

Nokia and Mobile Gaming

by

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ABSTRACT

This paper investigates the game market segments, size, and growth. Nokia's participation in this market with its N-Gage product and N-Gage platform is examined in detail. Following is an industry analysis that produces a summary of the types of forces that affect Nokia's ability to operate in this market. The value chain investigation looks at the inputs that make up the mobile game market and how Nokia uses these inputs to bring mobile gaming to the target market. The first recommendation for Nokia is to focus on a differentiated handset target market initially, with lower-end phones being added as the functionality becomes available. The billing model, an important component of a successful strategy, should match the target market and should be added as the markets are added. Finally, it was suggested that a collaborator relationship be developed with the operators in order to increase the number of games on handsets.

DEDICATION

During the writing of this paper, life continued with the birth of my two sons Nicholas (January 2005) and Samuel (August 2006). The support provided by my wife Jennifer and my mother-in-law Henriette enabled me to finish this paper. I dedicate this work to my family who endured this long journey with me.

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1 INTRODUCTION

1.1 Background of Nokia

Nokia was founded in 1865 by an engineer named Fredrik Idestam. The roots of the company are in pulp and paper¹. Through the 20th century, Nokia expanded to include a rubber works, a hydroelectric plant, and a cable works. In 1967, these disparate companies were united as the Nokia Group. The electronics portion of the group (stemming from the cable works) comprised 3% of the company's sales, and employed 460 people.

The Electronics department developed digital switches for the telecommunications industry in the early 1970's. Most of the telecommunications industry was using analog switches at the time. This was Nokia's first foray into the telecommunications industry. Much of the technology developed at that time is still the foundation for much of Nokia's current network technology.

Nokia began developing for the cellular industry in the early 1980's. At that time, Nokia was struggling to remain a company having lost a great deal of money in the European consumer electronics market.² In the late 1980's, after a tragic suicide by the Managing Director Kari Kairamo, all departments were sold off. The final piece to be sold was the failing consumer electronics division, but all negotiations fell through. Through innovation and persistence, products began to emerge from the remaining Nokia department³.

Today, Nokia has almost 60,000 employees in 120 countries and makes about one third of the world's mobile phones. The corporation is the largest in Finland and has a huge impact on the economy of the country. The value of its shares alone is over half of the shares listed on the Helsinki Stock Exchange. Any sharp swings in share price have an enormous effect on the Finnish economy. This strong connection with the country of Finland, and the company's national pride make Nokia a unique multinational today⁴.

1.2 Why Nokia Entered Mobile Gaming

Nokia entered mobile gaming and music in late 2001 with the Nokia 5510⁵. This move created an opportunity for entering into a new business model, including

partnerships with equipment makers and content companies including game publishers. The launch of Nokia's multimedia phones is seen as an extension of Nokia's initial steps into the content based market. This foray has given Nokia the opportunity to build a new business practice from the ground up with new, integrated devices⁶.

Originally, Nokia entered the mobile gaming market with its N-Gage phone. This phone was primarily a handheld gaming unit that seemed to be in competition with Nintendo's Gameboy Advance (GBA). Both these products are small, portable, handheld gaming units. Shortly after Nintendo launched the GBA, Sony also came to market with a handheld gaming unit called the Playstation Portable (PSP). The primary target market for these game units was hardcore gamers. The first N-Gage was additionally a phone, an MP3 player and an FM radio. The second generation of the N-Gage product (the QD), had reduced functionality, although was still a phone. The value added for the Nokia devices was the "mobile" aspect versus the "portable" aspect⁷. The Nokia phone could be used for players to play against each other over a wireless, cellular connection, which allows for increased coverage over WiFi. The details of each of these main products are examined in some detail later in this work.

The market did not respond as well as expected to Nokia entering the gaming market with this type of product. The firm is known for innovative handsets, not for their expertise in gaming. The company was able to make available many games for its N-Gage product, and sold these through retail channels, primarily boutique gaming stores. The retail price for these games ranged from \$45 to \$55⁸. The estimated sales for the handsets (both the original N-Gage and the QD) are approximately 2 million by the end of January 2005^{9, 10}. This was well below Nokia's expectations – which were to sell between 6 and 9 million units by the end of 2004^{11, 12}. Sales figures for games are not available publicly, although low sales of the game unit would imply equally low sales of the games themselves.

There is no shortage of published data on the expected size of the mobile gaming market, and this is investigated in detail later in this work. It is clear that Nokia was interested in taking part in this market. Due to the reduction in margins on handsets and the increasing competition from Asian handset manufacturers, it was important for Nokia

to create new value for its products^{13, 14}. Nokia's market share of handset industry is over 30%¹⁵. The S60 devices in particular make up about 50% of the world's converged devices, with 90 million units sold in 2006, Nokia has about 45% market share in converged devices¹⁶. Since the original products did not make the impact the company was hoping for, the firm announced in 2006 its plan to re-launch its N-Gage "product"¹⁷. The new product is not a "product" in the traditional sense, but is a capability for a range of its S60 phones and multimedia computers to play N-Gage games. Since the launch of the original N-Gage handset, there has been increased interest in handsets able to play mobile games. Indeed, "mobile" gaming (versus portable gaming) should increase in importance to game publishers such as Electronic Arts (EA).

1.3 Purpose of this Investigation

The details of Nokia's role in this fledgling market are the subject of this investigation. Nokia is seeking ways to increase its market share of a potentially very lucrative business, mobile gaming. This is driven primarily by shrinking margins on handsets and increased competition from Asian cell phone manufacturers. During the course of writing, the mobile gaming market has become more defined and the paper will guide the reader through these changes, with hypotheses on why these changes have happened and what the outcomes could be.

The first part of this report will deal mainly with the gaming industry and the various segments that make up the market. Then Nokia's gaming products will be examined as two entities, the device (the N-Gage consoles) and the platform (N-Gage platform). Next, this investigation will primarily use an industry analysis and value chain to explore the cellular handset industry and examine Nokia's role in the market. The industry analysis specifically looks at the rivalry among competitors, the threat of substitutes, the threat of new entrants and the power of suppliers and customers.

The rivalry among competitors outlines the other competitors in the industry and looks at issues such as oligopoly and what that means to the dynamics in the market. The threat of substitutes investigates what kind of technologies could be used instead of the one being examined and also looks at why a user would switch to an alternative. The

threat of new entrants shows the magnitude of investment that would be required for a company to enter this market. The power of the suppliers and customers examines the power relationship that exists between the company and their suppliers and customers, and how that affects the firm's ability to compete in the industry.

The value chain is a way to look at the activities and inputs that are required to bring a product to market. In this case the product is the mobile game. Originally the product was the device, but after unsuccessfully competing with the portable gaming console incumbents, it was clear the product needed to change to become more complementary to Nokia's device portfolio. In order to create a source of ongoing revenue, the games have become an increasingly important part of Nokia's offering. The value chain explores each mobile game input and evaluates how it contributes to the product, and how the company adds value to those inputs.

After the analysis, recommendations will be provided to suggest ideas for improving Nokia's market share in the gaming industry and some proposals for implementation. However, providing details on the plan of implementation is beyond the scope of this work which is to examine the industry forces, Nokia's role in the market, and provide suggestions for further growth.

2 SEGMENTATION AND SIZE OF THE GAMING MARKET

2.1 Entire Gaming Market

Electronic gaming, in general, consists of:

- Console gaming – using a home based console that connects to the player's television and TV peripherals such as surround sound etc.
- PC gaming – using the player's personal computer and its peripherals such as keyboard, internet connectivity
- Portable gaming – using a portable console, limited peripherals, designed to be played on the go
- Mobile gaming – using a portable console, limited peripherals, designed to be played on the go, has added feature of mobile connectivity via cellular

Worldwide sales of video games in 2002 were approximately \$21 Billion, higher than box office revenues of \$19 Billion in the same year¹⁸. This includes all types of gaming. The boom in the video game industry appears to be “recession proof”. This is largely because the video game industry appears to have its own cycle which is tied to changes in console technology. Consoles are updated and released every few years¹⁹. The upgraded consoles in turn rely on improvements in technology such as transistor density on silicon chips that are the key factors in processing speed. This is directly related to the complexity of the graphics and speed of the gameplay. Technological advancements also translate into increased penetration of household high-speed internet/broadband connections, increased electronic storage and access to inexpensive multimedia phones²⁰.

As a result of improved technology, in the United Kingdom the gaming industry outsells music singles by ten to one. This was an estimated \$684 million in the third quarter of 2003. While these figures are certainly impressive, it should be cautioned that increased availability of advanced technology means a public desire for more complex and challenging games. This translates directly into increased costs for publishers. The few large publishing houses (such as EA) can afford the additional costs involved in making the games. However, the smaller, independent publishers will likely be acquired or close their doors²¹.

As the gaming industry matures, it is becoming clearer that producing a game for a console or PC is very different from producing a game for a cellular handset, or a mobile gaming unit. For instance, the size of the screen makes the graphics smaller and the visual impact of the game less important. As such, a firm cannot just take a game previously designed for a PC or console, recompile it, and make it available for a handset. Indeed, each type of handset requires the game to be altered in order for it to work²². Due to these special technical requirements, development for handsets is a fairly specialized field. EA attempted to build mobile gaming expertise internally, but was unable to effectively do so. In the end, the firm acquired Jamdat Mobile in 2005 for \$687 million. At the time of purchase, Jamdat Mobile was the largest and most successful mobile games publishing house worldwide²³.

Gaming has become a very lucrative industry of which to be part. However, it is clear that it is becoming increasingly costly to enter. The gaming industry as a whole is comprised of PC, Console and Mobile gaming. Each of the subsequent sections will investigate the market for each of these. It is clear that while a company can produce games for all of these markets, it is only the largest and the most profitable that have the financial ability to do so.

2.2 PC and Console Gaming Market

Gaming on computers made its debut in the 1950's. It was not until the 1970's that the first game console was introduced²⁴. Over the past few decades gaming in general has increased in popularity to the point that mobile gaming is becoming popular. However, each type of gaming is finding its own niche and market.

For many years before consoles were developed and became popular, PC gaming was the only alternative. The first games were very basic, but the possibilities were soon recognized. The popularity of arcade games and the conversion of arcade games for home use helped to increase the market size. Today, PC games are becoming niche for online gaming. This is largely due to the introduction and increased popularity of the Massive Multiplayer Online Games (MMOGs). Although consoles have been making inroads into internet connectivity, the internet connection is still the domain of the personal computer. DFC Intelligence reports that although difficult to measure, the PC gaming business is experiencing a surge in popularity due to MMOGs. This is due mainly to the hardware availability of PCs and the adoption rates of broadband connectivity²⁵.

It could be argued that one of the reasons that the PC market continues to thrive is because it is possible for a gamer to upgrade pieces of hardware such as video cards quite easily. The added benefit of a large pool of hardware manufacturers ensures that the gamer can have the most up to date hardware that maximizes their gaming experience.

The PC market is also gaining popularity in areas such as Asia, where the console market has yet to penetrate. It seems that PC gaming precedes console gaming in these markets. One of the reasons is that in these geographical areas, there is a much lower retail presence. Games are purchased, or played on a subscription basis on-line.

DFC intelligence provides worldwide market numbers for both retail and on-line sales. There are historical revenues from 2004 to 2006, and forecasts to 2011. For retail sales, the revenues are between \$2.8 billion to \$3.0 billion. The changes from year to year are minimal, averaging approximately $\pm 1.5\%$. For on-line revenue between 2004 and 2005 the values have increased from \$2.0 billion to \$3.2 billion, and increase of 54%. Forecasts to 2011 have percent increases from 11% to 54%. In 2005, DFC reports that based on worldwide revenues, retail purchases and on-line purchases share the market approximately equally (retail 48% and on-line 52%). By 2011, the prediction is that on-line games will have 77% of the market with retail taking the remaining 23%²⁶.

Although the technical niche of the PC seems to be its broadband connectivity, consoles are upgrading their connectivity²⁷ and local broadband providers advertise their ability to connect to the most popular consoles²⁸. However, consoles have a very different dynamic in the marketplace. Console manufacturers are still an oligopoly, so gamers cannot take advantage of a fragmented market to incrementally upgrade with the newest hardware. The market for consoles and console game software is largely driven by the introduction of new consoles. This is cyclical in nature with surges in retail game revenue following the introduction of new hardware²⁹.

Traditionally, when a new console was introduced, the price of the console was dropped to increase penetration, with companies hoping for an increase in game sales. Research into retail game revenues shows that in the year of a new console launch, game revenues decline³⁰. Industry research has shown that a \$50 cut in console price will increase console sales significantly, resulting in an eventual increase in SW sales – a network effect. However, some argue that console sales will not increase the installed base, that software and game titles are the key to expanding user base³¹. It is unlikely that it is that well-defined. While it is true that a cut in price will attract more attention to a particular console, without a good library of games, the sale is unlikely.

DFC Intelligence reports that for worldwide sales of hardware and software combined, there has been a steady increase in years following the year of a new console introduction. For example, in 2000 and 2001 there were decreases of 4% and 32% respectively. This coincided with the launch of the PlayStation 2. Again, in 2005 there

was a decrease of 4% following the launch of XBox 360. Other years show increases between 6% and 25%. The trend is even more pronounced when examining the market revenues for software alone. Between 1996 and 2005, the only years that there were declines in the software revenues were 2000 (-4%) and 2005 (-6%). Except for 2000 and 2005, there was an increase in game software sales between 6% and 33%³².

2.3 Mobile Gaming Market

Initially, mobile games were primarily text based and became popular without a lot of mass marketing³³. This occurred around 2002. Since then, studies indicate that mobile gaming will exceed \$500M US in less than 5 years³⁴. The key for the uptake of mobile gaming is versatility on the part of network operators. Operators will have to increase revenue by increasing adoption rates. This will require a change in user attitudes towards the limitations of wireless gaming. Of the approximately 1.3 billion mobile subscribers, about 6% play games on their handsets and is thought to exceed the number of people playing on consoles in the near future³⁵. In Japan and Korea, the most developed mobile markets, users playing games on their handsets has risen to 35% and 15% respectively³⁶.

Billing and sustainable revenue is the key to having a viable business model^{37, 38}. There are three basic types of billing classifications: downloads, monthly subscriptions, and event based. The Japanese model is to bill in small increments and give a small margin to the developers. The US model was not firmly established early on and could be a reason that gaming has been adopted at a slower pace. In addition to billing, success will ultimately be determined by operational effectiveness, economies of scale and control of the distribution channel³⁹. In Asia, consumers use downloads, changing the content of their phones⁴⁰. Almost 20% of mobile revenues in Korea and Japan are from accessing and downloading content. In Australia, mobile and text data account for 15% of revenues. Even in Asia, downloads have been slow to take off due to the expense of downloading data, the per Kilobyte charge has been very expensive for users⁴¹. In general, the reason for the expense associated with data downloads is that the networks have been optimized for voice and not data⁴². This will likely affect the rate at which

games are downloaded. Some games are downloaded once for a one-time fee and played as often as the user wishes without charge. Other games are subscription based which involve higher and more frequent charges⁴³.

The reason that a sustainable revenue model is so important is that market data indicates that this market will be worth about \$3.8 billion by 2007 (Informa media Group), and that approximately 25% of mobile subscribers will play games on their handsets⁴⁴. Other market research indicates the value of mobile gaming to be \$1 billion US in 2003 and more than \$7 billion in 2008⁴⁵. Varying types of content (games and entertainment) have made a single type of billing model a difficult concept in the US. Games vary in complexity which makes it difficult to justify one price across all types of games. The result is negotiations between content providers and carriers. Carriers end up taking on a role that is new, that of content distributor. This new role led to content providers taking a loss on game development in order to increase market penetration. In addition, lack of cooperation between different network providers made it difficult for gaming to become really viable for hardcore gamers⁴⁶. There is limited incentive for network operators to increase interoperability.

The target market for N-Gage was hardcore gamers in a direct challenge to Nintendo's Game Boy Advance⁴⁷. Nokia felt it had an advantage in the market as it had intimate understanding of the mobile communications market. However, hardcore gamers are a very small market⁴⁸. Initially, games were too simplistic for hardcore gamers. It was necessary to develop more sophisticated content to get their attention. There were issues encountered early: ⁴⁹

- Users grow bored of content easily, needs constant refreshing
- Multiplayer is most popular
- Different demographics are interested in different types of games

In general, early ideas on market segment were casual gamers looking for a way to entertain themselves while waiting in airports, in line-ups, etc. These millions of casual gamers are thought to be the real market, although there will be a threshold price that they are willing to pay for filling time^{50,51}. It is thought that most marketing efforts will be via viral marketing, such as forwarding music clips and multiplayer games⁵². Early on, the

market was divided between downloadable games and those stored on device⁵³. Downloadable games can make billing easier by using “per use” or subscription fees. The N-Gage platform will sell games as direct downloads to the handset via a 3G cellular connection, or download via a WiFi connection. Games can also be downloaded to a PC and transferred to the handset. Payment will be by phone credit, by phone bill, or credit or debit card. There are also hints that a voucher system could be used so the consumer can pay with cash⁵⁴.

Increasing the installed base is important to the success of mobile gaming. One carrier, Vodafone, released a popular game (Urban Freestyle) to mobile users before it was released to console customers⁵⁵. However carriers choose to increase the installed base, branded content is going to be the key to success for mobile gaming⁵⁶. Target market is also key. Carriers intend to market to a younger market in the belief that if the market is captured young, there is a greater chance they will continue to use that carrier later in life⁵⁷. In order to take advantage of game content, users will have to upgrade their handsets. However, uptake for handset replacement has been lower than expected⁵⁸.

In summary, the mobile market is still in the learning phase. Innovators and early adopters are still the majority of the market in North America and Europe. In Asia and Australia, the market is showing signs of becoming more of a majority. It will be important over the next few years for the billing model in North America and for the distribution channels to be well defined in order to gain the market share that will be required to meet the projected market revenues.

3 PRODUCTS

3.1 Handsets

Cellular handsets, like any technology product, are subject to the adoption rates as described by Geoffrey Moore in his book *Crossing the Chasm*⁵⁹. The model shows that consumers are divided into five categories: the innovators, the early adopters, the early majority, the late majority and the laggards. The innovators, technophiles, seek out the latest in technology and enjoy being the first to own a new device. It would seem that a consumer purchasing a dedicated game capable device (such as the N-Gage consoles)

would be in the innovator category. This would include the hardcore gamer. As Nokia soon learned, this is a small market. The early adopters are also interested in the latest advances, but are not classified as technophiles. These consumers would likely purchase for the other features first, but find the ability to play games an excellent bonus. Early majority consumers like new features, but are ultimately pragmatists. The late majority tend to approach new technology with caution, waiting until they feel comfortable with the advances before purchasing. The laggards are not interested in technology. This market segment is not typically a target market for technology companies. Casual gamers can likely be found in most categories of consumer – innovator, early adopter, early majority, and late majority. The degree to which each category may use games will likely depend on the category. The other aspect to the market for cellular handsets is price, not only of the handset, but of the cellular service. Certain handsets, offered for free, are often marketed with particular types of service offered by the carrier. Target market, and the cooperation of the local carrier is usually carefully investigated before a handset company goes to market with a new product.

When selling electronics, careful consideration has to be given to the market. While that is true of every industry, it is particularly true in the electronics industry. Most people will benefit in some way from electronics, but the product and its feature set must be well timed. Nokia has such a broad product offering, it seems that it is trying to cover all the bases. There are very inexpensive phones that will only work in North America, and extremely expensive phones that will work worldwide and have added features such as GPS. The least expensive types are no doubt targeted to the early and late majority. These are individuals that have no need or want for the most up-to-date features available on the more expensive handsets. These users want basic functionality and inexpensive price. In fact, the handset may not even be what is driving the purchase. The network reliability may play a role in the choice of a less expensive unit. Research into handsets has shown the following:

- 32% choose low-cost service
- 28% are most interested in the best coverage in their area

- 11% are looking for the most inexpensive or free phone that is available from their carrier
- 7% seek the biggest selection of phones
- 5% choose their closest retail location
- 0% look for the best selection of applications
- 17% are uncategorized, and look for “other” features

Of this list, the percent of the market that would seek an expensive phone would be approximately seven. This likely coincides with the small percentage of the population that would pay \$749USD for the N95 handset from Nokia that, among its long list of features, boasts a GPS and will likely be game capable. This market segment could best be described as innovators, although it is unlikely that they are purchasing the handset for its ability to play games but more for the GPS functionality⁶⁰.

Nokia has such a large number of phones available with such a range of features, it seems that there is no generalization that can be made regarding Nokia’s marketing strategy, other than to say it tries to appeal to consumers from innovators to late majority. Indeed, Nokia seems to be offering both differentiated products, at the high end of the price range, and cost-based products at the low end of the price range. Successful combination of a differentiated and cost-based corporate strategy is rarely seen. It seems the only way this is possible is due to economies of scale. Nokia manufactures such high volumes that it is able to gain margins from both the high cost and low cost handsets. Nokia currently has for sale in the United States approximately 50 different models. They range in price from \$70USD to \$749USD, with many handsets only available at no charge with a service plan from the cellular carrier. The difference in features is extensive. Depending on which carrier the consumer uses, certain handsets may be “locked” to that cellular network and may not be available to work with other carriers. Indeed, consumers may be limited to the handsets sold through the carrier⁶¹.

3.2 N-Gage

The Nokia N-Gage was developed to be a multimedia cellular phone. It combined the functionality of a phone, MP3 player, FM radio and handheld wireless gaming

console. The first generation product was called the N-Gage. The second generation product was the N-Gage QD. Both products sold well below expectations and the handset manufacture was discontinued^{62, 63}. It seemed to be an issue with the initial design of the phone. Postings on chat rooms about the original N-Gage cited the “sidetalking” (the handset speaker was located on the side of the phone) was inconvenient as well as the necessity to power off the phone and remove the battery to change games. There was very little negative discussion on the size of the screen, the usability of the controls or the game library. The QD handset changed the “problem” features and reduced functionality, but still sold poorly. If the technical issues were the problem, then the QD would have sold significantly better than it did. However, since the sales of the QD did not seem to be any better, it would be logical to assume that hardcore gamers are not interested in converged devices, and casual gamers want a device that is “more converged” than the QD offered.

Currently, Nokia has begun marketing the N-Gage “platform”. This service will allow N-Gage games to be played on many of the firm’s N-series multimedia computers and S60 series phones⁶⁴. Nokia seems to be moving toward what the innovator and early adopter wants – a highly converged device that supports gameplay and is the cutting edge of technology.

Nokia is still supporting its N-Gage Arena. The Arena is one of the differentiators for Nokia when it comes to games. The Arena is an online place where people can enter chat rooms, create postings, play against one another, and see the high scoring players. It is described as an online community by Nokia executives, a place where families can keep in touch and players can compete globally. As the N-Gage platform develops, the Arena will offer options for the casual gamer. The N-series multimedia computers and S60 phones, like the N-Gage handset precursors, have internet connectivity which allows access to the N-Gage Arena. The Arena has a core group of dedicated users, and Nokia is working towards making it a logical extension of game playing from self-play on the handset. Even though the Arena was originally designed to be used by the hardcore gamer, there is a concerted effort to make the Arena appeal to the casual gamer since the advent of the N-Gage platform⁶⁵.

3.2.1 N-Gage Device

The original handset was the N-Gage. It was a handheld portable gaming unit with extensive functionality as a multimedia device. The handset is shown in Figure 3-1.

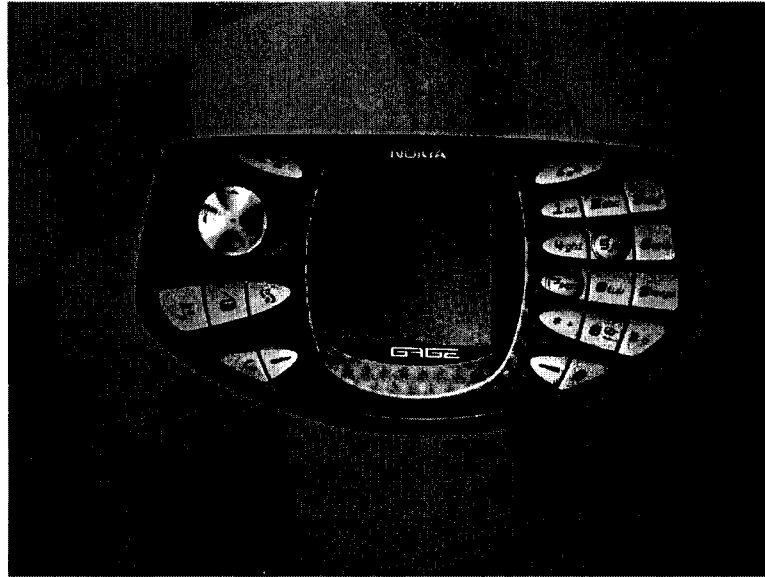


Figure 3-1: Nokia N-Gage Gaming Unit - First Generation (photograph by author)

The handset had a number of design flaws which were well documented in the media and in chat rooms. There were two problems with the handset that were most often cited. The first was the necessity to remove the back of the phone and the battery in order to change games. This meant a gamer had to power down the unit in order to change games. The second flaw was that the microphone and speaker were on the side of the phone (in Figure 3-1 the speaker was on the top right, and the microphone on the top left). This meant that the user had to speak to the side of the phone when making a call. This was commonly referred to as “side-talking” and while research could find no mention of poor sound, it seemed that the issue was largely aesthetic⁶⁶.

The second generation product was the N-Gage QD. Most of the design problems encountered with the first N-Gage were fixed. The phone was used as one would expect, and access to the games was on the side of the unit and allowed for easy exchange of games. The handset is shown in Figure 3-2.



Figure 3-2: Nokia N-Gage QD (photograph by author)

The QD had reduced functionality over the original N-Gage. There was no FM radio or MP3 player. However, it would seem that this functionality was not generally sought after, as issues over the lack of these items were not found in the user reviews.

Notwithstanding the technical design issues (sidetalking, etc.) encountered by Nokia, it would seem that the distribution of the phone may be a key to its poor performance. The first N-Gage was not sold at traditional cellular phone dealers, but sold exclusively at boutique gaming stores. The QD was available through cellular telephone distributors and through electronic boutiques⁶⁷. In addition, the small selection of games (although games available were of high quality) led to slow sales of the unit. Gamespot allows users to rate the games that they play, and the N-Gage games overall rated about 6.5 which corresponds to a “Fair” ranking. The ratings ranged from 1.7 (“abysmal” for Major League Baseball Slam!) to 8.6 (“great” for Tom Clancy’s Splinter Cell Chaos Theory and Snakes).

3.2.2 N-Gage Platform

Nokia is comprised of four business groups: Mobile Phones, Multimedia, Enterprise Solutions and Networks. As of Q2 2007⁶⁸, the Networks group has merged with Siemens to become Nokia Siemens Networks, a wholly owned subsidiary. The Multimedia group is further divided into Multimedia Computers, and Multimedia

Experiences. It is the former that develop multimedia computers, and the latter that provide the multimedia content which includes photography, music, games, TV and computing⁶⁹.

The N-Gage platform is a new concept for Nokia, and falls under the Multimedia Experiences group. The platform was announced in May 2005 at the E3 conference. E3 is the Electronics Entertainment Expo held annually in Los Angeles. The expo is attended by video game publishers, console manufacturers, and software developers⁷⁰. The platform consists of a basic development environment using C++. Developers use the Software Development Kit (SDK) and develop their games in C++. Any game that is developed using this method will run on many of the S60 devices. What this means for the developer is the ability to develop games for a large number of devices without having to test for each device⁷¹. What this means for the consumer is the flexibility to have the handset that suits their needs, and still have the ability to play mobile games⁷².

This new platform provides three key features:

- provides hardware independence – developed software will run on Nokia's list of game capable S60 converged devices
- provides rapid conversion of code from other platforms
- provides a well known development environment – uses a C++ development environment

The main purpose for the design of this platform is to reduce the crippling fragmentation in the mobile games industry. For instance, when a Java game is produced, the developer has to “personalize” the game for each individual handset⁷³. If the developer is attempting to make the game available for as many handsets as possible, covering several different manufacturers' devices, the developer has to make changes to the software to work on each different device. That means a great deal of effort for a game that costs about five dollars to purchase. This means that the profit margins must be miniscule.

4 INDUSTRY ANALYSIS – PORTER'S MODEL

This investigation uses an industry analysis to explore the cellular handset industry and examine Nokia's role in the market. The industry analysis specifically looks

at the rivalry among competitors, the threat of substitutes, the threat of new entrants and the power of suppliers and customers which is summarized in Figure 4-1.

Threat of Substitutes
++HIGH

- Hardcore gamers prefer consoles or PC gaming
- Other portable handsets with bigger game library

Rivalry among competitors
++HIGH

- Companies such as Nintendo, Sony and Nokia with large revenues and resources
- Handset companies as fast followers with lower investment dollars

Bargaining power of suppliers
+MODERATE to HIGH

- Cellular operators as suppliers
- Nokia integrated along the value chain

Bargaining power of customers
-/+LOW to MODERATE

- Operator as customer, high bargaining power
- Nokia considers consumer the customer, low power
- result is low to moderate

Threat of New Entrants
-/+LOW to MODERATE

- Large investment required (console)
- Oligopoly
- Handset manufacturers will be fast followers

Figure 4-1: Industry Analysis Summary

4.1 Rivalry among Competitors – HIGH

Rivalry among competitors is divided into two types: the rivalry between the dedicated mobile game console, and the mobile platforms (such as N-Gage platform, JAVA, Brew etc.). The dedicated mobile game console was the first “market” that Nokia entered with the N-Gage handset and will be discussed as N-Gage device. Nokia had limited success with the hardcore gamers at the centre of this market, and has begun to market to the casual gamer with the N-Gage platform, discussed as N-Gage platform.

At the time that the N-Gage consoles were launched, the company seemed to be competing with Sony and Nintendo, two giant companies. The competition in this space was obviously very high. With the change to N-Gage platform, the competition was mainly with converged devices from other handset manufacturers. This means that companies making differentiated, converged handset products would be the competition. This discussion does not include the “fast follower” handsets because that target market would logically be different from the higher end handsets made by manufacturers like Nokia, Motorola and Sony Ericsson. However, the competition is somewhat lower in this case due to two factors. The first is that Nokia has already had experience in the game industry. Even though the N-Gage consoles themselves were not a success, the lessons learned particularly in the gaming industry will put the company significantly ahead of other handset companies planning to enter this market. Second is the strength of their new platform concept. There are different types of developer platforms that can be used to create games. These include JAVA and Brew. As described earlier, Nokia is using a C++ development environment that makes it unnecessary to test games on every different handset that would be expected to play the game, in other words, “device independence”. This platform will likely be appealing to developers and publisher alike as it should greatly reduce the time and effort involved in bringing a game to market.

The first discussion in this section will examine the handheld console market, as this was the first foray chronologically into the gaming market. Each competitor will be investigated for their product, their games, and the financial resources available. The

second part of the discussion will focus on the most relevant handset competitors and touch on areas of particular interest to Nokia moving forward in this market.

4.1.1 N-Gage Device

The original N-Gage devices competed against companies that had a great deal of experience in the gaming market (Nintendo and Sony) and two companies with very little experience and very few resources to compete effectively (Tapwave and Gizmondo). When the N-Gage originally launched, there were five handheld gaming devices competing in this market. They are summarized in Table 4-1 ^{74, 75, 76}.

Table 4-1: Competing Handheld Gaming Devices.

Gaming Device	Features	Extras	Media
Nintendo Game Boy Advance SP and DS	<ul style="list-style-type: none"> ▪ \$99 USD ▪ Game pad with proprietary cartridge slot ▪ Dual Screen availability with touchscreen (DS) ▪ 2.9", 240x160 pixel screen ▪ 5.4 ounces 	<ul style="list-style-type: none"> ▪ Networked gaming via Game Boy Advance link ▪ Stereo headphones jack (requires adapter) ▪ Play time: 10 hours 	<ul style="list-style-type: none"> ▪ Proprietary cartridge
Nokia N-Gage	<ul style="list-style-type: none"> ▪ \$300 USD (without phone activation) ▪ Tri-band GSM mobile phone/game pad ▪ 2.2", 176x208 pixel colour 	<ul style="list-style-type: none"> ▪ MP3 audio and video playback ▪ FM radio ▪ Bluetooth connectivity ▪ Talk time: 4 hours 	<ul style="list-style-type: none"> ▪ Multimedia Card (MMC)

Gaming Device	Features	Extras	Media
	<ul style="list-style-type: none"> screen ▪ 4.9 ounces 		
Sony PSP	<ul style="list-style-type: none"> ▪ \$250 USD ▪ Gamepad with buttons similar to PlayStation 2 ▪ 4.3", 480x272 pixels colour LCD screen ▪ 9.9 ounces 	<ul style="list-style-type: none"> ▪ 802.11b WiFi ▪ IR port ▪ Play time: 3-6 hours ▪ Video Playback: 3-5 hours 	<ul style="list-style-type: none"> ▪ Proprietary Universal Media Disk (UMD) ▪ Sony Memory Stick
Tapwave Zodiac 1	<ul style="list-style-type: none"> ▪ \$299 USD ▪ Palm 5-based PDA/game pad ▪ 3.8", 480x320 pixel colour screen ▪ 6.6 ounces 	<ul style="list-style-type: none"> ▪ MP3 audio and video playback ▪ Bluetooth connectivity ▪ Playtime 	<ul style="list-style-type: none"> ▪ SD media cards
Gizmondo	<ul style="list-style-type: none"> ▪ \$399 ▪ 8-way digital pad ▪ 2.8:" TFT Screen, 240x380 pixels ▪ 6.7 ounces⁷⁷ 	<ul style="list-style-type: none"> ▪ Camera ▪ GPS ▪ Music, movie player ▪ SMS ▪ Bluetooth connectivity 	<ul style="list-style-type: none"> ▪ SD media cards

The Nintendo company was founded in 1889 in Kyoto, Japan. The company's first product was playing cards, which were originally meant only for export but became enormously popular in Japan. Nintendo began introducing electronics into its games and toys in the 1970s, and began shipping an image projection system for arcades in 1974. Its

products include coin operated gaming machines and home-use video games, designing the latter in 1977⁷⁸. Nintendo has been a household name in gaming since the launch of arcade version of “Donkey Kong” in 1981. In the 2004 annual report, the company declared net sales of approximately \$5.7 Billion CAD (¥514,409 Million). At that time there were 804 games available for Game Boy Advance, with 119 released in 2004⁷⁹. Nintendo’s expertise is gaming, while Nokia’s expertise is mobile telephony.

Sony Corporation, founded in 1946 in post-war Japan, is one of the largest manufactures of electronics and multimedia. The company has divisions including motion picture, music, television, and computer entertainment. It employs about 150,000 people worldwide and has enormous net sales, approximately \$76 Billion in 2004. Its first successful product was the transistor radio, developed in 1954⁸⁰. Since then, the company has been at the forefront of electronic research and development, co-developing the CD and DVD, among other proprietary electronics⁸¹. Sales are generated by its large group of companies including music, entertainment, and technology. Since its release in early 2005, there have been 306 games released for the PSP.

For 2004, Nokia’s sales were \$42 Billion (€29,267 Million). Nokia released cumulative sales figures of 1.3 million for the N-Gage and N-Gage QD as of Q3 2004⁸². The original N-Gage first became available in February of 2002. At that time, there were 39 games available for the N-Gage.

Tapwave was a private company, so sales figures were not available. However, at the time the company went bankrupt, there were 49 games available for the Zodiac. This is a significantly lower number than available for the Nintendo handheld. It is unlikely that Tapwave had comparable resources to Nintendo, Sony or Nokia. Although consumer reviews rated the Zodiac highly⁸³, Tapwave was not considered a serious rival to the other company’s in this market. Indeed, the company no longer operates.

Gizmondo was another short lived entrant into this market. The company was based in the United Kingdom, and had its roots in wireless telephony systems for managing car fleets such as car rental companies (for mobilizing and unlocking vehicles). The Gizmondo was the first and only entertainment product from the company. Of the four other handheld units on the market, this device was the only one to incorporate GPS

technology. The manufacturers had also integrated a way to reduce the cost by accepting advertisements on the unit⁸⁴. However, this company was never a serious competitor for hardcore gamers, considering the power of Nintendo and Sony.

The main rivalry in this market is between Nintendo, Sony and Nokia. Because there are a few large and wealthy companies competing, rivalry is considered high. As noted previously, the value of the game deck is largely found in the number and quality of the games that are available. Without a large number of games, and a significant number of very popular titles, it is doubtful that any gaming unit will be a serious rival. Having said that, the importance of the look and feel of the game console should not be overlooked.

The original N-Gage, it was a phone, an MP3 player, an FM radio and a game unit. The N-Gage QD had reduced the functionality but still maintained the phone, game unit, and MP3 player. It is thought that a converged device is exactly what the casual gamer is seeking. A hardcore gamer is more likely to take along a dedicated handheld game console, whereas the casual gamer will not want to have to remember two devices, and opt instead for the one that combines all their needs⁸⁵. If Nokia targets its marketing to casual gamers, it may find that the competition from Sony and Nintendo is less intense, particularly in the case of Nintendo which has no offering other than gaming products.

4.1.2 N-Gage Platform

The N-Gage platform will provide a rich gaming experience to gamers of all types. This development environment will enable game development that is more complex in terms of gameplay and complex graphically⁸⁶. Currently, Java games are simplistic, and do not offer the 2.5D and 3D graphics available with the N-Gage platform development environment.

In terms of the threat of competition from other converged handset manufacturers, the threat is quite low. If the aim of mobile gaming on a converged device is to deliver the best gaming experience, there are no other companies presently making games of the same calibre. It is important to make the differentiation between the games available on the N-Gage platform versus the Java games that are available ubiquitously for all

converged handsets. The Java games are small files and contain very basic graphics with limited features. If the N-Gage platform provides games similar to those available for the N-Gage device, then the types of games run the gamut from simple single player games, to complex episodic, multiplayer games. If the game quality is similar to that for N-Gage device, Nokia definitely has an advantage over other high-end converged handset manufacturers when it comes to the quality of the games.

When the N-Gage platform is launched and available, the N-Gage game line-up will be impressive. The details regarding the cost of games and the games that will be available are still being worked out by the company, but if the line-up is similar to those made available for the N-Gage devices, then game popularity should not be an issue. This would include titles with popular characters, stories, and sports such as Tomb Raider, Tony Hawke and Tiger Woods, which were sold for the original N-Gage. It is not exaggerating to say that the less than stellar performance of the N-Gage handsets has given Nokia the experience it needs to be significantly ahead of the closest competitor when it comes to game quality and collaborations and agreements with leading publishers.

Taking a look at potential competitors, Sony Ericsson has 21 games available from the handset manufacturer, all free of charge, and all JAVA which are of significantly lower quality than the games that will be available to N-Gage platform users.⁸⁷ Motorola lists no games available from the handset maker. However, in Canada, Rogers makes many Java games available for download onto handsets, over cellular networks of course. The user picks the game of choice, and then chooses their handset from an extensive list and determines whether the game is available for their particular phone. Out of the supported Motorola handsets, a maximum of 110 games were available for the T720, Sony Ericsson had 56 available for the T616 and Nokia's 6100 supported 153 games. The prices appear to vary from three dollars to seven dollars depending on the title. This is a very small cross section of the market, as it only investigates games available to Canadian Rogers Wireless customers, and the game quality is low⁸⁸.

The other handset maker that should be discussed is Apple and their newly launched iPhone. The iPhone is a new device for Apple, hoping to capitalize on the

success of the iPod which was brought to market a few years ago. Although the iPhone has many features that Apple believes will make it popular, it is not yet game capable. The phone contains an iPod, a touchscreen and the ability to synchronize with Microsoft applications as well as with Apple applications. Even though there is no current game capability, there is plenty of talk in chat rooms that the inevitable next generation features to be added are games and a Global Positioning System (GPS)⁸⁹. Most of Nokia's converged devices come equipped with iPod-like capabilities (N95, N91, N73 to name a few), so the key will be for Nokia to be able to add the gaming features to these phones, and market the game features to bring in both the casual gamer and the hardcore gamer.

With the launch of the N-Gage platform, Nokia has taken one step closer to the casual gamer. The concept behind a platform instead of a dedicated gaming unit should appeal to the greatest numbers of gamers. The users choose one of the available S60 handsets or multimedia computer that best fits their needs and they have the ability to play N-Gage games. Although most handsets come with a few fundamental pre-installed games, Nokia seems to be the first mover in making more complex (higher quality and better graphics – 2.5D and 3D) and engaging games available. There is no doubt that if the platform is successful, other handset manufacturers will follow suit, which will drastically increase the rivalry among competitors, but shift the focus away from Sony and Nintendo.

4.2 Threat of Substitutes – HIGH

There are basically two substitutes for any handheld wireless gaming unit: personal computer (PC) gaming and console gaming. The experience of gaming is richer with these substitutes because the sound and image quality is much higher. Even though a gamer can connect to the internet with the N-Gage, the speed of the connection is considerably slower than the “wired” versions (PC and console). Games that are popular for PC and consoles will need to be made available for the smaller handheld versions in order to keep hardcore gamers interested. The main companies that sell consoles are Nintendo, Sony and Microsoft. Again, a few large and wealthy companies are the incumbents, so the industry is considered an oligopoly. Sony is the market leader having

sold approximately 70 million consoles as of 2004, Microsoft with about 20 million Xbox units and Nintendo around 10 million GameCubes⁹⁰.

Industry watchers suggest that PC gaming has reached maturity and console gaming is becoming the favourite with the target market, hardcore gamers. This may in fact be the case as console manufacturers are all expected to introduce new consoles over the next two years. Due mainly to low priced consoles, sales of videogames in the US was \$9.4 Billion in 2001 which was an increase of 43% over the previous year. It was further reported that PC games rose only 4.4% for annual sales of \$1.42 Billion. The more compelling features of console gaming is the home theatre experience, and an internet connection that used to be the key differentiator of the PC. Price of the consoles at \$200 to \$300 US is another factor that increases the popularity of the consoles⁹¹. It should be noted that the price of consoles is subsidized by console manufacturers who plan to make profits from royalties on game sales⁹².

However, it has been suggested that PC gaming is not threatened by the uptake of the console market, and is in fact buoyed by introducing new people to the experience of gaming. It is also proposed that the PC environment is a hotbed of radical game development because of the developer friendly environment. Development in the PC environment is relatively inexpensive due to the basically open architecture. Gamers are able to modify games to suit their tastes, even making these “mods” available to other interested gamers. Developer software in the console environment is often closed to non-licensed developers and can be very expensive^{93,94}. In addition, hardcore gamers seem to agree that there are certain games that are available on PCs that from the gamers experience would be difficult to replicate on a console. Such games include fantasy games and flight simulators⁹⁵.

The threat of substitutes is high. Either a console or PC experience is much more rewarding for a hardcore gamer than is the experience on a handheld device. The subsidized price of consoles makes them affordable for most people and the speed of the internet connection, either PC or console, will make these substitutes a tempting choice for most hardcore gamers. It is highly unlikely that a handheld unit will be able to rival the kind of experience offered by a console or a PC. For Nokia, this means it will be more

important to target the marketing to the casual gamer. The casual gamer is less likely to be influenced by the superior gameplay on a console or PC and opt instead for a portable device. If this is the case, then it will be important to emphasize the multi-function aspects of the phone/game unit to further appeal to the casual gamer. As discussed previously, it is more likely that the Nokia N-Gage will appeal to the casual gamer than the hardcore gamer for two main reasons.

The first reason is the multi-functional nature. As stated, the hardcore gamer is more likely to purchase a dedicated gaming device⁹⁶. The second reason is the availability of game titles. A casual gamer is more likely to be satisfied with a shorter list of game titles, as long as that list contains a few well known titles such as Tomb Raider, or Tiger Woods Golf. The development of the N-Gage platform moves Nokia away from the hardcore gamer and focuses marketing efforts on the casual gamer which will also serve to reduce the threat of substitutes.

4.3 Threat of New Entrants – LOW to MODERATE

The threat of new entrants is low to moderate. The first discussion will focus on the dedicated handheld gaming devices (N-Gage console, PSP, and GBA). The threat of new entrants into this market is low. The second discussion will look more closely at the converged or game capable cellular handset market, for which the threat of new entrants into gaming is moderate.

4.3.1 N-Gage Device

There are three key issues that make it difficult for new companies to enter the dedicated mobile game console market. The first is considerable capital outlay to compete in this market. The second is to have the biggest and best game library available to gamers, and the third is that there are only a few, large companies with significant cash reserves with wireless gaming products, an oligopoly.

The cost to enter the handheld gaming device market is probably from two sources. The first would be the development of a wireless gaming device. As shown in Table 4-1, there are two companies, Gizmondo and Tapwave, that do not appear to have had the cash reserves of the multinationals. In fact, it is a well established practice that

console manufacturers will price their consoles at a point of break-even or even loss to get a large user base. The more significant cost is the cost of producing games. Although the console manufacturer may have a certain library of games that they produce themselves, it is not usually the financial source for game development.

The available games are the most important feature of any gaming unit, whether it is console, PC, or wireless. Very popular games can be expensive to produce. It is also very desirable to have popular game titles available for gamers. The average PC or console game costs about \$10Million to produce⁹⁷. For popular games, the range is from about \$3Million to \$20Million⁹⁸. With budgets like these, it is easy to see how this can present an enormous barrier to small companies. Large publishing houses, from which come the most popular games, are unlikely to produce games specifically for an unknown mobile console manufacturer, even though mobile games generally have lower production budgets. Java games typically cost between \$50K to \$100K to produce. Given the relative complexity of a Symbian game to produce and the development time, the cost to produce a game could be estimated between \$600K to \$1 Million⁹⁹. This is still a considerable investment considering the size of game library required to compete in the market.

One only has to look at the game library available for the different wireless devices to see a huge discrepancy in the titles available.

Table 4-2: Wireless Devices and the Approximate Number of Games Available

Device	Games Available (approx. as of 2007)
Game Boy Advance	989
PSP	306
N-Gage (when N-Gage consoles were available)	55
Zodiac (Tapwave no longer in business)	39
Gizmondo (no longer in business)	30

Nintendo has a huge number of games available. This is likely due in part to the popularity of the Game Boy precursor to the Game Boy Advance. Although the number

of games available for the PSP is small compared to the Game Boy Advance, it is anticipated that over the next few years, the number of games will increase significantly. Looking at the small number of games that were available for Tapwave and Gizmondo devices, it is easy to see that there would have been very little interest in the market in these consoles. Not only were few available, but it would be logical to assume that any third party game developer would not have chosen to invest a lot of resources into developing games for these “no name” consoles.

Given the importance of a strong game library, it seems that if Nokia hoped to compete in this market, the firm had to develop a considerably larger number of games. Compared to the number of games available from Nintendo, Nokia’s game library was very small.

4.3.2 N-Gage Platform

The second point of discussion is that of game capable handsets. For Nokia, this is the N-Gage platform. Clearly, games are available for other handsets on the market, which are mostly Java based. There has been previous discussion on the handset market in Section 3.1, which outlines the key handset manufacturers that can be considered direct competitors to Nokia, and discussion on the game library. However, it is important to emphasize that Nokia has two key differentiators: the lessons learned from the N-Gage device, and the platform itself. The first is that with the lessons learned with the N-Gage consoles, Nokia has the experience to compete at a much higher level in the gaming industry. When Nokia first started investing in the gaming portion of its business, the company purchased Sega’s online division (Sega.com)¹⁰⁰, which now develops the Arena, a community of gamers that meet online. Although other handset manufacturers could make a similar move, Nokia has a head start of four years. In addition, Nokia has well established collaborations and agreements with developers and publishers which will enable the company to constantly increase its library of games.

The second differentiator is the platform itself. Although it has not yet officially launched, the information that is provided by Nokia on the potential of the platform is very promising. The platform is about the delivery of experiences. The games will be

nearing console quality, and all players in the value chain will benefit. The consumers will benefit from a rich experience, the operators and game retailers will benefit from increased game purchase, and the publishers and developers will benefit from a higher install base¹⁰¹.

While there is no reason that other handset manufacturers cannot develop their game business in the same manner, Nokia will be that much farther ahead. It will also take a company, such as Sony Ericsson, with easy access to the gaming industry and considerable financial resources. In this regard, the threat of new entrants is moderate. Other handset manufacturers are already entering the gaming industry, but with Nokia's experience and the increased availability of game capable handsets (not just the N-Gage consoles), it is unlikely that in the next few years any other handset company will be able to catch up.

4.4 Bargaining Power of Suppliers – MODERATE to HIGH

There are two main suppliers for Nokia in terms of getting games to the ultimate end user, the gamer. The first are the large publishing houses and independent developers who supply the games. The second is the network operators and carriers who are responsible for making those games available via mobile networks. Nokia manufactures its own handsets so there are no significant suppliers in regards to the game units (either the original N-Gage units or the S60 handsets associated with the N-Gage platform) themselves. As Nokia moves toward a platform instead of a dedicated mobile gaming console, the supplier of games and how those games get to the end user becomes much more important. However, as much as Nokia needs to have the games to make available to users, the publishers also need to have a conduit to get their games to the users – the network operators and carriers. The bargaining power of suppliers is moderate to high given the moderate power of the publishers and the high bargaining power of the cellular carriers.

The game development industry has historically been quite fragmented. In the past few years, however, there has been a great amount of flux. For many years there have been a handful of large publishing houses, such as EA and THQ. However, there are also

a very large number of independent game developers that do not have the financial backing available to the big publishers. Between 2003 and 2006, there was a great deal of consolidation. Large publishing houses purchased both small, independent developers and other large publishing houses. This culminated in the purchase of Jamdat Mobile by EA for \$680 Million in 2005¹⁰². The purpose of the purchase was for EA to build a presence in mobile gaming. Prior to the purchase, EA had been working on developing an in-house studio, but had not been successful. The purchase of Jamdat helped create a competency in mobile gaming.

The reason for the consolidation was in part due to some technological advancements. Cellular phones have become more sophisticated and have more memory and power than ever before. There has also been a move toward the more versatile and powerful 3G networks which makes content more important. These two points mean that gamers are demanding more sophisticated content which in turn means that the budgets for game development are larger and larger. This means immediately that the investment to make a game that will have good selling potential and marketability is out of reach of the smaller developers. Ultimately, it means that a small, independent developer should be looking for a good game concept and translate that concept into the sale of the company in the short term¹⁰³.

In the game industry, and not just in the mobile gaming space, the key to sales is branded game titles. These are titles such as NHL Hockey (EA), WWE (THQ), the Tom Clancy series (Gameloft). The development of these games is the result of complex and expensive licensing arrangements with license holders. However, the development is only the first step toward making revenue from games. The second step, the distribution, is where revenue is generated. It is for this reason that the power of the publisher is considered moderate, while the power of the distributor (wireless carriers and operators) is considered high¹⁰⁴.

Distribution of handsets and content is currently under discussion in the United States. In that country, carriers routinely restrict their networks to certain handsets curtailing the use of “non-approved” hardware. With “approved” hardware, the handset is locked, allowing the phone to only be used with their network. Other ways that carriers

are restricting customer choice is by preventing the use of Wi-Fi, Bluetooth, mobile browsers, and file transfers, to mention only a few¹⁰⁵. This makes the distribution of content complicated. Publishers would like to distribute games to all game-capable handsets. However, with restrictions on wireless communications such as Bluetooth, certain game functionality may not work, and file-sharing becomes difficult and expensive. Restrictions on mobile browsing forces the gamer to browse over a cellular network at the rates charged by the carrier, rather than a wireless connection at a hotspot at a local coffee shop, for instance. Nokia plans to sell games both through the operators and directly to gamers. This could cause problems in the relationship between the handset maker and the wireless carriers. Currently, Nokia is in discussions with wireless service providers in order to come to an agreement regarding selling to their consumers. The company is also planning to sell direct to consumers¹⁰⁶.

Given the restrictions placed on handset manufacturers by the wireless operators, it is clear that the power these carriers have is high. In North America, a handset company has to comply with the requests of the providers, or risk that carrier refusing to sell their handsets. This type of business practice has recently been described as “unfair to the consumer”. It is estimated that in North America 90% of cell phones are sold to the retail market by carriers. In contrast, Asian carriers sell only about 20% of retail handsets¹⁰⁷. The end result is that in North America, the carrier has almost complete power over the handsets that are available in retail channels¹⁰⁸.

The purpose for the control over handsets and handset features is to control the revenue stream not only from accessing the cellular network for phone calls, but also data transfer (for photographs, file transfer, etc.). For instance, Verizon Wireless typically requires handsets to have Bluetooth file transfers disabled on handsets to force users to upload photographs to a paid website hosted by Verizon rather than direct to PC¹⁰⁹. The Bluetooth feature is one of the components of the Nokia handsets that makes gamers able to compete with other gamers. In addition, the key to the N-Gage platform is to leverage off the game features of the original N-Gage game console. One of these features is the N-Gage Arena. The Arena allows players to meet online in “combat”. It extends the multiplayer experience to the global level, the mobile version of the MMOG. The

marketing slogan is “Connect, Compete, Conquer” which directly states the gamer must be able to have unfettered access to the internet via the handset. Without all features of the phone available, the gaming experience is diminished. It would seem that Nokia must have a very good relationship with providers to allow gamers to enjoy the complete game event.

In summary, the bargaining power of both the carriers and the publishers is significant. However, it is in all the firms’ best interest to work together. Only by cooperating can the highest revenue be earned. The publishers must provide the best gaming experience, while the operators deliver the data files to the user without service delays or interruptions. As the networks improve, the ability to transmit larger and more complex files will in turn improve the types of games that the publishers are able to make available to the gamer.

4.5 Bargaining Power of Customers – LOW to MODERATE

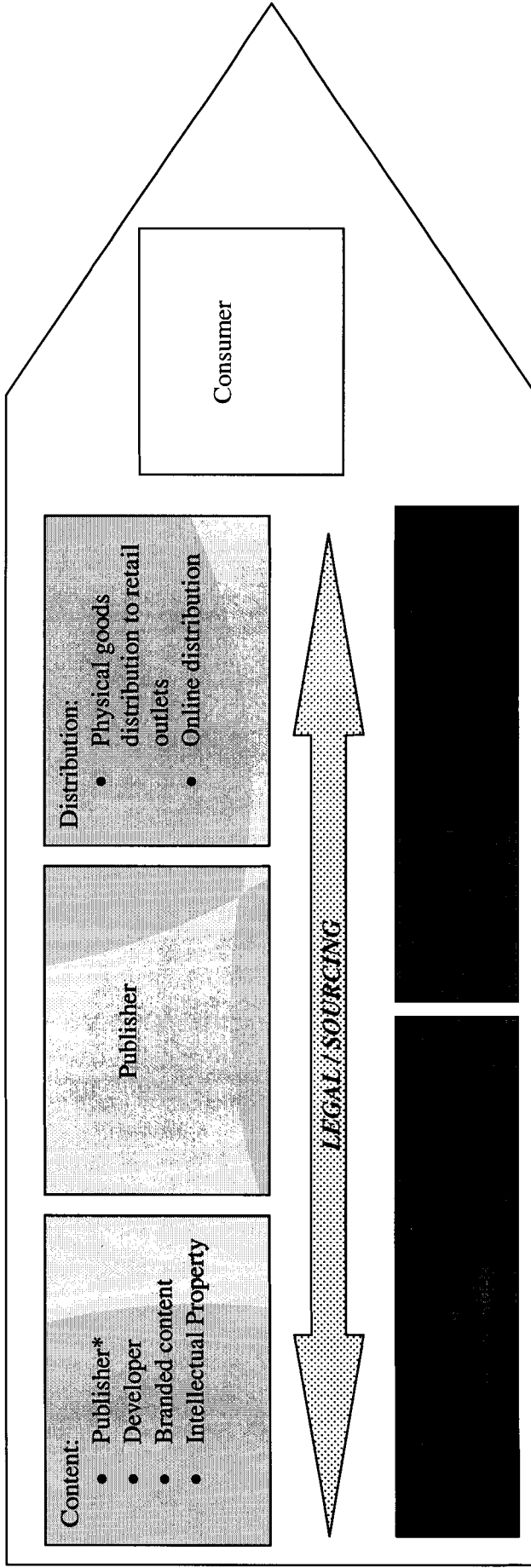
The bargaining power of customers is low to moderate. This is so because of whom the industry considers the end customer. Traditionally in the cellular industry, the operators are considered the end customer¹¹⁰. As discussed elsewhere in this investigation, operators in North America have a great deal of power over the handset manufacturers. This has developed over many years, and from a consumer’s point of view, has seemed to strengthen over the years. The reason that the operators are considered the customers is that the handset manufacturers are forced to sell a large proportion of their products through the operators. This means that the carriers can dictate which phones they will sell, what features they are willing to support and how much they are going to charge the end consumer for a handset. Certain handsets are only available with certain packages, which could mean that if the user wants a particular handset, they may not have a choice of carrier or be fixed to a long term contract. This is true of all handset manufacturers, not just Nokia. In fact, the new iPhone is locked to AT&T, and is not available for use through any other operator¹¹¹. Given this evidence, it would seem that the power of the customer would be high. However, Nokia does not necessarily consider the operator their end customer. One reason cited is because Nokia is a European

company, and in Europe the power relationship between the handset makers and operators favours the handset maker¹¹².

Nokia, however, does not consider its end customer to be the operator. The firm considers its customer to be the consumer, even though most handsets are sold through operators. Although the general population buying cellular phones is a formidable mass of consumers, they have relatively little power, so for this reason the power is low to moderate. Although, the power of the consumer is considered relatively low, the fact that the N-Gage was not sold through operators, but in boutique stores and still did poorly could mean that the consumer has some power. Of course, it could also mean that it was poorly marketed as the target market was incorrect.

5 VALUE CHAIN

The value chain is a way to look at the activities and inputs that are required to bring a product to market. In this case the product is the mobile game. The value chain explores each mobile game input and evaluates how it contributes to the product, and how the company adds value to those inputs and is summarized in Figure 5-1.



* where the publisher is also the game developer

Figure 5-1: Value Chain for Mobile Games^{113, 114}

5.1 Content and Publishers

Game content comes primarily from developers and publishers. Developers can be independent, small to medium sized companies that develop games (from concept to finished product) and then sell or license them to publishers. Developers can also be large companies that specialize in developing games and work through publishers to sell those games to the public. Publishers can also be developers and can be integrated from game concept and development, through to production, publishing and distribution. Of this type, there are only a few and the firms are large. The game content is critical to game sales. Obviously, the more popular the game, the more copies it will sell. Popular games are often those based on characters or stories from other types of entertainment. This includes movies, professional sports, or literature.

Within the gaming industry, the lines are not absolutely defined. Companies that make hardware, such as consoles, can also act as game developers and publishers. This is particularly true for a company like Sony which has a large investment in entertainment as well as state of the art technology. Nintendo also publishes a portion of its own games. Since mobile gaming is so new, at present the market is made up primarily of companies that make content and companies that use the content on their hardware. Nokia, however, does produce and publish its own games in addition to being a hardware manufacturer. At the onset of the firm's move into mobile gaming, it was clear that the company was going to make a sizeable investment in gaming. The first attempt with the N-Gage device, although generally considered unsuccessful, gave the company a very clear understanding of the type of investment that would be required to compete with mobile consoles such as the PSP and the Gameboy Advance. The hardware was important for the overall experience, but the game line up was equally important.

The original catalogue of games for the N-Gage included popular titles such as Tomb Raider and Tony Hawke. In-house games that were developed to appeal to the hardcore gamer included Pathway to Glory and they enjoyed moderate popularity. It is clear that Nokia understood the value of having a strong catalogue, and the move that is being made at present to change the target market to casual gamers and develop games for

that market will be positive for the firm. The change in target market means a change in the game content that is more conducive to the device used. For instance, the small screen makes adventure type games difficult to reproduce as they would be on a console or PC. The type of content that is more appropriate are favourites like Snake and Pacman.

As the first area in the value chain that will be important to the firm, content generation is key to a successful product. In order to get the best content possible, Nokia has generated content in three ways. The firm produces and publishes its own in-house games (first party publishing). It also has collaborated with other publishers on producing games (second party publishing). Nokia also provides a platform for other firms to use in order to make and sell games for Nokia devices (third party publishing).

First party Publishing

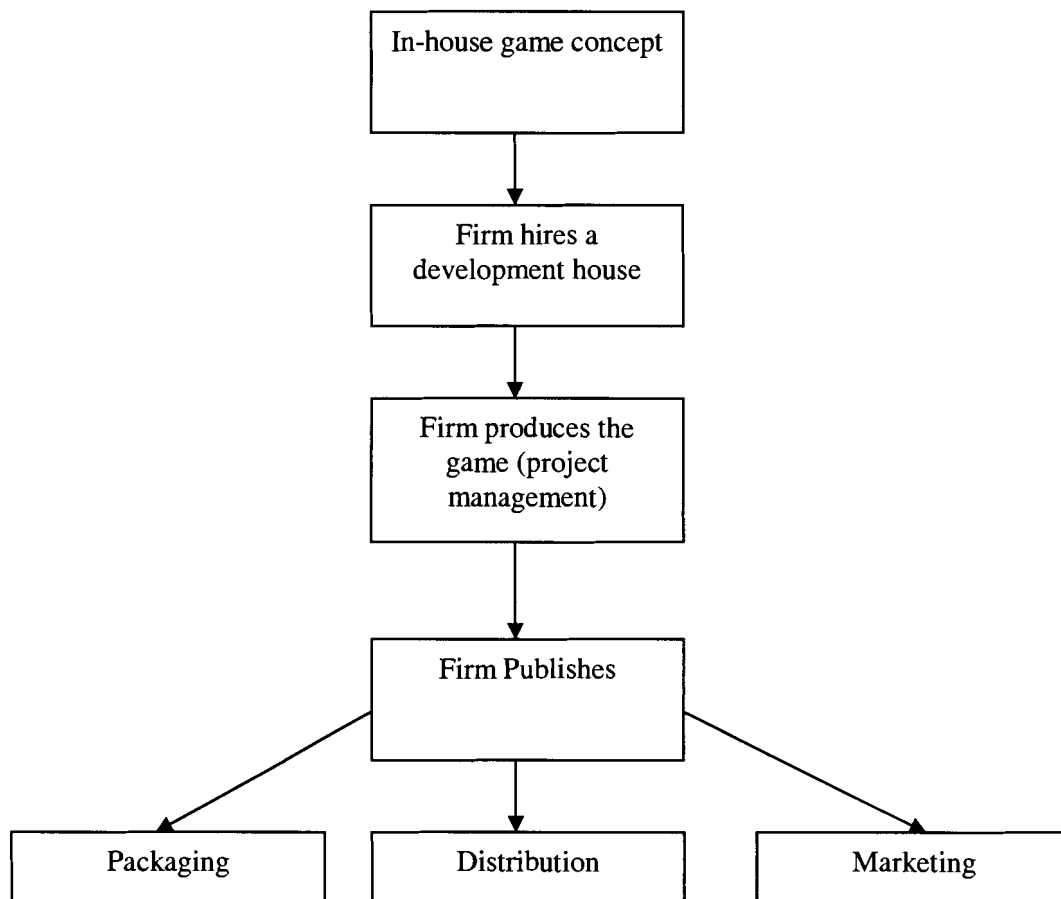


Figure 5-2: First Party Publishing Model - Generic¹¹⁵

As shown, first party publishing is mainly under the control of the company who is funding development. The firm hires a development house to develop its game concept, under the project management of a producer. The company owns the intellectual property and publishes the game. Publishing involves getting the game to the retail market. This can mean packaging, distribution and marketing for physical goods. For online distribution, marketing and distribution take key roles, while packaging, if present, is very limited. This model is the most expensive for as the company bears all the costs for development and publishing, but the revenues are not shared. Any revenue that is made by the firm is kept. This is not the case with second and third party models.

Second Party Publishing

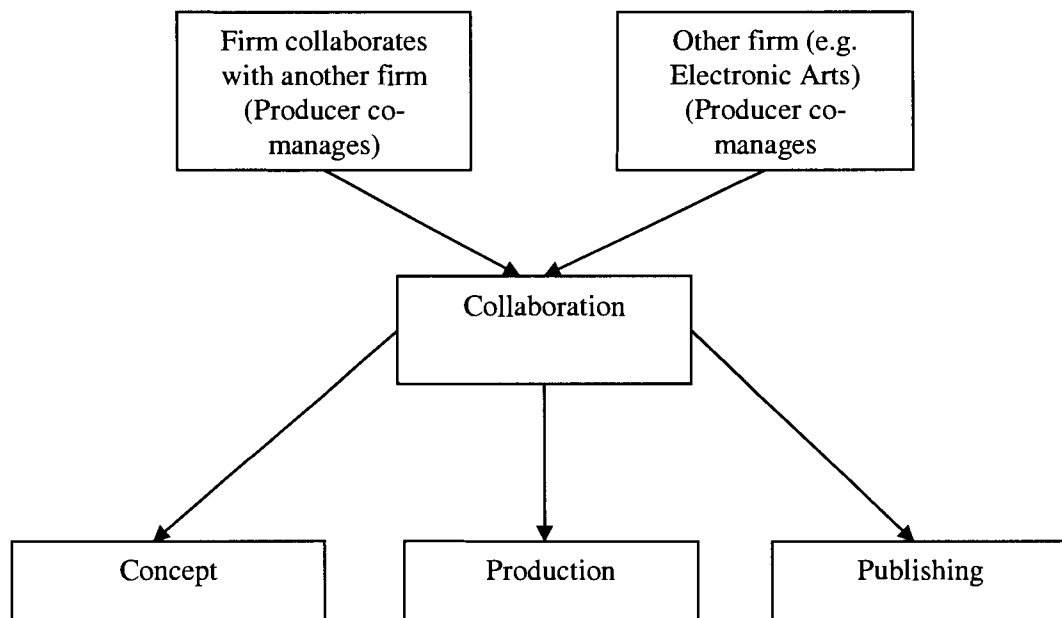


Figure 5-3: Second Party Publishing – Generic¹¹⁶

The second party model is a collaboration between a firm and another publisher, EA for instance. Aspects of the development and publishing are shared. A typical scenario is that the third party would primarily perform the production and/or publishing with shared revenue for each company. However, any combination of concept generation, production (as project management), developing and publishing can occur. There would

be a legal agreement in place as to how the revenue and the development costs would be shared to make it equitable for both parties.

Third Party Publishing

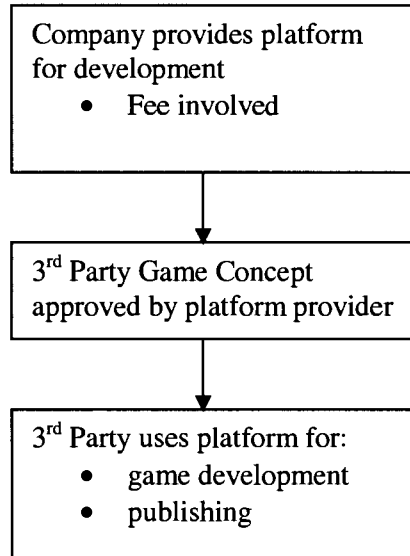


Figure 5-4: Third Party Publishing - Generic¹¹⁷

Third party publishing is the lowest involvement for a company. In this model, the firm provides the platform for a company to develop games for the firm's devices. A third party would approach them with a request to develop games. The company would receive all the necessary test devices and software to produce and test their content. There would be a fee involved for this package, and the publisher would take on most of the risk, development budget and publishing requirements. However, the revenue would belong to the third party. In this model, the firm receives money for the development package, but doesn't typically share in the revenue generated by the game, but may share in the distribution revenues.

Taking advantage of all these types of content generation requires a strong legal group. While the models are distinct in many ways, there are any number of variations on each type of agreement. For the first party, it may be possible for a developer to receive a portion of revenues in return for less expensive development fees. For second party, the types of agreements could be widely varied depending on whether the collaborator takes

on the producing (project management), which firm takes responsibility for the publishing, and how the revenue is split based on this division of labour. Each of these agreements must be managed and executed by legal staff experienced in the gaming market. A typical breakdown of percent of total revenues earned by each member of the value chain is as follows:

- Game distribution and marketing – 20-25%
- Publishers – 50-60%
- Mobile Game Developers – 10-15%

Legal groups must negotiate the best possible terms given the breakdown above and maximize the percent of revenues for their position in the value chain.

5.2 Distribution

Distribution is a fundamental requirement to getting games on to portable devices. There are a number of issues that have to be examined in order to understand the complexities of something that on the surface may seem simple. The first issue that must be dealt with is the decision between distribution on-line and distribution of physical goods. If you choose on-line distribution, how do you achieve this? This is the second issue. The third issue comes directly out of the second because if Nokia chooses to deliver the goods themselves over a non-mobile connection (via a cable or Bluetooth connection from computer to handset), then relations with cellular carriers could be harmed. While each of these issues is examined separately, it should be appreciated that each decision that is made regarding distribution can have enormous downstream effects throughout the value chain.

Nokia has been distributing physical goods for a considerable length of time. Even if this paper only considers the time since the consumer electronics division became the company's focus. In the distribution field, Nokia is considered world class¹¹⁸. This is not an easy achievement. Many companies struggle with poor distribution, and from a marketing (and logic) point of view, good distribution is fundamental to getting goods to the marketplace without impacting revenues. When Nokia first started selling its game unit, the N-Gage, it was selling to boutique gaming stores. This was slightly different

from the route that had been taken with other handsets. In North America, Nokia has relationships with the carriers who will take their handsets and bundle them with cellular contracts and sell them to the public. This is a model that Nokia has been using for a long time. However, for the N-Gage and the QD, the model was slightly different. First of all, the retail outlets were not carrier outlets, they were boutique electronic stores that specialized in games and gaming units. The second difference was distribution of the games.

Nokia was not known in the gaming market at all prior to their attempt to distribute the N-Gage. The decision that was made to distribute to electronic stores rather than carrier outlets was no doubt made because the original marketing strategy was to target the hardcore gamer. A hardcore gamer is unlikely to purchase a gaming unit from a cellular carrier. Reasonably, this was also why the games were distributed as physical goods rather than online. Although there is no published information on any marketing studies that were done at Nokia, it stands to reason that a hardcore gamer is more likely to purchase games as a physical good rather than an on-line good. Making games available at the point of purchase of the gaming unit is a long standing tradition with gaming. This is probably because that was the only way to distribute games before internet speeds became fast enough to permit large file transfers. Now with the advent of on-line multiplayer games, on-line activities are becoming more common.

However, the distribution of Nokia's games was also through electronic boutiques. The games themselves were originally on MMC cards and then packaged in a case similar to a DVD case and distributed through typical physical distribution channels. Although it is unlikely the process of distributing a new good such as the games was completely smooth, there is no publicly available information to indicate otherwise. This suggests that there were no significant distribution related issues. The main issue with both the N-Gage and the QD was extremely poor sales. Although this will be covered in the section on the consumer, the decision that should be questioned is the one to make hardcore gamers the target. It was fundamentally this decision that led to distributing to boutique electronics outlets and probably contributed to poor sales.

Nokia has since stopped production of the gaming handsets in favour of the N-Gage platform. The new distribution model is on-line. The first issue with the online distribution model is that Nokia is inexperienced. As discussed, the company is considered world class in physical distribution. Even though distribution via internet is fairly novel, Nokia does have some years of working with the N-Gage Arena, the online meeting place to play multi-player games, and the on-line distribution of N-Gage games. This has enabled the company to gain some experience in the internet space.

However, the choice to distribute on-line has its own set of challenges. The first choice that has to be made is to distribute on-line via a computer, or distribute via cellular network. If Nokia decides to distribute over a computer, the user would have to either connect using a cable or use Bluetooth to get the data onto the handset. WiFi would also be a possibility, but due to the power relationship that exists with the North American cellular operators, many of the WiFi capable handsets have had that functionality disabled, forcing the user to go over cellular networks.

This power relationship is the final issue to discuss regarding distribution. Cellular carriers have a great deal of power in North America. As mentioned above, the carriers can insist upon disabling of features to force the use of networks. If Nokia chooses to use a land computer and a cable or Bluetooth to get the information to the handset, this will disrupt the balance of power in this relationship. In fact, that is what the company plans to do. The plan is actually to do both – make games available downloadable either to a computer or via cellular¹¹⁹. In Canada, Rogers Wireless is already making games available for download from their website. The games are sold over the website, but the user must download them over a cellular connection. It remains to be seen how receptive the carriers will be to Nokia distributing from a wired connection, but it seems that this will be a tenuous situation at best as Nokia will be in direct competition with the operators. The key for Nokia is going to be to get a critical mass of games available and into the hands of the consumers. The marketing has to be in place to let consumers know that the games are available, however they are going to purchase them. Once the games are available and being purchased, then the product will have to live up to the hype. That could be the hardest part.

5.3 Networks

Networks are key to the whole discussion of mobile gaming (versus portable gaming). Networks provide the connectivity that is necessary to perform many of the actions that separate mobile gaming from portable gaming. For this paper, portable gaming consists of portable game consoles (such as GBA and PSP), while mobile gaming includes the ability to connect via cellular connection to perform tasks such as playing a multiplayer game, downloading games, or using an online meeting place, such as the N-Gage Arena. At a high level, networks are not exclusive to a cellular connection. They can include alternate types of short-range connections such as WiFi and Bluetooth. This section will look at cellular connections as well as alternative short-range networks. In the discussion of cellular networks, there will be a brief look at the different types of network bands (2G, 3G) and the different types of standards available within each band (GSM, TDMA, CDMA etc.).

In Europe, Nokia operates a network that is co-owned and operated by Siemens, called Nokia Siemens Networks. The merger of the two struggling network providers was final in February 2007 and will provide the necessary economies of scale for both companies to see a profit from the enterprise¹²⁰. The network operates in 150 countries around the world with cellular and wired operations. The firm provides operator services as well as providing network services to operators. Nokia is fully vertically integrated along the value chain, considering Nokia Siemens Networks also offers content hosting options for operators who do not want to make the capital investment¹²¹.

Network providers in Europe, like Nokia Siemens, have been mandated to use the GSM standard in the 2G band and Wideband CDMA (WCDMA) in the 3G band. In North America, the choice of standard has been left up to the network provider, so all types of standards exist: CDMA, GSM, TDMA and iDEN. In brief, the 1G band refers to first generation, and is an analogue signal. The 2G band is the second generation and refers to a digital signal. The band referred to as 2.5G is a former 2G network that has been upgraded to have some of the functionality of the 3G networks. The 3G networks are faster digital bands that allow higher data rates. To take advantage of the features in a converged device, the user would want to have a 2.5 or 3G network. None of the

converged devices will support an analogue signal. For a brief summary see Table 5-1¹²²,
123, 124, 125.

Table 5-1: Summary of Cellular Standards.

Technology	GSM	CDMA	WCDMA	TDMA	iDEN
Description	Global System for Mobile Communications	Code Division Multiple Access	Wideband Code Division Multiple Access	Time Division Multiple Access	Integrated Dispatch Enhanced Network
Generation	2G	2G to 2.5G	3G	2G	2G
Frequency	900 MHz band 1800 MHz band	400 MHz band 800 MHz band 900 MHz band 1700 MHz band 1800 MHz band 1900 MHz band 2100	5 MHz band	824 to 894 MHz	800 MHz band 900 MHz band 1.5 GHz band
Service Type	Voice and Data	Voice and data	Voice and data	Voice and data	Voice and data
Maximum Data Rate	up to 9.6kbps	~145kbps	up to 10Mbps	up to 9.6kbps	up to 64kbps

Three G networks will be important to the success of Nokia's N-Gage platform, especially when it comes to online distribution over a cellular connection. If a user wants

to download a large data file, it needs to happen in a reasonable length of time. This is due to two fundamental issues. The first is that users just will not want to wait too long for a download. As users get used to high speed wired connections, it will be frustrating for them to wait for a download on a handset. In the long term, they will not download, preferring to use substitutes for gaming. The second issue is reliability of the network. A user will quickly lose patience if during a download the signal was lost and the process had to begin again. This is an issue in urban areas where the signal gets lost, or even outside urban areas where a signal, or a 2.5 or 3G signal, may not be available.

The types of short-range networks that are available in converged devices are typically WiFi and Bluetooth. Both use the same frequency, but have different applications. Bluetooth is a shorter range connection, approximately 10 meters and is typically used for peripherals such as headsets. In terms of gaming, this type of connection can be used for multiplayer gaming. This increases the enjoyment of the experience for users. A WiFi connection, at a range of about 100 meters, is used to connect to a short-range high speed connection, such as a “Hot Spot” which enables the user to download large data files relatively quickly without using a cellular connection¹²⁶. The ability to circumvent a cellular connection is precisely why operators try to restrict the WiFi capability on handsets¹²⁷.

Networks are an important part of Nokia’s mobile gaming platform. Networks enable the user to download game applications, play short-range multiplayer games via Bluetooth and to interact with other players globally over the N-Gage Arena. Nokia maintains their vertical integration by owning and operating networks globally. This allows the company to fully understand the capabilities (current and future) and the limitations of network infrastructure.

5.4 Content Hosting and the Consumer

The areas of the value chain associated with Content Hosting and the Consumer will be looked at simultaneously. This is primarily because most aspects of content hosting within mobile gaming involve the consumer. As far as Nokia is concerned, the main aspect of content hosting involves the N-Gage Arena, although Nokia Siemens

Networks is highly involved in content hosting as part of its network provider offering. The ultimate beneficiary of the Arena hosting areas are the gamers themselves. The second aspect related to content hosting is the area of on-line stores. This obviously affects the consumer directly.

Content hosting generally covers the storage of applications and data at another company's site. In the case of Nokia, it is a fully integrated firm when it comes to mobile markets. Nokia Siemens Networks owns and operates networks globally and offers content hosting services. Nokia also offers the Nokia Content Discoverer, an online catalogue tool, is sold to operators as a way to increase adoption rates. The look and feel of the catalogue can be customized, as well as the content of the catalogue in order to include operator branding and locally available merchandise. On the consumer side, the Discoverer application is embedded in the S60 and S40 phones, some of which will be game capable. This application gives direct access to the operator's catalogue for a convenient and easy shopping experience¹²⁸. The key is to increase the ease of use for the user, so they do not experience frustration when trying to download game software. In a press release, a Nokia spokesperson states that "the Nokia Content Discoverer on-device portal will enhance the end-user mobile shopping experience, drive repeat usage of content services and increase revenues to the benefit all players in the mobile value chain"¹²⁹.

Nokia has sold content hosting software and services to many operators worldwide by Nokia Siemens Networks. It is logical to assume that Nokia would host its own content where it can. Specifically related to N-Gage, the N-Gage Arena appears to be hosted by the firm itself. As discussed previously, the Arena will host chat rooms and bulletin and message boards. There will be online postings showing the high scores for games and locations where players can play against other gamers globally. The Arena was originally brought on-line for the N-Gage devices, and will have new content added to support the users of the N-Gage platform.

In order to support the N-Gage platform, games will be distributed on-line. This can happen over a cellular connection, or over a wired connection. One of the on-line retail centres is operated by a firm called Handango. This retail outlet sells software

specifically designed for the Nokia handsets, although not exclusively for Nokia handsets. Handango seems to have a niche market where they sell software specifically for the handset market. The user enters the Handango site and chooses their specific handset, and the search tool lists all the available software for that particular hardware¹³⁰.

In summary, content hosting is geared toward making the consumer experience increasingly enjoyable. The ability to download games or other content easily through embedded software that interacts directly with the operator is a good start. Purchasing through a website that has been designed specifically to host mobile applications will also facilitate the user experience. In the end, Nokia would like to enhance every aspect of the user experience, to keep the consumer returning.

5.5 Legal and Sourcing

Legal and sourcing play a significant role in making the N-Gage successful. Legal is primarily responsible for the contracts that exist between first, second and third party game producers. This group also deals with the agreements with the publishers and how revenue is shared. Without good contract negotiation, Nokia would be unable to earn revenue from this type of business. However, contract negotiations are only a part of the requirement for this industry. In particular, mobile gaming could have issues not only from licensing, but also from the use of cellular network, or in Nokia's case, selling directly to the public against the wishes of the cellular providers.

As shown in the section on Content, there are three ways that Nokia procures games for its capable phones. First party uses their own producers and subcontract to developers. In this case, it is likely that Nokia would own most of the IP associated with that game. For second party game development, collaboration would require very strong agreements that are flexible enough to allow for creative development and understanding the constraints particular to this industry (i.e. fickle market resulting in poor sales).

Sourcing also provides a great deal of support for game development, marketing, sales and distribution. This was particularly important when the N-Gage first came to market and the games were sold as physical goods in electronic boutiques. With the N-Gage game units, there was a great deal of manufacturing, not only on the side of

producing the handsets themselves, but also on the game side. Shown in Figure 5-5, Figure 5-6, and Figure 5-7 is a typical game package that would have been purchased at a retail outlet.



Figure 5-5: Retail sales package for N-Gage games (Tiger Woods: PGA Tour 2004). Outside of the box, plastic with paper cover art and plastic overlay. Hologram label indicates authenticity (photograph by author).

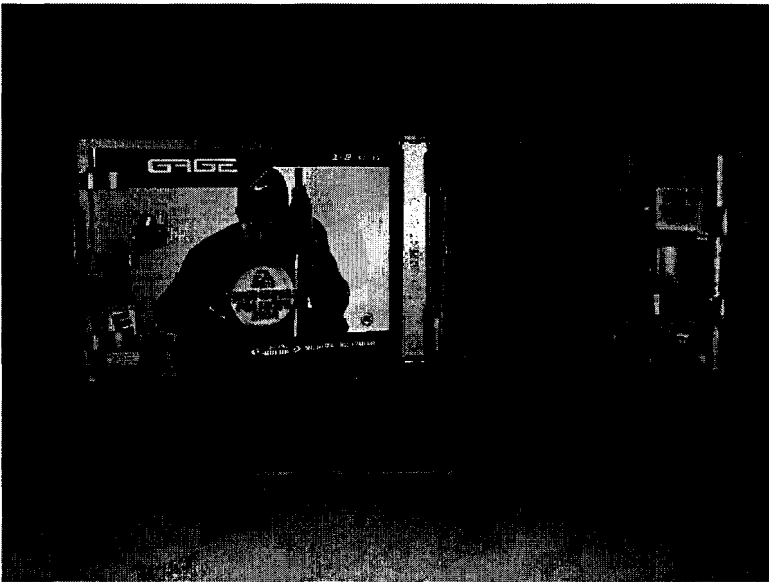


Figure 5-6: Inside of retail sales package. Included is the game booklet, MMC containing the game software, and a removable travel case for MMC (photograph by author).

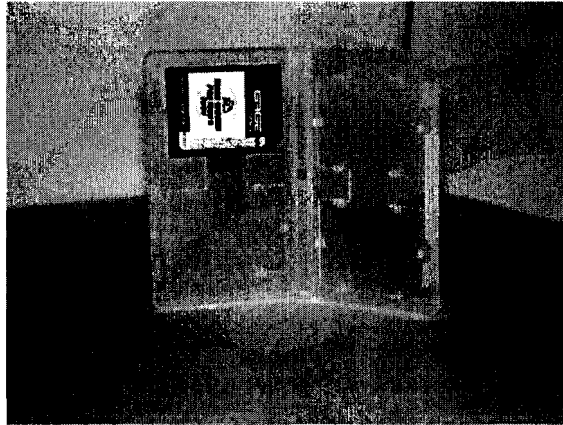


Figure 5-7: Travel case with MMC (photograph by author).

As you can see from Figure 5-5 and Figure 5-6, the package consisted of a plastic case wrapped in a plastic cover similar to the packaging for a DVD, promotional and instructional information, and the game itself on a MMC card. Each of these components would have had to be sourced. The plastic case does not appear to be a standard size, like that of a DVD case, so it is likely that these boxes were made especially for these Nokia games. The promotional and instructional information was no doubt translated into several languages and packaged with each game for each region. Inside the box was also the MMC card. The capacity of the MMC card seemed to vary depending on the size of the game that was copied on the card. In addition to these items, the MMC card and the outside wrapping were labelled with either warning and caution statements, or product labels. These labels would have had to be sourced as well. Although probably not exhaustive, below is a list of items that would have required sourcing just for the game to be ready for retail distribution:

- plastic overwrap
- hard plastic case
- paper cover art for each different game
- promotional and instructional material
- MMC card
- MMC case
- labels for outside of box, inside on MMC card

All of these items would have to have been sourced and available at the time of manufacturing the game itself. Quantities would have to be sufficient without being over supplied. However, all of this would have to be purchased at the best possible price to keep the margins intact. Although Nokia has experience in sourcing for handset manufacture, this would be a different set of suppliers that would have to be identified and researched in order to get the best price and the best product. It is important to keep in mind that Nokia sells very differentiated products, so the quality of all materials that would bear the Nokia name would be a high priority.

The N-Gage platform instead of the dedicated gaming handset makes the level of effort required by sourcing much more manageable. The games are no longer sold in boutique stores, but made available either online via a computer, or over a cellular network. That eliminates the entire list of sourced items shown in the list above. The handsets would be made regardless, so the cost of the games has now been drastically reduced. Those savings can be passed on to the consumer by lowering the retail cost of the games. The lower the price of the games, the better chance that game sales will begin to provide a source of revenue much faster.

6 RECOMMENDATIONS

6.1 Future Strategy in Mobile Gaming

Nokia's history within the gaming industry has been inconsistent at best. The launch of the N-Gage handset was not entirely successful. The reasons for the poor performance were that the product offering had some inherent flaws, and the target market was not right. Currently, Nokia is betting that converged devices will cover the gaming needs of any type of gamer – hardcore to casual. In order for this strategy to work, the following recommendations are made:

- **Keep the focus on the differentiated products** – Nokia should concentrate its initial marketing efforts on the gamers purchasing the sophisticated converged devices on which to play games. This target market will likely not be purchasing a low end phone. Nokia should concentrate their efforts on combining the most game playing power on

the differentiated handset line – the premium priced phones. The sophistication will appeal to the gamer. Once the market is well established on these phones, then it will be important to start making the mid-range and lower-end phones capable of the same type of gameplay. Having a phased approach to the N-Gage platform will ensure that the product is available to all possible markets. While a hardcore gamer may be an innovator and wish to have the most technologically advanced game capable hardware, casual gamers likely cover all categories of the adoption lifecycle – innovators, early adopters, early majority, late majority, and potentially even the laggards. Incorporating gaming on all types of phones should be considered when it is technically feasible, and the market conditions are right. Since casual gamers are thought to be part of every adopter category, not all casual gamers choose to purchase, or have the resources to purchase, a high end converged device.

- **Ensure a well defined billing model** – It will be key to the success of the platform to have a well-defined, well managed, and well communicated billing model. At present, it seems that all possible methods of collecting revenue will be offered. It may be the case that simpler is better. Perhaps single or limited methods of billing will work best with the initial target market. For example, having all billing go through the cellular bill would be a more straightforward approach where possible. Regional differences in purchase patterns and billing types will be essential. What is available or popular in one region may not be applicable to another. This will be particularly important for the initial market, and that the method of billing be consistent with the target market and the differentiated product. Nokia will have to look at the regional markets, and how users currently purchase additional hardware and software for their converged devices, and how best to offer the gaming product. As different types of phones get added to the offering, then different types of billing should be added to complement that market segment and their purchase patterns. It is anticipated that

eventually every type of billing will be available as the markets expand, but they should be added in a step-wise fashion.

- **Cultivate “collaborator” relationships with the operators** – It is vitally important that Nokia work with the operators to get the most games onto handsets as possible. It may work best to cultivate more of a collaborator relationship, than the supplier/customer relationship that exists today – even if only for the short-term. One way of trying to make this happen would be to develop a revenue sharing plan for game downloads over a wired connection. For example, a user downloads a game from the internet onto their home computer and then uses either a cable or Bluetooth connection to transfer the game onto their multimedia computer. This arrangement should not be too complicated to implement, as Nokia should be able to meter the game sales and determine the revenue split based on volume of games sold. That way, the operators will not be dissatisfied when Nokia sells over a wired connection, rather than forcing purchase of data over a cellular connection that has been optimized for voice. Users will be more content with this set-up. Rather than feeling cheated by being forced to pay for cellular data rates, they will be pleased by being freely given the option to download over a wired connection. Not only would the user be less likely to change services when irritated, but will encourage their friends to choose the same operator. The incremental revenues from game sales will not be lost. This could be in the form of a device rebate program based on the number of game capable devices that are sold in a particular market by each operator. The onus should be placed on the operator to apply to Nokia for the rebate based on device volumes. The assumption being that if a particular operator is selling more game capable devices then it is quite likely that more games are being purchased by that operator’s subscribers. There are a number of issues that could arise from this scheme. The first is that the operator may not wish to participate. If that is the case, then Nokia will incur extremely high marketing and

promotion related costs to non-game enable device owners. The second is that Nokia will not be eager to give the operators such a rebate. The relationship between Nokia and operators has been strained in the past, and overcoming that will be an obstacle. Third, developing a model that will be acceptable to both parties could be a challenge.

7 CONCLUSIONS

This paper has investigated the game market segments, their size and their growth. In terms of Nokia's participation in this market, the product (both device and platform) have been examined in detail. This examination was followed by an industry analysis that produced a summary of the types of forces that affect Nokia's ability to operate in this market.

The value chain followed from the industry analysis and looked at the inputs that make up the mobile game market and how Nokia participates in these inputs to bring mobile gaming to the target market. Finally, recommendations were provided for Nokia to increase its market share in the mobile gaming industry. The first recommendation is for Nokia to focus on a differentiated handset target market initially, with lower-end phones being added as the functionality becomes available. The billing model is shown to be an important component of a successful strategy. It was described that the billing model should match the target market and that billing strategies should be added as the markets are added. Finally, it was suggested that a collaborator relationship be developed with the operators in order to increase the number of games on handsets. Nokia is a well established leader in the handset market. The firm's move into the game market can be equally successful.

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