealing entry point in the shape of the mobile service portal, Service Providers develop and offer several infotainment or entertainment services. The figure 1 illustrates value proposition and architecture for value provisioning currently applied for this market.

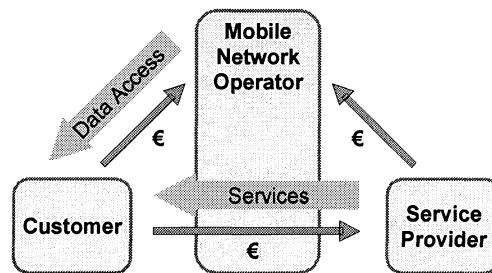


Figure 1: Current provisioning of M-Commerce services

The disappointing adoption of this service offering is often regarded to be due to the negative perception of aspects relevant for user acceptance such as usefulness, usability and especially costs by the user (Yom, 2002). The latter is caused by currently applied revenue models, where customers are solely addressed for paying mobile data traffic, which is the foundation of any mobile service. Hence, no mobile interaction can take place without the customer being charged. The user is therefore critically questioning the value of any mobile service and abstains from usage if this question is not

clearly answerable. That leads to the current situation where only services providing an immediate, obvious value to the customer (e.g. the distribution of logos, ring tones etc.) are successfully brought to market. At the same time a huge number of promising applications such as advertising, couponing, customer care or loyalty applications, in which case not the customer but a company acting in a private customer market is the beneficial party, remain unmarketable.

2.2 Television Market

In contrast to mobile telecommunications the television industry, due to its history of many decades, can rely on globally well established markets. Applied business models comprise various forms of revenue models and reach from advertising, subscription, pay-per-view to transaction based. In Germany revenues from TV based advertising have been nearly € 4 billion (ZAW, 2003), almost the same amount came from television licence fees and around € 0.8 billion (Premiere, 2003) from Pay-TV subscribers.

Most TV stations rely on advertising based business models, as this is best suited for the anonymous one-to-many communication in broadcasting networks. In that sense, a TV station produces an appealing informative and entertaining programme to gain the highest amount of watchers. In the next step the contact to these watchers is sold as potential customer attention to companies in order to provide market communication (European Group of Television Advertising, 2004). The problem as with any other traditional mass media is that advertising in that way is not allocated efficiently and high spreading losses have to be accepted (Trommsdorf and Becker, 2001). At the same time it is not feasible for watchers to directly respond or interact. Figure 2 summarises the current business approach in advertising based television.

In terms of value proposition the current digitalisation of television in the shape of DVB provides not only a more efficient usage of infrastructure but also adds data applications to the traditional audio-visual channel. With technologies such as the Multimedia Home Platform (MHP) (DVB Project Office, 2003b) and a return channel watchers are able to download and use truly interactive applications on TV, e.g. electronic programme guides, through the broadcasting stream. On this foundation, traditional TV can be extended by applications enabling the user to fulfil commercial transactions and ending up in what is often referred to as T-Commerce.

At present there are several initiatives to roll out terrestrial DVB on a large scale. E.g. the German government is aiming at a full coverage of Germany by 2010 while first areas like Berlin are already being served (Deutsche TV-Plattform, 2003). With existing broadcast stations and each

one sending several kilometres digital TV programmes become available nearly everywhere without the need for large equipment. At the same time bandwidth of several Megabits per second allows the distribution of digital multimedia content. While receiving digital TV programmes using a laptop PC and a PC card has been successfully presented (SCM Microsystems, 2003), the problem with even smaller devices and a form factor like a mobile phone is their limited computing and battery capacity. With DVB-H, a new DVB-T derivate for handhelds, these problems shall be solved (Nokia, 2003). Therefore mobile interactive digital television programmes will likely be available within a few years, and first solutions how to apply digital broadcasting networks to distribute multimedia applications and data have already been publicly presented (T-Systems, 2003).

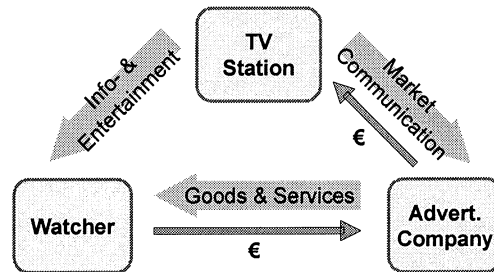


Figure 2: Current provisioning in advertising based television

The opportunities for TV stations are to extend their watcher base from a stationary audience at home to mobile people in cars, trains or any other place; a domain that is traditionally addressed by MNOs. At the same time television based data applications allow M-Commerce like service offerings. Reaching this stage, apparent media convergence will lead to a competition of business models and industries, namely the mobile telecommunications and the television industry.

3. A NEW BUSINESS MODEL FOR 3G NETWORKS

As described in previous sections, the television industry comes along with a variety of business models, while the mobile telecommunications industry sticks with the one applied in the past. In a situation where both provide similar value propositions, the industry with more flexibility is likely to gain a competitive advantage. The business model described in the following is meant to extend the portfolio of business models MNOs can

apply. In particular it enables a free-of-charge provisioning of mobile multimedia services and an indirect revenue model.

3.1 Situation Dependency in Mobile Networks

The model is based on meta-information available in most public mobile cellular networks. These networks are able to determine the user's identity as well as his or her position. This information is usually applied only to enable routing of calls or for billing purposes. The Situation Concept (Figge et al., 2003) is an approach for utilising this meta-data and is based on the idea that identity, position and the time of usage help to determine the user's current situation. The MNO describes the mobile usage situation of its customer by performing the tasks of determination, interpretation and provisioning.

At the time a mobile user requests a service through her or his mobile phone the MNO is able to *determine* the identity, position and time information from its network (e.g. in the case of a GSM cellular mobile network). The identity (i.e. the subscriber account) can be determined based on the Subscriber Identity Module (SIM), while the position can be derived based on the Cell-Of-Origin concept in which the position of base station related to user's current communication is determined. The local time can be determined by applying the derived position and the current, globally equal Coordinated Universal Time (UTC).

The technical references to these three situation determinants are used within the *interpretation* task to multilaterally add and extend it by more semantic information. To accomplish interpretation, databases with user specific as well as general information can be applied. These are acting as the underlying knowledge base and could comprise for instance personal preferences and settings to determine the personal life context (e.g. student, 29 years old, interests in sport etc.) as well as general geographic information or electronic calendars to determine information about the current spatial and temporal context.

To *provision* Service Providers with situation descriptions, it is necessary that the affected user has immediate access and control about her or his personal information, in order to be compliant with current data protection acts (European Commission, 2002). A personal privacy management platform as it is targeted by the European project PRIME (PRIME, 2004) is a necessity to ensure that provisioning of personal information like the situation description is accepted by the user. It could be implemented through customer self-administration applications already offered by nearly all MNOs through fixed Internet or voice access.

3.2 Sponsoring Mobile Customer Relationships

So far an application independent approach to derive mobile user situations has been presented. For the purpose to design a new revenue (i.e. business) model, a more specific application of situation descriptions is sponsoring mobile customer relationships.

Data transmission costs incur when using mobile services are making up for a significant share of the overall transaction costs while the transferred data itself does not provide an obvious benefit for the user. The Situation Concept can address this problem as it enables Service Providers to identify and to sponsor promising customer relationships. When a user is requesting a mobile service through the MNO's portal, the Service Provider compares the situation description with a defined target customer profile. If there is a certain conformity between the target profile and the situation description, the current user is regarded to be business relevant and the Service Provider covers incurring transmission costs (Figge and Schrott, 2003).

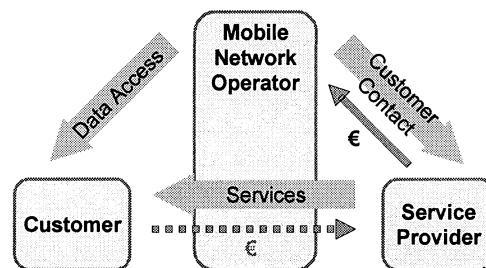


Figure 3: Sponsoring data access within situation dependent mobile customer relationships

From an economic point of view the free-of-charge delivery of mobile multimedia services is reasonable, as the Service Provider can assume that the requesting customer is part of a targeted customer segment and will generate extra revenue at some stage of the business relationship. The MNO offers a new value proposition by allowing Service Providers to identify and acquire contacts to potential customers. In terms of market communication, the contacts may be used for advertising which is likely to be more cost efficient than traditional television broadcasting (Figge and Schrott, 2003). At the same time the mobile user as potential customer will have a higher acceptance to give attention to the content, as in the first place it is free-of-charge (i.e. no data transmission costs) and adapted to her or his personal situation.

Enabling new service concepts means to open up new players in the M-Commerce market and obtaining new source of revenue for MNOs. Instead

of customers solely paying, companies in private markets are incorporated into the M-Commerce arena.

4. CONCLUSION AND OUTLOOK

Due to convergence of mobile telecommunications and television technology developments can be observed enabling the television industry to enter the mobile multimedia service landscape with relatively few investments and resources necessary. In order to develop a new value proposition for multimedia M-Commerce services a new approach for business models in the mobile telecommunications industry has been presented. It allows the application of indirect revenue models and therefore becomes a key opener to the huge market of advertising and marketing. It also provides the foundation to leverage the often discussed potential of ubiquitous computing, which is the determination and application of the mobile usage situation, with location and identity as some of its basic concepts.

An open question that will heavily influence the outcome of the 3G/DVB-T competition is what impact so called convergent networks will have on the development of mobile multimedia markets. By encompassing cellular and broadcasting networks to seamlessly form high speed mobile service provisioning platforms, as it is the research goal of the industry independent European project CISMUNDUS (Berg et al., 2003), MNOs as well as TV stations lose the exclusive control over the infrastructure involved. Suddenly market options and scenarios appear in which MNOs and TV stations form alliances to combine businesses and core competencies (Seite et al. 2003). This discussion will be very much influenced by strategic decisions of market players as well as regulation authorities and remains being worth a close observation.

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