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## Revenue Logics of Mobile Entertainment Software – Observations from Companies Producing Mobile Games

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### Abstract

While growing at a fast phase, mobile gaming industry is facing a transformation both in terms of technical infrastructures as well as business models. At the users' end, formerly preferred specific game consoles are increasingly being replaced by mobile phone platforms. From the game developers' perspective, the new possibilities to distribute games over mobile phone networks as well as over the Internet, affect both the viable partner relationships and possible revenue stream options.

In this paper we introduce analytical tools to evaluate business models of software companies producing mobile games. With the help of these tools, we explore and analyze the revenue logics and related product distribution models of four companies producing mobile games to the international market. The results indicate that even though the fast growing market offers a plethora of opportunities to agile software companies, the revenue models are governed by telecom-operators, who are currently reaping the largest benefits from the business.

**Key words:** Revenue logic, Business model, Games, Mobile entertainment, Software

## 1 Introduction

Mobile devices have been the fastest adopted consumer products of all the times with more mobile phones shipped annually than automobiles and personal computers combined [18], [4]. Value of the mobile game market has increased from 0.46 billion euros in 2003 to 1.65 billion euros in 2006 [20] and is expected to grow to \$9 billion by 2011 [13]. The fast developing mobile game industry has a prominent role in mobile technology development. As the experiences with the Internet hitherto show, games are among the few network data services which consumers will willingly pay for [22]. As mobile phones are rapidly turning into software platforms capable of supporting gaming, many handset manufacturers, operators and game developers see the opportunities of mobile games. The global market of gaming has now exceeded the annual global revenues of cinema [7, 28, 29]. By the same token, the new mobile games market accelerates the handset development. However, the slower than expected deployment of the enhanced cellular networks makes developing and deploying new technically advanced games challenging. Furthermore, many aspects of the new business models, including revenue logics and distribution models for these new entertainment services, are still unproven.

Mobile games have several advantages over PC and console games: they are portable, attractive, as well as practical alternative to PC-based games [23]. Mobile games can be played with mobile phones; PDA's, such as Palm or iPaq; web enabled phones; or other hand held game devices. In Europe, the development of mobile services has been largely characterized by technology push, but the future success of mobile services will be strongly affected by the ability of businesses to offer, already at an early stage, the right products and services to consumers [2]. Experiences with PC based Internet and Japanese mobile iMode services emphasize the role of entertainment services as a significant factor in the growth of mobile network usage. Games and entertainment services are important application areas for information industry as a whole [26], and as the third generation mobile phone networks proliferate, demand for these services will increase rapidly.

In this paper we look at the mobile game industry, and introduce a framework for analyzing business models within it. We then develop the model further for mobile game industry and use it to discuss the revenue logics of mobile game developers. In the last section, we summarize and draw conclusions on the discussed aspects of mobile games.

## 2 Types of Mobile Games

The term mobile game is relatively new even though the first portable games were launched already in late 80's. In 1998, Nokia launched the first embedded mobile game, The Snake, for cellular handsets. Today mobile games are downloadable, embedded or based on memory cards. Due to the large variety of mobile devices and network technologies, as well as still limited information systems (IS) research on mobile games, there is no commonly accepted classification of mobile games available.

According to one suggested categorization [16], mobile games can be classified by their operating and distribution platform into three types: standalone, server-based and streamed games. These games can be either downloadable from a server or they can be pre-installed on the mobile device by a vendor or distribution partner.

- **Standalone games** do not require a network connection for the user to play the game. As they run on mobile terminal, the user does not have to pay for data transmission after downloading the game. The games are limited by the storage and operating capacity of mobile devices. The Snake game of Nokia is an illustrative example of standalone games. The game was preinstalled in older Nokia mobile phones without additional charge and delivered along with the phone. Today, there is a downloadable version of The Snake available for handsets of Nokia and other manufacturers.
- **Server-based games** usually require a connection with the service provider's server while the game is played. The server contains information on the game's status at the moment. The Who Wants To Be A Millionaire?™ game of Codetoy's, Inc. makes an illustrative example of server-based games delivered through mobile operators, mobile portals, and other service providers.
- **Streamed games** use advanced video decoding systems for delivering audio and visual data from servers to terminals. Streamed games require certain minimum bandwidth for data transfer, but they will provide more advanced graphics and audio for the games on terminals that do not have the processing power for rendering demanding visual data. The TV Chat of MatchEm, Ltd. is an example of streamed games delivered via analog TV, teletext, Digital TV or World Wide Web.

Generally, the existing games for mobile handsets are either server-based or standalone games. Server based mobile games can be further divided into e.g. WAP, SMS, Java, Flash and Brew games. Some Java games can also be played as standalone games. Furthermore, all of these games can be either single- or multi-player games. Multi-platform games, in turn, are a subset of games that can be played in conjunction with online-, PC-, and console versions.

In this study, we concentrate on mobile games that are downloadable to handheld devices or based on memory cards. The examined software offerings in this study include both mobile games based on contemporary Java technology, some components in these games, or software tools intended for development of mobile games of these kinds.

### 3 Research Process and Method

Qualitative research approach is chosen in this study to improve our understanding of the emerging phenomenon of mobile gaming [33]. We investigate empirically four case companies producing mobile games: we explore the differences in the business models of firms producing mobile games, to see if we can explain the differences in revenue logics by differences in distribution models and the level of value added in the product offerings. A case study approach was chosen because of the novelty of the phenomenon and the descriptive nature of business models.

The empirical data was collected from four Finnish companies developing mobile games and related software for the international mobile gaming market. The case company selection was based on the following criteria: First, mobile games are the most important area of business for all selected case companies. Second, the selected case companies have a professional approach to game development and publishing. These were considered very important case selection criteria, because many of the companies developing mobile games are very small and game development is in many cases seen as a supplementary business or even as a hobby for individual developers, rather than a professional business. Third, all of these companies involved in the study are growing very rapidly. For example, in the beginning of this research, one of our four cases, Sumea Inc. had 20 employees, and now after two years, it has more than 65 employees. Finally, all of the selected case companies are located in Helsinki, the capital of Finland, with similar environmental factors.

Our field-study process covered an 18-month period from April 2002-September 2003, during which we conducted semi-structured interviews with senior management in the selected case companies. Representatives of the senior management were selected as the key informants due to the sensitivity and nature of the information we were seeking. We conducted one interview with each of the four case companies. The interviews lasted from two to three hours each and included one or two informants per case company. The interviews were recorded and transcribed. The empirical data was then analyzed using a framework developed in an earlier study [24]. The findings and conclusions were verified with the business developers and the general management of the case companies, who confirmed the findings that were based on their respective interviews. We further corroborated our findings, when possible, with strategic planning material from the case companies.

Our research is focused on the business models of mobile game companies, and our research question is stated as follows: How do the revenue logics of mobile game companies differ based on the differences in their product offerings and distribution models? In this study, we focus especially on mobile software specific aspects of the studied businesses.

### 4 Conceptual Framework for Analyzing Revenue Logics

In the analysis of our empirical data, we use a conceptual framework developed by Rajala, Rossi and Tuunainen [24] for analyzing the business models of software companies. The original software business model (SBM) framework [24] is presented below. It is applied as a conceptual framework to identify and describe the revenue logics of mobile games, and related product characteristics and distribution models utilized in the selected mobile game businesses (see Figure 1). Also, in the analysis of our empirical data, we apply a classification scheme developed by Rajala and Westerlund [25] for comparing different types of business models. Our purpose is to identify the alternative revenue logics that are technically possible, economically feasible for various players, and that could be acceptable for the customers.

According to the SBM framework, the business model of a software vendor can be viewed as an action plan derived from strategic objectives of a company with a given product and service offering, in a given market [24]. Accordingly, a single business model deals with a single product/market situation. Consistent with the recent literature on business models (see e.g. [19], [1], [11], [21]), the SBM framework describes a business model as a combination of the functional elements of product development, revenue, sales, marketing, services and implementation. In the SBM framework, the four elements of a software business model are [24]:

- The **product strategy** describes what the core product offering is and how the development of the core product of a company is organized.
- The **revenue logic** describes how the company finances its operations, in other words, how and from what sources the revenue is generated.

- The **distribution model** describes how the marketing and sales have been organized, what the characteristics of the channels of distribution are, and who are the sellers and marketers of the product.
- The **services and implementation model** explains how the product offering is made available to the end-users as a working solution.

A software company has multiple options to structure each of the elements in its business model. All of these three elements are tightly interconnected with each other, and cannot be analyzed in isolation. Therefore, even though our main focus here is on the revenue logic of a software company developing mobile games, we will first look at the product proposition and distribution model aspects of the business model.

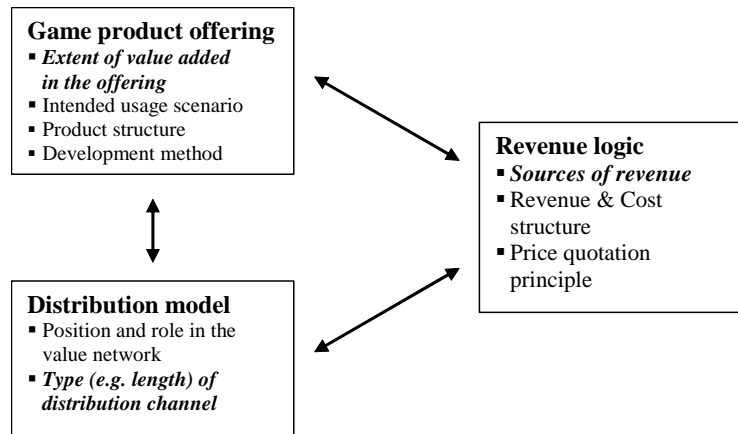


Figure 1: Conceptual framework for analyzing revenue logics of mobile game businesses

According to the conceptual framework presented in Figure 1, we analyze the interconnections of the three elements of the business models of companies developing mobile games: game product offering, distribution model (i.e. the type and operation of distribution channels), and the revenue logic. More precisely, two measures based on these elements, the extent of value added in game product offering, and the length of the distribution channel from game producer to consumers, are used as dimensions to explain potential differences in the third element, the revenue logic.

#### 4.1 Game product offerings

The concepts of product strategies and product offerings are discussed widely in the literature of marketing (see e.g. [5], [14]). According to Cravens [5], a product strategy consists of decisions on how to position a product offering (e.g. a specific product, line or mix) to serve its target market; setting strategic objectives for the product offering; selecting a branding strategy; and developing and implementing strategies for new and existing products. Kotler et al. [14] describe a product offering on three levels: *core product* is the essential benefit that the customer is really buying, *actual product* includes the features, styling, quality, brand name, and packaging. Finally, *augmented product* is the actual product together with the various services offered with it (for instance, warranty, installation, maintenance and delivery). In the mobile game industry, the above-mentioned dimensions of product offerings are to be considered in both the business-to-business and business-to-consumer settings.

From the business model perspective, a defining characteristic of mobile game software as a product is that it is an information product. Information, or digital, products have unique cost characteristics, differing largely from those of a physical product. A digital product is typically expensive to produce, but very cheap to reproduce [26]. In the mobile game industry, we can see that variable costs of single piece of mobile game software are typically small; as there are no capacity constraints, and marginal costs are less than average cost. Thus, declining average costs can create significant economies of scale for the producer. As the infrastructure and development tools of mobile game software evolve, the development costs of these products decrease. Simultaneously, the expected product life cycles of mobile games are sped up and the barriers to market entry of new actors diminish. In addition to having a direct effect on the game product strategies, these factors also affect the revenue logic of game software companies producing mobile games.

There are several dimensions of game offerings that can be used to analyze and compare different types of mobile games. First, the analysis of product offerings can be made according to the intended usage scenario. This kind of analysis is consistent with the views of Jarillo [12] and Doz [6], who emphasize the position and role of the offering in the value-creating network that produces and delivers the offering for the end-customers. According to this view, game software platforms and tools are in different positions and roles in the industry-level value system, through which game components and final games are made available for end-users. Secondly, the type and structure of the

game product offering can be considered with the level of similarity of the product offering across multiple customer groups, and its potential to be distributed through different channels of distribution. This view emphasizes the potential to gain economies of scale through serving a wide customer base with same products. Third, the product development method including various alternatives of in-house development vs. subcontracting, networking, and other forms of external development activities can be used as a basis of industry-level analysis. For example, the structure of the total offering may consist of one or more modules including both product and service components. The structural aspect of a software product component includes the product architecture (component based, single core application, etc.), and the modularity in the sense of design and development.

According to the SBM framework [24], the generic product strategy options of software vendors can be divided into several different approaches. The generic options for software product offerings range from customer-specific models where customers' needs are met with tailor-made solutions, to standardized product-oriented models including approaches for creating universal software products and standardized online-services. Between these extreme alternatives, software companies may select to develop parameterized system products, uniform core products, product platforms serving multiple derivative products, or modular product families consisting of universal software components.

Server-based and streamed mobile games are typically affiliated with on-line services, while standalone games may range from uniform core products to modular product families. We can also identify single component-based game products provided in collaboration with different partners. These components include, for example, graphics libraries or toolkits for game environments, or other game components. Along with the development of the market for mobile game products, we can see an increasing diversity of game product offerings ranging from tool and platform offerings to final game solutions and product line offerings that consist of complementary games.

## 4.2 Type of distribution channel

Development of the mobile games market has created new possible models for conducting business that affect all aspects of product distribution, marketing, and billing. A particularly important aspect of this new business paradigm is its impact on distribution channels. Channel efficiency, channel marketing, and potential, consequent channel conflicts are serious concerns for game developers and publishers, alike.

We can identify two aspects that can serve as classification schemes in distinguishing between different distribution models of mobile games: the positioning and role of the game vendor in the mobile game value network; and the complexity of the distribution system as defined by the length of the distribution channel. According to our view, the type of the distribution model, and the length of the channel of distribution as one of its defining aspects, strongly affects the feasible revenue logic options of mobile game producers.

Channels of distribution are divided in the literature into short and long channels [15]. In the mobile games business, short channels of distribution, typically consisting of three or fewer actors in the supply chain, may include, for instance, game developers, game publishers, and mobile operators. On the other hand, longer channels of distribution consisting of more than three stages of the supply chain typically include game developers, game publishers, aggregators, mobile portals, and mobile operators.

Short channels can offer companies possibilities to better control the sales of the product, to monitor product sales relatively quickly and easily, to assist dealers' operations with advertising and promotion material, and to offer discounts and other incentives to dealers and retailers. There are also several potential disadvantages with short channels. First, the large retailers and operators will be in a better position when bargaining with the developer. Moreover, the distribution and marketing costs might increase because the developer may have to supply to several distribution channels [3].

Long channels of distribution are common in distribution of a wide range of products. Lewis and Trevitt [15] identify both advantages and disadvantages with long channels. While retailers can realize benefits from dealing with a wholesaler and the consumers can buy goods individually or in small quantities, like they usually prefer, it is the consumers that will have to pay for the additional stages in the value chain.

Firms can benefit from a multi-channel distribution strategy in a variety of ways. First, it can allow them to better adapt to changing customer needs and shopping patterns. Such adaptive capability has proven useful, for example, when attempting to respond to new kinds of distribution channels, such as the Internet. Second, companies with broad product lines can benefit from a multi-channel strategy because it is unlikely that any single channel will be optimal for all products. [32]

Use of several distribution channels and complex distribution systems offers many potential benefits to game suppliers, but presents some managerial challenges, as well. Multiple channels place competing demands on company's internal resources, including capital, personnel, products and technology. Moreover, the various distribution channels may compete with each other for the same customers in the marketplace, increasing the likelihood of intermediary dissatisfaction and customer confusion [31]. In the SBM framework, a distribution model describes how the marketing and sales of the product and service offering has been organized and identifies the



sellers and marketers of the product and service offering [24]. The elementary ways of marketing a software product and service offering can be organized include direct contact with customers, various channels of distribution with resellers, agents, republishers, original component manufacturer (OCM) arrangements, distributors, dealers, and other partners.

In the mobile games industry, the distribution models are most often based on pre-installation of the game into the mobile handset, offering the games to be downloaded through a mobile network operator or a games portal, or distributing the games on memory cards sold by various retailers. These distribution models are also strongly linked to the pricing models. With the current GSM networks, only the smallest applications can be downloaded over the network. On the other hand, these are the only games, for which the network operator can act as the software distributor. Pre-installed games come as a free supplemental product to the mobile device.

### 4.3 Revenue Logic

The revenue logic within a business model describes the way the company in question generates revenue and profit. The different approaches to capture revenue range from different methods of pricing to different sources of revenue and different products or services sold. The revenue logic can include both sales revenues as well as other sources of financing. Here we will focus on the revenue element only, assuming that it includes the cost structure of both the offering and the operations.

High initial cost and nearly zero marginal cost characterize the production and dissemination of information-intensive products [26], [17]. In addition to the various revenue stream alternatives described above, a software vendor, as any other organization that sells digitally delivered products, has unique characteristics of the information products to exploit. For instance, it is possible to use a range of pricing alternatives based on user segments and user-selectable options. Varian [30] has argued that if the willingness to pay is correlated with some observable characteristics of the consumers, such as demographic profile, then it could be linked to the pricing strategy. One strategy is to bundle goods to sell to a market with heterogeneous willingness to pay [17].

In the retail business of mobile games, a revenue model in which games are available on a subscription basis with monthly fees has been successful in Japan, and also elsewhere for some online games services [27], [27]. Payment schemes allowing the hardcore users to pay a flat fee for unlimited use and pay-per-use options for casual gamers make sense for maximizing Volumes. At the present, only the tele-operators can employ this model, since they control the billing for all end-user wireless services.

Generic approaches to revenue logic in the software business have been identified by Rajala et al. [24] as follows:

- *Licensing*, that is, license sales and royalties as the main source of revenue.
- *Revenue sharing* with distribution partners or profit sharing with users.
- *Loss-leader pricing*, meaning giving something for less than its value. This is done, for example, in order to increase the customer base for later revenue, or, to support sales of some other part of the product/service offering.
- *Media model*, where the revenue is based on advertisement sales either through advertisement in the user interfaces of software or by selling user information for advertisers.
- *Effort-, cost- or value-based pricing*, which is a common approach in customized or tailor-made software solutions and made to order software projects.
- *Hybrid models* as various combinations of the above.

In the following paragraphs, we discuss selected approaches to potential revenue logics in the mobile game business.

#### 4.3.1 Licensing

Licensing is the most common revenue model in the mobile industry [16]. This revenue model is identified by Hecker [10] as being a part of the standard software business model. It involves selling the customer the right to use the software. In licensing there are many alternatives, including per-user, per-machine, per-concurrent user or site licensing. Revenue structure may include some amount of upfront payment for the integration of the wireless solution itself, and recurring license payments over the life cycle of the contract. This may depend on the number of the users or the number of the applications used.

#### 4.3.2 Revenue Sharing

Revenue sharing is a common practice between business partners, for instance, between a game developer and a mobile operator. Profit sharing is essentially a form of licensing, in the sense that it also involves selling the right to use the software. However, in this model, the software provider's revenue is tied to its customer's performance when using the software.

A logical choice of a model for wireless games companies is based on revenue sharing with network operators who provide the backbone for transmission game data. Our empirical observations indicate that network operators often retain major share of the revenue. However, in some cases, the service provider may charge the end-user directly without an operator taking their share of the data transfer revenue.

### 4.3.3 Loss Leader Model

Loss-leader pricing means selling the software for considerably less than its perceived customer value, or, making the software free by hoping that this will stimulate demand for a related offering the company has. An example of loss leader revenue logic is a model in which the software is provided for free, and revenue is collected through selling related products or services to the users, or through the sales of complementary offerings to other customers. Hecker [10] introduced the term support selling to illustrate cases in which revenue is collected through media distribution, branding, training, consulting, custom development, or after-sales support. Glynn [8] notes that offerings provided for free are not merely an incentive, but ideally, they also stimulate the usage of the for fee services. Examples of this approach can be seen in games that are pre-installed in mobile devices. These games can be developed in-house by the handset manufacturer, or outsourced to a third party software company.

### 4.3.4 Media model

Media revenue model is an essential part of, for instance, the virtual community business model [9]. In a media model, the software is used to collect a group of users. Then, for example, access to this group of users may be sold to third parties for advertising purposes. The media model involves a multitude of arrangements, in which third parties can be provided with information about the users, and the users are provided with information about the services of third parties, and the software acts as the mediator. This approach will produce interesting revenue opportunities in the future, as the user segments of mobile games, sharing a number of preferences or demographical and cultural characteristics, make interesting target groups for many advertisers.

## 5 Case Descriptions

In this section we analyze four case companies and their product offerings. We first briefly introduce the case companies, then their main product under investigation. We then identify the chosen channel structure and the revenue logic related to the inspected product offering.

### 5.1 Mr. Goodliving

Mr. Goodliving is a small-sized company developing and marketing self-published game brands targeted to the global market of downloadable mobile games. Founded in 1999, Mr. Goodliving had 10 full-time employees and a number of part-time contributors in 2002, and a total of 20 full-time employees in 2004.

#### 5.1.1 The Product Offering of Mr. Goodliving

Mr. Goodliving develops and publishes downloadable games for mobile phones under its own brands. The mobile game portfolio of Mr. Goodliving's includes a sports game family, Playman Sports™, as well as racing and pinball games like Highway Racer™, Scooter Lovers and Space Taxi Pinball™. The main innovation of Mr. Goodliving in the sports game family is a combination of real world sports events and comic type of character. Mr. Goodliving has a two-year history of building up its own Playman game brand. The Playman Summer Games™ is one of the first original mobile game brands in Europe. The brand is built on a character to create identity, long-term continuity and IP value for the product offering. Mr. Goodliving is now focusing on portfolio planning with quite a tight focus on sequels or parallel versions to build-up the character.

Another example of the games in Mr. Goodliving's product portfolio is mobile games ported from other environments into mobile handsets, like the popular board game Trivial Pursuit (see Figure 2). There are probably millions of Trivial Pursuit players in the world. The initiative to produce a mobile phone version of the board game came from its marketer, an American toy and game company Hasbro, Inc.



Figure 2: Screenshots of Trivial Pursuit from the screen of a mobile device



The following quotation from the case material depicts how Mr. Goodliving tries to respond to the challenges related to their distribution partners through its product offering:

*...The attractiveness of the offering is subject to the proven quality of the products –including good [game] reviews and support to a broad range of handsets, the originality of the game ideas– and the brand attractiveness of the game producer –including prematurely clarified copyright ownership issues and comprehensive brand marketing. (Mr. Sami Lahtinen, Executive Producer of Mr. Goodliving, a company presentation in April 2004)*

According to Mr. Lahtinen (ibid.), the main challenges in the access to distribution partnerships with original game brands and titles are linked both to the quality of the product offering and to the reputation of the game producer. Correspondingly, he points out that the key challenge for Mr. Goodliving is not only to produce easily distributable product offerings, but also to manage the whole process in bringing them into the market.

### 5.1.2 Distribution model

Mr. Goodliving distributes its games through various partners, such as mobile operators and game portals. The company is actively seeking additional retail channels. Some of the most prominent distribution partners include Vodafone, Telefonica, Orange, O2 and T-Mobile. Some of the games of Mr. Goodliving can be found in the most popular European game portals.

### 5.1.3 Revenue logic

The revenue stream of Mr. Goodliving is based on revenue sharing agreements with its distributors. The share of Mr. Goodliving is either a percentage share of its sales revenues or a flat fee per sold unit. This model is largely favoured by the mobile operators in order to share the risks related to providing third-party content in their services portfolio.

*Our revenue comes from the revenue sharing agreements with the distributors. The agreements may include a percentage share and a flat fee per sold copies of the games. --- The revenue sharing model is largely driven by telecom-operators. (CEO, Mr. Goodliving)*

Although the telecom-operators have been influential in establishing the revenue sharing model in the mobile game business, the managers of Mr. Goodliving see that it is a reasonable model also from the game developers' perspective.

During the first years of operation, the cost structure of the Mr. Goodliving was dominated by game development costs. In 2002, personnel costs equaled to 60 percent of all costs of the company. Later, the share of marketing and sales promotion has bypassed the game development costs, as the investments in marketing have grown steadily. According to the managers of Mr. Goodliving, after 2002, the total production costs of a game have been less than the costs of establishing one distributor relationship, from the initial contact to a contract.

## 5.2 Sumea Interactive

Our second case company is a mobile games developer and publisher Sumea, that has specialized in Java technology since it was founded in 1999. Today, Sumea focuses on developing and publishing high quality games for Java-enabled mobile phones. During this research project Sumea was acquired by Digital Chocolate, but is still operates as a game studio employing 80 people. Sumea's core strengths are technical quality and innovativeness.



Figure 3: Examples of Mobile games from Sumea.

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### 5.2.1 The Product offering of Sumea

Sumea focuses on developing and publishing Java games for mass market mobile phones from initial ideas to final products (see Figure 3), and the company designs its' own games, creates its' own IPRs and game brands. The testing process is organized and controlled by Sumea, but the company also uses third party test services. The company has a sales department which collects the operator feedback and reports new ideas to development unit.

Sumea's game development process is similar to traditional computer games development. However, the development time is shorter than for PC or console based games. The average mobile game development process takes from four to six months. The company has an idea collection process that generates new game ideas and improvements to existing ones. The ideas are evaluated and the best ones are forwarded for further development. The components of a game are developed separately, so that they can be tested with real devices. Sumea experimented with outsourcing the game programming, but has now returned to in-house development. The final testing of the game is, however, outsourced to an approved testing company.

In addition to localizing mobile games to languages of target market countries, Sumea also produces marketing material for its customer companies. Selected games are also customized to customer's production platform and made ready to be distributed over Internet.

### 5.2.2 Distribution model

Sumea's distribution channel is relatively short, as it prefers direct distribution channels via mobile operators. The potential customers are mobile portals and mobile operators around the world, but currently the most important market areas are USA and Europe. Most of the company's partner agreements are based on revenue sharing with varying contract details. The Java-based mobile games can be preinstalled by mobile phone vendor or downloaded over the air.

The other delivery and marketing partners include entertainment portals, media companies and device manufactures in about 50 countries. The mobile service platform developers are not key customers but they can provide marketing support, since mobile games are often used while running demos in mobile platforms for mobile portals and operators.

Company's Java games are available in more than 40 countries through several channels, including Nokia, Vodafone, O2, AT&T (United States), WIND (Italy), CSL (Hong Kong), Sunday (Hong Kong), Singtel (Singapore), Sonera (Finland) and Orange.

### 5.2.3 Revenue logic

The revenue logic of Sumea is mainly based on direct contracts with mobile operators. The revenue structure in direct contracts with mobile operators is more favorable to game publisher compared to contracts with mobile game portals.

*In standard game product sales, the dominant revenue logic is based on revenue sharing between the developer and game distributor. It is a well functioning model in our business, if the relationship with the distributor is healthy. (CEO, Sumea)*

The share of Sumea is a percentage of sales revenues or a flat fee per sold unit. This model is similar to that of Mr Goodliving, and is widely preferred by mobile operators.

*...interest in alternative revenue models has increased recently, as various actors contemplate time-bound licenses that are limited to a given period of use. (CEO, Sumea)*

However, as the managers of Sumea speculated, telecom-operators are not likely to be willing to share transaction-specific information, such as amounts of data transmitted, with game producers. Hence, according to Sumea managers, the only widely accepted and truly feasible model at the moment is based on revenue sharing.

### 5.3 Fathammer

Our third case company, Fathammer, was founded in late 2000 by a group of people with experience in the games, telecommunications and mobile technology industries. The company is a developer of real-time 3D graphics and game technologies for mobile devices. Fathammer supplies products and custom solutions based on its X-Forge Technology platform for companies that wish to create and deploy 3D games and other types of 3D content for mobile platforms. The company is privately owned and currently employs about 30 people.

#### 5.3.1 The Product Offering of Fathammer

Fathammer is a technology developer for game consoles, such as Nokia N-Gage, focusing on developing 3D engines for various mobile console platforms (see Figure 4). By using Fathammer's X-forge technology, game developers can decrease the development time needed for developing new games and porting games to new platforms. Some mobile game developers and publishers also prefer the use of pre-tested components. Furthermore, the company provides technological support and consultancy for other game developers.

The other core competencies of the company include the know-how of 3D graphics technologies, optimizing for the limited hardware configurations of mobile devices and the development of high quality games. The company has developed a technology platform which is available for mobile gaming devices including nGage, Sony PSP and Tapwave Helix.



Figure 4: Examples of X-Forge powered games

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#### 5.3.2 Distribution model

Fathammer has several technology partners that develop games for various mobile devices. According to the management of Fathammer, earlier references of successful implementation of enhanced games are important in marketing. Fathammer's distribution channel is relatively long, because the distribution channel includes several consecutive actors. In addition to the game development platform, the company provides consultancy services. The X-Forge development platform can be distributed for example via FTP (file transfer protocol) or on CD. The main customer segments and revenue generators are game developing companies, device manufactures and consultancy.

#### 5.3.3 Revenue logic

The revenue model of Fathammer is twofold. First, a developer version of the software is licensed to game developers, based on a principle according to which a licensed development kit is granted for development of agreed number of games. Second, an OCM (original component manufactured) version of the software, customized to a specific mobile device, is granted with a respective license for device manufacturers. The OCM model allows the device manufacturers to distribute the development kit to any number of their development partners.

*The revenue models of Fathammer are derived from the traditional game software development. The only difference is that the devices where the games are used, are mobile* (Founder and Head of Games, Fathammer)

Majority of Fathammer's revenue comes from the sales of the X-Forge game platform licenses. In this product line, Fathammer has several pricing options. The price consists of an up-front fee, royalties of sold copies per game, and, an annual maintenance fee. Variations of these pricing components are adjusted on a case-specific basis. The sources of revenue include royalties determined by the number of sold copies of the games that use the Fathammer's game development platform, and, consultation, training and support to game developers.

## 5.4 WES

The fourth case company, WES (Wireless Entertainment Services) is a small company providing wireless content to mobile service subscribers via network operators and other service providers. WES offers a variety of mobile entertainment content including ring tones, icons, logos, picture messages and other audio-visual content to mobile operators who then sell these products as value-added services to their customers. Recently WES has broadened its product offering to downloadable Java games and MMS-based multimedia content. In this study, we focus on the downloadable Java game business of WES, only.

Two engineers from Nokia founded WES in 1998. At the time, Nokia had mobile phones that could download ring tones, but no companies offered this type of personalized content. The founders realized a market gap and launched the company to for selling ring tones for Nokia mobile phones. In 2004, WES employed 38 workers. The focus is on providing mobile phone content for network operators.

### 5.4.1 Product Offering of WES

The mobile game portfolio of WES primarily consists of downloadable Java games. The technical product development of the games is mainly outsourced to subcontractors. The focus of WES is to develop and maintain its game portfolio to respond to changes in demand and trends in the game business, to market its games to the distribution channel, and to differentiate the games from competition. The main emphasis in the product development is focused on winning in two critical decision points: The first one is the distributor's choice to take the product into their assortments, and the second one is the end users' choice to purchase games from network operators and other service providers.

Examples of the games in the portfolio of WES are Juan Pablo Montoya Formula Challenge and Kalle Palander Alpine Race (see Figure 5). Both are intended to be played as single races or as parts of championship tournaments.

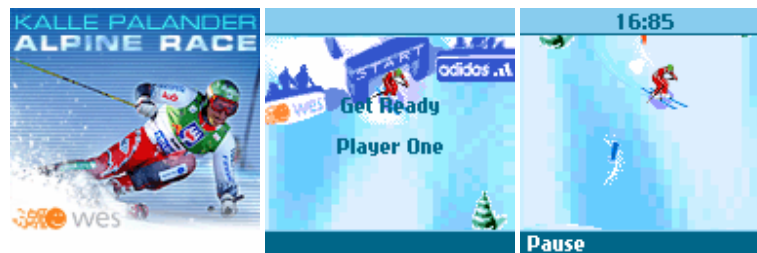


Figure 5: Screenshots of Kalle Palander Alpine Race game of WES.

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The following quotation highlights the role of WES in the gaming industry as mainly a game producer and aggregator:

*Game aggregation means that we act as publishers and contract the game development with our suppliers. Also, we modify or add selected games to our branded product families. --- With the exception that we have developed some games by ourselves and in collaboration with some close partners of ours. (Manager of Business Development, WES)*

The contracts mentioned mean transferring IPRs into WES's possession. In some cases, however, WES has also acted as a distributor and has not paid for the game development.

### 5.4.2 Distribution model

WES provides wireless content for the Value-Added-Services (VAS) market. WES content enables network operators and service providers to offer a broader portfolio of game content to mobile service subscribers.

WES co-operates with major mobile phone manufacturers and technology companies. WES also has strong binds to the music industry and other copyright owners, and their associations, as it acts in some cases as a distributor of their content.

### 5.4.3 Revenue logic

The primary revenue source of WES is based on revenue sharing with telecom network operators. The mission of WES, as announced in the company web site (in Nov 2004), is to provide revenue-generating entertainment content for mobile operators and portals worldwide. This objective is addressed through sharing risks with the distributors and actively promoting the sales of the offering on behalf, or together with distribution partners.

*Revenue sharing is the most prominent model in the market and we are satisfied with it. The key to success with this model lies in finding and selecting the right [distribution] partners. (Director, New business development, WES)*

According to the managers of WES interviewed, the risk of excessive dependency of the distribution partners is often exaggerated. In their opinion, the risk that the distribution partners strive to change the revenue shares unfavorable for a game developer along with the success of a particular game is not plausible, as the distributors and the developers are dependent on each other.

*Even if they [telecom operators] changed the rules of revenue sharing in the case of ringtones as they became popular, they cannot do the same with games, because they are not capable of producing the next game versions by themselves. (Director, New business development, WES)*

As revenue sharing is considered to be a sound option, WES has financed its whole operation through the cash flow generated from the revenue sharing agreements. A few other types of agreements have been made, but their role is marginal and complementary.

## 6 Discussion

In our comparative case study setting, the empirical findings on each of the four cases are compared with each other, in order to highlight the potential differences and similarities between them. We compare the business models of the four companies according to the three dimensions of: (1) the type of the game product offering, (2) the type of distribution model describing the distribution channel, and (3) the revenue logic of the game producer. Descriptions of the product offerings and distribution models are used to explain the potential differences in the revenue logics (see Table 1).

Table 1: Comparative summary of the cases

Cases	Business model elements		
	Product offering	Distribution model	Revenue logic
Mr. Goodliving	Standalone, device-specific, branded Java-games downloadable directly to mobile handsets over the Internet.	Telecom operators and Internet portals mass-market the products. Mr. Goodliving provides marketing support.	Revenue sharing based on percentage shares and flat fees per sold copies.
Sumea Interactive	Standalone and hosted games developed in collaboration with game publishers.	Telecom operators, game publishers and Internet portals mass-market the products that are delivered to end-users through a hosting service provider.	Revenue sharing of standard games, game copyright royalties from device manufacturers and other game publishers.
WES	Game concepts provided as an aggregated game product portfolio that consists of several 3 <sup>rd</sup> party games.	White-label games distributed under the distributors' own brands.	Revenue sharing and complementary customer-specific project sales.
Fathammer	Game development middleware, OCM offerings and device-specific games.	Word-of-mouth among game developers.	Game platform licensing, OCM component royalties, expert services such as consulting.

As illustrated in Table 1, the type of offering is related to the other business model elements. In the mobile game industry, we identify offerings that are distributed in different ways to the consumers. Most of the mobile games based on Java technology are downloadable over the mobile network, while others are delivered on a physical media, such as memory cards. Among our cases, Sumea, Mr. Goodliving and WES aim at providing their game offerings through mobile operators, but are in some markets forced to operate through game portals. These case companies have a relatively short distribution channel and their game offerings are directed to the end-users. Thus, these companies are positioned in the downstream of the mobile game value chain. Then again, the main offering of Fathammer is directed to game developers and the distribution channel all the way to the end-users is significantly longer. Thus, Fathammer is positioned in the upstream of the mobile game value chain. However, the rapid technological development and consolidation of the mobile game industry create new business opportunities, and provide mobile games companies with possibilities to reposition their business on the value chain.

As seen in Table 1, we can identify some reasons why Java game developers, such as Sumea, Wes and Mr. Goodliving are trying to create direct distribution channels to mass-markets. For example, Java games are relatively inexpensive and developers try to keep the value chain as short as possible in order to retain higher revenue



margins. Furthermore, the mobile game development process is often innovative and iterative and thus relatively difficult to divide into parts and outsource to other companies.

Mobile game development platform and tool developers, such as Fathammer, aim at providing their technology to as many game developers and gaming platforms as possible. However, they cannot compete with their customers by developing their own game titles without losing potential development platform revenue. Furthermore, toolkits and development platforms are tools for game developers and, thus, impossible to sell directly to the end users.

In this study we identified two basic types of revenue logics. One is the software-licensing model represented by Fathammer. In that case, the main part of the revenue is based on the license sales of the development environment. Additional sources of revenue include royalties based on the number of sold copies of the games using the X-Forge platform, as well as consultation and support provided for game developers. Revenue logic is identified in the remaining three cases with slight differences. Both Mr. Goodliving and Sumea strive for contracting revenue sharing agreements with mobile operators or game portals that act as their distributors to consumers. In addition to revenue sharing, WES makes agreements with game developers to build more comprehensive game portfolios for their distributors. The distribution partners of WES include mobile operators, service providers, and mobile portals that wish to create new revenue from downloadable mobile VAS content.

Media- and loss leader models, the two other revenue logic options suggested in the literature, were not identified in our cases. Potential reasons why the loss leader model is not commonly applied, is, for example, that the life cycle of downloadable Java games is considered rather short, and that mobile operators act as gateways to the consumer market and seem to prefer the revenue sharing model with game producers. The media model was, surprisingly, not yet common in our cases, although mobile gamers are often recognized as an interesting target group for many advertisers.

## 7 Conclusions

In this paper, we focused on the channel choices and revenue logics of companies producing mobile games. Using parts of the business model framework developed by Rajala et al. [24], we discussed potential revenue models of mobile game developers, and identified examples of these in the mobile game industry.

In the existing distribution models for mobile games, revenue can be generated from user licenses or royalties based on sold copies; or from transactions concluded while the game is played; or from both. The possibility to distribute mobile games on-line and over the mobile network, offers a way to reach a large number of users. However, this possibility strengthens further the central role of mobile operators as distributors in the mobile gaming businesses, as the delivery and billing processes have a key role in the mobile service value chain and revenue logic. It therefore seems that the current winners in the industry are the telecom-operators, who dominate the end-user interface with their viable delivery and billing mechanisms. However, the strong consolidation process in the mobile game development market will affect the revenue logics and increase the negotiation power of mobile game developers. This is illustrated by the fact that after the case interviews and analyses, two of the four studied case companies were acquired by larger US based companies. Mobile game developer and publisher Sumea was bought by mobile game and entertainment developer Digital Chocolate and Mr. Goodliving was bought by digital media company Real Networks. Now both companies have more technical and financial resources for developing and publishing high quality games, and also stronger position in the US market than either Sumea or Mr. Goodliving ever had earlier.

The expected changes in mobile game industry and growth of entertainment business combined with increased mobility offer a number of opportunities for software companies that develop mobile games. Research on viable business models for companies developing mobile games and other types of entertainment products and services is highly necessary, particularly in terms of identifying and analyzing the success factors and key characteristics of the plausible business models.

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