



# **Business Model Analysis in the Fast-Evolving Mobile Phone Market: The Nokia Case**

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## **CHAPTER 1: INTRODUCTION**

Born during the 1980, the mobile phone market has showed to be a market in continuous evolution. From phones attached to cars, they have become pocket-sized devices with functionalities that are similar to the ones of personal computers. This has been the result of 30 years packed with innovations, both in physical and digital features.

Such a fast-changing market requires firms to come up with always new adequate business models, to face new kinds of demand and competition that can arise.

It is presented here an analysis of the features of the business model, the characteristics of the mobile phone market, and the case of Nokia, a Finnish company which has been the leader in this market for 14 years.

## CHAPTER 2: WHAT IS A BUSINESS MODEL?

The concept of business model has not yet a solid theoretical foundation in economics or business studies. It is tackled in many scientific papers but each of them attributes different elements to the analysis of business models.

A general definition of business model is that it describes the processes employed by the firm to create value to customers and deliver it to them, showing the revenues, costs and profits achieved by this value delivery. In substance, it represents the firm's organizational and financial structure.

During the years, many other definitions of the business model concept have emerged. Here some examples from various authors about what a business model is according to them:

“[It] articulates the logic, the data and other evidence that support a value proposition for the customer, and a viable structure of revenues and costs for the enterprise delivering that value” (Teece, 2010)<sup>1</sup>.

“An architecture of the product, service and informative flows, including a description of the various business actors and their roles; a description of the potential benefits for the various business actors; a description of the sources of revenues” (Timmers, 1998)<sup>2</sup>.

“The content, structure, and governance of transactions designed so as to create value through the exploitation of business opportunities” (Amit & Zott, 2001)<sup>3</sup>.

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<sup>1</sup> Teece, David J. (2010), *Business Models, Business Strategy and Innovation*, Long Range Planning, 43, 172–94.

<sup>2</sup> Timmers, P. (1998), *Business models for electronic markets*, Journal on Electronic Markets 8(2), 3–8.

<sup>3</sup> Amit, R.; Zott, C. (2001), *Value creation in e-business*, Strategic Management Journal, Vol. 22 No. 6-7, 493-520.

"The totality of how a company selects its customers, defines the tasks it will perform itself and those it will outsource, configures its resources, goes to market, creates utility for customers and captures profit" (Slywotzky, 1996)<sup>4</sup>.

According to Johnson, Christensen and Kagermann (2008), the business model is composed of four interlocking elements that, together, create value for the customers. These elements are *customer value proposition*, *profit formula*, *key resources* and *key processes*, and they will be analyzed in the following chapter.

## **2.1 Business Model Elements**

Following, we will analyze the four elements that, according to Johnson, Christensen and Kagermann, compose a business model.

### ***Customer value proposition (CVP)***

The key for a successful company is to find how to create value for customers, that is to help customers solving a fundamental problem they face in a given situation. After figuring out the problem to solve, the firm can start designing the offering. To achieve a high level of customer value proposition, the firm must find the best way to solve customers' problems, which is superior to the alternatives already existing, keeping an eye on the price to be chosen (the lower the price, the higher the CPV). It is possible to better create a CVP when existing alternatives poorly address the problem, and so the

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<sup>4</sup> Slywotzky, A. (1996), *Value Migration*, Harvard business school press.

firm can design an offering that only aims at solving that specific problem and nothing else.

### ***Profit Formula***

It defines how the firm creates value for itself while providing value to the customers.

It is composed of:

- *revenue model*: the amount of money that a firm can make. It's the product of price and volume;
- *cost structure*: the way costs are allocated, which includes direct costs, indirect costs and economies of scale.

It is mainly influenced by the cost of the main resources required by the business model;

- *margin model*: the contribution needed from each transaction to reach the profits that the firm want to achieve, given the expected volume and cost structure;
- *resource velocity*: the speed at which the firm needs to turn over fixed assets, inventory and other assets to support the firm expected volume and achieve its expected profits. It includes lead times, throughput, asset utilization etc;

### ***Key Resources***

They are all the assets (e.g. products, people, plants and equipment) that the firm needs to deliver the chosen value proposition to the chosen customers in a profitable way;

### ***Key Processes***

They are operational and managerial processes that make possible for the firm to deliver value in such a way that it can successfully repeat and increase in scale as much as it needs. They include:

- *processes*: hiring and training, design, product development, manufacturing, sourcing;
- *rules and metrics*: investment margin requirements, credit terms, lead times, supplier terms;
- *norms*: opportunity size needed for investment, approach to customers and channels.

These are the elements that are at the base of any business. Customer value proposition defines the value created by the firm for the customers, while the profit formula defines the value for the firm itself. Key resources and processes instead describe how this value created will be delivered to both customers and the firm.

All these elements are deeply interdependent, and changes to one or more of them will also affect the others. So, managers should play with them and try to achieve the best combination possible.

## **2.2 Business Model Role**

In order to create value for consumers, managers must observe the value proposition of their firm and select the activities that it will undertake. Chesbrough and Rosenbloom (2002) propose a series of tasks that a business model should accomplish:

- articulate the *value proposition* , that is the value created for consumers by the offering based on the technology chosen to be adopted;
- identify a *market segment* (the consumers that would find the technology useful), specifying also the mechanisms through which the firm generates revenues;
- define the *value chain structure* within the firm required to create and distribute the offering, and determine the complementary assets needed to support the position of the firm in this chain;
- estimate *the cost structure and profit potential* of the production of the offering, given the chosen value proposition and value chain structure;



- describe the position of the firm in the *value network* which links customers and suppliers, including the identification of potential cooperators and competitors;
- formulate the *competitive strategy* which allows the firm to gain advantages over its competitors.

The criteria that allow to create a successful business are universal, not sector-specific. The firm can be sure of having designed a good business model when it yields value propositions that are compelling to customers, when it achieves cost and risk structures that are profitable for the firm, and when it permits significant value capture by the firm that creates products and services.

The key for a firm to be successful is to design a business correctly, figuring out, implementing and refining structures for revenues and costs that are sustainable and profitable. This is essential both for a firm that is just entering the market and for a firm which is already running its business, which needs to keep the model viable over time, adapting it to the evolving competitive environment. This makes clear that the ability of a firm to innovate its business model has a high relevance for its success, especially in markets which evolve rapidly like the mobile phone one.

## 2.3 Business Model Design

Amit and Zott (2001) observe that the locus of value creation is not limited by the boundaries of firms and industries. They propose four potential design themes, which are sources of value creation through business models, called the NICE (Novelty, lock-In, Complementarities and Efficiency) value drivers:

- *novelty*: adoption of new activities, and/or new ways of linking the activities, and/or new ways of governing the activities;
- *lock-in*: the power of activities to keep third parties attracted as business model participants. Lock-in can be manifested as switching costs, or as network externalities that derive from the structure, content and/or governance of the activity system;
- *complementarities*: present whenever bundling activities within a system provides more value than running activities separately;
- *efficiency*: how firms use their activity system design to aim at achieving greater efficiency through reducing transaction costs.

These value drivers can be mutually reinforcing; that is, the presence of each value driver can enhance the effectiveness of any other value driver.

An interesting finding by Zott and Amit (2008), who studied the impact on firm's performance of the interaction of its business model and product market, is that business models that emphasize novelty and are coupled with either differentiation or cost leadership can have a positive impact on the firm's performance, and that novelty-centered business models together with early entry into a market have a positive effect on firm's performance.

## **2.4 Business Model Innovation**

Firms need to innovate in order to gain competitive advantage, and, at a first glance, it may appear that technological innovation is the most important objective to reach to be successful. Actually, many examples of new technologies that failed commercially prove that this alone is not sufficient to guarantee the success of a firm. Xerox (PARC) invented the graphical user interface (GUI), but it wasn't able to make it profitable, while Microsoft managed to become the leader in the PC market with a follow-on graphical user interface. Why is that?

The main reason is that innovations alone have no intrinsic value. Every innovation requires to be embedded in attractive products and services in order to provide value to the customers, but most importantly, it has to be sustained by an effective and unique business model that can concretize its commercial potential.

Managers are more attracted to business model innovation than technological one for four reasons:

- it is often an underutilized source of future value;
- it may be more difficult to imitate by the competitors, as it is an entirely new activity system and not just a single new product or process, giving a sustainable competitive advantage;
- managers must be attuned to the possibility of competitors' efforts in business model innovation as it is so relevant in order to gain competitive advantage;
- technological innovation are often require high upfront investments, yet future returns on them are always uncertain.

An IBM study made in 2006, where more than 750 corporate and public sector leaders were interviewed about innovation, discovered that companies focusing more on business model innovation rather than product or process innovation had seen their operating margins growing faster than their competitors' over the previous five years.

Business model innovation can complement or even substitute product and process innovation, allowing managers to solve the trade-off between innovation costs and benefits by addressing how they do business, for example, by involving partners in new systems of activities that create value.

Business model innovation can happen in many ways. Three of them are:

- new activity system “*content*”: adding new activities;
- new activity system “*structure*”: linking activities in new ways;
- new activity system “*governance*”: changing one or more parties that perform any of the activities.

Content, structure and governance are the design elements which characterize the business model of a firm. Changing one or more of these changes the entire model, leading to business model innovation.

## **CHAPTER 3: THE MOBILE PHONE MARKET**

The mobile phone industry is one of the manufacturing industries based on technology that evolved at a very impressive speed over time, with rapid changes in product features and competitive dynamics of the manufacturers. This industry has been continuously shaped by fast changing market dynamics, like fierce cost competition, increasing market penetration, rapid reduction in product life cycles and high product customization. The mobile phone has been transformed from a device used only for long-range communication into a multi-functional device with many other features, like internet navigation, photo and video recording, and much more; this change in scope made mobile phones (especially smartphones) impact also other markets like the PC and camera ones. To keep up with the rapid evolution of the mobile phone environment, firms had to change continuously their product strategies, by introducing new features, increasing their product portfolio, outsourcing many of their activities and reshaping their relationships with the other actors inside the mobile phone ecosystem.

### 3.1 Mobile Phone Market Characteristics

The mobile phone market presents three main characteristics:

- *mobility*;
- *network effects*;
- *proprietary assets*.

These three factors are important to formulate a good business model, and companies must find the best way to address them in order to be successful.

#### ***Mobility***

Mobility represents the principal strength of mobile phone business, because it is the main characteristic from which mobile devices and service can build their value proposition. Precisely, the advantages derived from mobility are:

- *ubiquity*, as devices and services can be used from any location;
- *freedom of movement*, as it gives the ability to use devices and services without requiring to stand still;
- *convenience*, as we can always use the devices and services at our will;

- *reachability*, as service users can be reached anywhere by anyone;
- *localization*, as service providers can use customers' location information to offer them location-based services;
- *personalization*, as consumers can customize their devices and store personal information in them.

There are also some problems that mobility poses, like the inferiority of performance of wireless devices with respect to wired ones, an aspect which has been reduced in magnitude with the advent of smartphones; device limitations, due to the requirements of portability, like the small size and low weight, which requires OEMs to limit the space dedicated to screen, batteries, etc.; bandwidth limitations, due to the decision of network operators to put a cap on the amount of data that an user can receive or transfer, in order not to let few users overload the entire network.

### ***Network externalities***

When a market is made of various components connected with each other, then that market is said to present network externalities. Network externalities happen when the transaction between two parties affects, directly or indirectly, another party which is not taking part in the transaction.

Also, a product presents network externalities when the utility which the user gets from its consumption is affected by the number of other users which consume the product.



The reason why network externalities appear is because of the complementarity of the components of a network, which are required to work together to provide a given service.

As said earlier, there are two types of network externalities: direct or indirect.

- *Direct network externalities* occur when a party which enters the network brings a benefit to all the other parties being part of the network, because of the increasing of the number of potential interactions that can occur. This is typical of two-way networks like the telecommunication ones, where the utility of the members of the networks increases as their number increases. In this case, in fact, users utility increases as they're able to communicate to a greater number of users, but this can also result in negative effects like network congestion.
  
- *Indirect network externalities* occur when the increase in the size of the network increases the number of complementary products which are available to the members of the network. In fact, the entrance of a new user in the network can increase the number of services available to all other users, as an increase in demand makes devices manufacturers and service providers willing to offer more products exploiting this profitable situation.

Direct and indirect network externalities influence both consumers and producers: the former are affected when deciding whether or not to adopt a new technology, while the latter are affected when they have to decide whether to allow compatibility of their products with other producers.

### ***Proprietary Assets***

The last characteristic of mobile phone markets is the existence of important assets which are controlled exclusively by a firm.

Proprietary assets could be a brand, a registered trademark, the knowledge about how to produce a cheaper or better product at a given cost, or to produce a given product at a lower cost than competitors, or the ability of the firm to promote and design its product to make it more appealing to consumers, who will distinguish it from the products of other competitors.

These assets bring more revenues to the firm which possesses them, because it increases the willingness of some consumers to pay a higher price for the product of that firm in comparison with the products of its competitors. These advantages brought by proprietary assets are similar of those of product differentiation.

We can conclude, after having observed these characteristics, that the firms which desire to compete in the mobile phone market must be willing to create an efficient network of partners, with the management of partnership being one of the core activity they must focus on.

When deciding about the business model to adopt, managers must ask themselves whether the network of partners required to succeed in the market is economically feasible. To answer this, they have to take into consideration the interest of all the possible partners, and design a business model which is profitable for every one of them, so that they will have an incentive to being part of the partnership.

### 3.2 Mobile Phone Market Composition

The mobile phone industry is part of a complex ecosystem, which includes four main groups of players:

- *mobile network operators (MNOs)* (e.g. T-Mobile, Vodafone, 3);
- *original equipment manufacturers (OEMs)* (e.g. Nokia, Apple, Samsung);
- *OEMs' suppliers*;
- *mobile phone independent retailers*.

Original equipment manufacturers (OEMs) are firms whose core business is the creation of handsets and their branding. Their product strategy focus on decisions about:

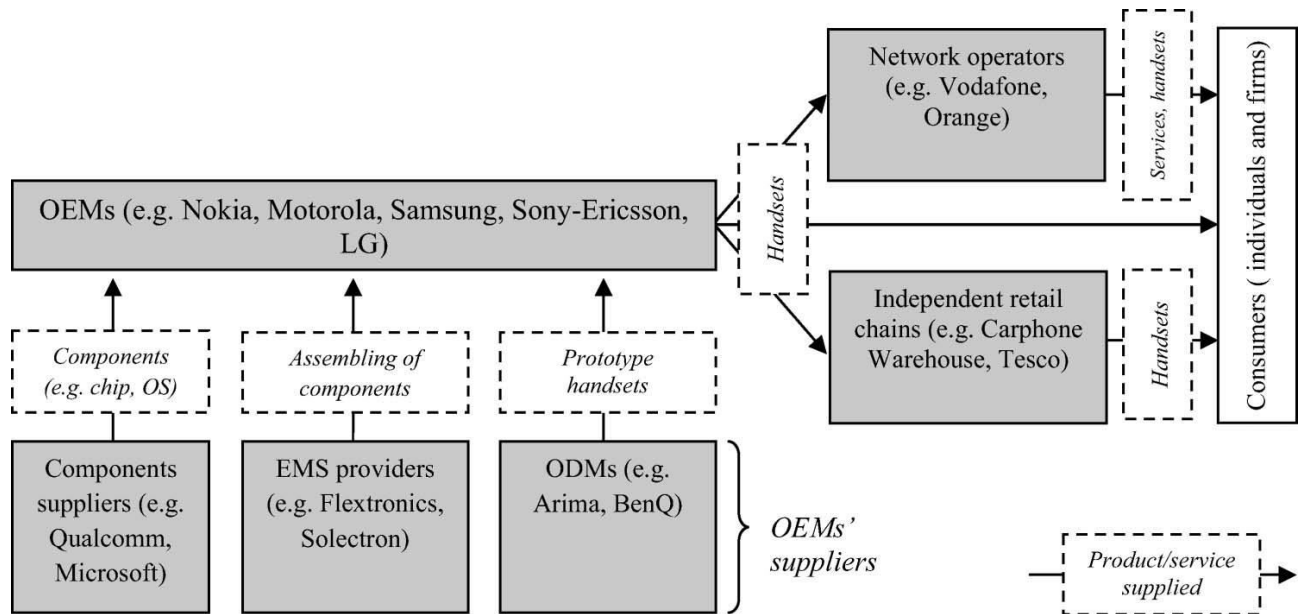
- *pricing* (e.g. low-end and high-end phones);
- *product lines* (e.g. basic phones, camera phones, smartphones);
- *product distribution* (e.g. firm's, network operators' or independent retail channels);
- *product innovations* (e.g. design, technical features);
- *process innovations* (e.g. activities outsourcing).

OEMs can outsource a number of activities to different third parties. The main ones are:

- *component suppliers* (e.g. software, operating systems);
- *devices and electronic components assemblers* (electronic manufacturing service providers, or EMSs);
- *independent contractors* developing handset prototypes and selling them to OEMs which they in turn sell in the market under their brand names (original design manufacturers, or ODMs).

Network operators aim to attract paying consumers to services on their networks, and offer services by building networks on which they permit the transfer of voice and data. For this purpose they purchase stocks of handsets by OEMs and then sell them to consumers.

Handsets are also sold to consumers by independent retailer chains, some of them commercializing only handsets and others selling handsets as part of a much wider assortment. So, today OEMs have the characteristics of wholesalers more than retailers, because consumers are able to buy handsets from the retail channels of network operators (together with a contract to use the handset on their network) or from independent retail chains.



**Figure 1:** The mobile phone ecosystem

Source: Giachetti and Marchi, 2010

The mobile phone ecosystem has changed greatly over the years. During the 1980s there were only two main actors in the market:

- *OEMs*, which presented a vertically integrated supply chain with very few outsourced activities and produced and commercialized handsets directly to consumers (only business users);
- *network operators*, working only as telecom services providers, making their profits with the traffic generated by mobile phone calls.

With the launch of the iPhone in 2007, Apple created the “smartphone” product category and accelerated the convergence of traditional mobile telephony, Internet services, and personal computing into a new industry. As these sectors merge into a single device, formerly separate industry architectures and their constituent firms are being forced into direct competition.

## **CHAPTER 4: NOKIA, RISE AND FALL OF A MOBILE PHONE GIANT**

Starting as a Finnish wood pulp mill, Nokia managed to become one of the world's greatest mobile phone manufacturers ever existed. It remained the leader of the mobile phone market for 14 years, and for such a rapidly evolving environment it is an impressive achievement. To understand the motives of its incredible success, and the subsequent fall, it is important to examine the history of this relatively young market, and how the Finnish company took part in its unfolding.

### **4.1 1980-1990 The Birth of Mobile Phones**

The first pieces of mobile phones appeared as analogue systems, mounted inside cars. The advent of these new devices induced many countries to introduce mobile phone standards. In the beginning, these standard varied from country to country: the US adopted the Advance Mobile Phone System (AMPS), the UK the Total Access Communication System (TACS), the North European countries (including Finland) the Nordic Mobile Telephone (NMT), while Italy, Germany, France and Japan adopted their own developed standards.

The analog handsets which worked with these initial standards are called "first-generation mobile phones" (1G). OEMs were forced to choose only a few systems compatible with their handsets, because making them work with all or many of them



would have required an investment so high not to be profitable even for the biggest manufacturers.

In 1982, the European Conference of Postal and Telecommunications Administrations (CEPT) decided to create a common system which would have allowed the standardization of the “second-generation mobile phone” (2G): the Groupe Speciale Mobile, or, as it has been later translated, the Global System for Mobile Communication (GSM).

With such a common standard, the CEPT hoped to create mass markets that would reduce the cost of the calls and allow the OEMs to sell their handsets in the global market without incurring in prohibitive investment. This system, however, would be launched only at the beginning of the 1990s.

Mobile phones remained very expensive throughout all the 1980s, and they were mainly car phones. Due to their high prices, they were produced only for the business market.

OEMs took care both of the production and the commercialization of the phones, while network operators only got their revenues from mobile phone calls

The leader of the market back then was Motorola, thanks to its predominance in the US market which was the biggest one in the 1980s. In 1983, it commercialized the first commercial analogue portable mobile phone, the Motorola DynaTAC, after having made a substantial investment and exploiting its first-mover advantage.

Nokia became another big player in the mobile phone market with release of its own handheld, the Mobira Talkman portable car phone, only one year later, in 1984. But its first true mobile phone has been the Mobira Cityman, released in 1987.

In this initial stage, competitors were very few and also sales were low, due to the high price of these devices, the lack of network operators' retail channels which slowed distribution and to the consumer uncertainty about the true usefulness of this new product.

#### **4.2 1990 – 1995 Mobile Phone Market Consolidation**

In 1991, the GSM has been officially launched in Europe, while it reached the US only four years later, in 1995. This new system has been a great step forward for the mobile phone industry, as it marked the passage from the analogue to the digital signal.

This made possible the development of many new features for the second-generation mobile phones, like the encryption of voice and data and the possibility to send and receive text-based messages via Short Messaging Service (SMS).

This new digital technology created an analogue-digital system discontinuity: it rendered obsolete the first-generation mobile phones and made the 2G ones rise.

Nokia has been swift to think about how to benefit from this discontinuity, and committed earlier than its rivals to the GSM standard and to build relationships with

new independent network operators. It released the Nokia 1011, its first digital mobile phone, and took the decision to focus only on mobile phones and telecommunications, selling off its other divisions like the rubber one.

There has been a revolution in the development of mobile phones: their size and weight has been reduced, improving their portability, and their lower, but still high, price made possible to commercialize the product even outside the business market, and so subscriptions among individuals rose at an impressive rate. This last achievement has been made possible especially thanks to the new network operator's retail channels, whose intention was to attract consumers to use their networks, and to do so they started to purchase handsets from OEMs like Nokia and sell them through their own retail channels.

At this stage, OEMs invested intensively on R&D, as they were trying to find out which product features, that the GSM rendered possible to develop, were looked for by consumers the most.

In 1994, Nokia launched the 2100 series, an incredible success as it managed to sell 20 million units, while Nokia set its target to just 400,000 units.

### **4.3 1995 – 2000 The Importance of Innovation**

Progresses continued to be made in the development of 2G handsets. Size continued to shrink, up to the point that mobile phones became pocket-sized, prices has been further reduced and network coverage increased, making mobile phone sales soaring and establishing it as a mass-market product in most developed countries. In a few years, digital phone sales surpassed the analog phone ones, reaching 160 million units sold worldwide.

In 1997, the main player in the mobile phone industry was Motorola, leader in the US, with a global market share of 23.5%; at the second place there was Nokia, with 19.1%, but it managed to rob Motorola of the title of biggest OEM just one year later, in 1998. This happened because Nokia, with the advent of GSM, started investing heavily in this new technology immediately after its introduction, while Motorola kept focusing on 1G mobile phones exploiting its advantage on this category of devices. As a consequence, as 1G phones were being rendered obsolete by 2G ones, Motorola started losing market shares, and excess capacity together with exit barriers from analogue mobile phone production hampered its transition to 2G mobile phones.

With the increasing amount of consumers using mobile phones, and the changes in people's lifestyles they brought, new features were requested to satisfy the most various needs. One of the most important features introduced during these years has been the Short Message Service (SMS), which allowed to send and receive text messages.

In 1997, Nokia started to install videogames in their mobile phones, the first being “Snake” on the Nokia 6110. In 1999, the Wireless Application Protocol (WAP) has been introduced, that allowed users to connect to web pages through a browser and configure various services like email and group messaging.

Nokia has been the OEM that released the greatest number of these product innovations, and it has been surely helpful for it to gain and maintain its leadership in this industry.

The increasing request for new features forced all the players to focus on R&D, and so the OEMs began to outsource the other activities like manufacturing of the mobile phone components and applications to electronic manufacturing services (EMS) providers. The price for outsourcing these activities was low, because of the high fragmentation of EMS providers market and the consequent high bargaining power of OEMs.

The outsourcing of the activities which were less valuable for the OEMs allowed the companies to reduce fixed costs related to production and reducing the time required to develop new mobile phone models.

#### **4.4 2000-2005 Market Saturation**

With the start of the US economic recession in 2000, and the subsequent worsening after the events of 11 September 2001, mobile phone sales started to decrease, after the surge of the second half of the 1990s. This was due to the lowering of consumers’

purchasing power, so OEMs had to focus on the production of low-tier phones, which were more affordable.

Nokia continued to maintain its role of the biggest player in the market by further reducing the prices of its mobile phones, but not everyone opted for this strategy: Samsung, for example, decided to focus on mid and high-tier mobile phones, positioning itself in the high-tier segment rather than the “economic” one.

The increased demand for low-tier phones allowed barriers to entry to be reduced, with the consequent access of new competitors, but also increased the turnover rate, as not all the existing OEMs were able to cope with the aggressive pricing strategies adopted in this segment by the biggest players.

After a while, the mobile phone market became saturated, and new mobile phone sales would have derived from replacement of old devices with new ones by consumers. The need for innovation then became even stronger than before, and the continuous introduction of new features rendered mobile phones multifunctional devices. OEMs included in their phones cameras to take pictures, which then could be sent to other mobile phones via multimedia messaging service (MMS). When first introduced, these features were considered revolutionary, but with the passing of time they started to be taken as granted, and devices which didn't incorporate them started to become obsolete and became less competitive.

So, OEMs had to focus on two different kinds of demand: demand for replacement, driven by new product features, and demand for low cost phones. What they had in common was the further reduction in price of devices due to the shorter product life cycle caused by the frequent innovations, which progressively eroded OEMs' profitability. In order to survive in this environment, OEMs had to be able to respond to both these demands, by commercializing innovative mobile phones together with basic, more affordable models.

The trend to outsource non-core activities to EMS providers continued even during these years, and also grew to benefit from economies of scale and to face the decreasing prices and margins.

Nokia decided to outsource about 15% of its manufacturing and assembling activities. This allowed OEMs to focus on core activities like R&D, marketing and sales.

The pressing need of producing innovative devices had the effect of increasing R&D expenditures, reducing margins. To face this problem, original design manufacturers (ODMs) started to appear in the mobile phone market landscape. ODMs are independent contractors who develop prototype devices and sell them to OEMs, who sell them under their brand names. Outsourcing to ODMs had the advantage of reducing R&D expenses.

Another thing being outsourced has been the production of mobile phone operating systems (OS). OEMs started to make partnerships with OS makers such as Microsoft and Symbian. This allowed to introduce new data services, like improved access to the

Internet and e-mails, and to charge higher prices for handsets thanks to the added value brought by the brand image of OS makers like Microsoft.

During the first half of the 2000s, the biggest OEMs strongly innovate their production processes by outsourcing some of their activities to EMS providers, ODMs and OS makers, so being able to focus on core activities and widening their product portfolios.

#### **4.5 2006 – 2010 The Rise of Smartphones**

By the second half of 2000s, the mobile phone market has been saturated, so the demand was now completely for replacement of old devices with new ones with added features. To increase sales, OEMs continuously added new features to their mobile phones, like Internet connection, digital cameras, MP3 players etc.

This was the start of the process called “technological convergence”: the merging of different technologies into a single device. OEMs were now entering also into markets other than the mobile phone one, like the digital camera and MP3 player markets.

Also, the new applications emerging, which made possible on mobile phones an easier use of the Internet, the downloading of programs and the reading and writing of documents, rendered these devices close to portable personal computers, and this stimulated PC makers like Apple to produce their own mobile phones.



This culminated in the introduction of a new generation of mobile phones, the “smartphones”, which completely revolutionized the mobile phone industry. The first smartphone has been introduced by Apple in 2007, the iPhone.

Smartphones are mobile phones that are able to perform many of the functions of a computer. The most important feature is their “advanced operating system” which provides a graphic user interface (GUI) similar to the one of a personal computer, and making possible to run general-purpose applications.

At this time, new and old OEMs started to focus on the production of smartphones, which were sold at high prices because of their advanced technologies, and allowed them to reap higher margins, eroded during the previous years.

The demand shifted now from low-tier, low-price mobile phones to high-tier smartphones, because brand recognition started to gain an important role on consumers’ buying decisions, at least in the most developed countries.

Brand started to be an element of competitive advantage together with technological innovation. People started to choose smartphones for their style, their design, and for the level of personal attachment to a specific brand. This because mobile phones were now also seen as fashion accessories, and so aesthetic design started to be an important factor for gaining competitive advantage.

This new vision of the mobile phone helped to compensate for the reduction in distinction of product features, as now cameras, internet connection, etc. were considered as standard for these devices and mounted on every one of them.

The technological convergence allowed OEMs to compete in markets other than the mobile phone one, but also encouraged firms from other markets to enter the production of their own mobile phones. This is the case of Apple, Microsoft, HP, and many others.

Most of these new companies from other markets entering the mobile phone one initially had lower market shares than the biggest players like Nokia, but they managed to exploit their brand recognition to pose a serious threat to the established OEMs.

Nokia suffered greatly from the competition with Apple. It started to register huge decreases in profits and reduction in sales for its own smartphones, while the iPhone sales were growing at an enormous rate.

#### **4.6 2011 – 2013 Mobile Operating System Competition**

With the rise of smartphone, the battle was now moved from devices to mobile operating systems. The two major competitors were Apple, with its iOS, and Google, with Android OS. In order to keep up with this fierce competition posed by these two new big players, Nokia had to set a strategic partnership with Microsoft, and in 2011 it announced the launch of their own smartphone running Microsoft's Windows Phone OS, the Lumia. It also decided to keep its portfolio diversified, addressing the developing countries with a cheaper hybrid phone, the Asha, running the old Symbian OS, which has been the predominant OS in the past years.

As for device innovations, there were no more big steps forward with completely new features, like the camera and internet navigation introduction back in the 1990s. OEMs just improved these features now taken for granted by every consumers, like increasing the camera definition and setting faster kinds of Internet connections.

Different players adopted different strategies, in this new evolution of mobile phone market. Android addressed almost every market segment, thanks to the many partnerships with OEMs focusing on different consumer preferences, while Apple's iOS decided to release its high price products to appeal to consumers with higher willingness to pay and brand consciousness. The main competitor in this segment revealed to be Samsung, with its Galaxy phone running Android, a competition which still lasts to these days.

In 2012, Nokia has been finally dethroned by Samsung as the leader of mobile phone market, ending the 14 years long supremacy of the Finnish company. In fact, the South Korean OEM has shipped 92 million phones in the first quarter of 2012, while Nokia accounted for 83 million units shipped. This could be easily predicted, as Nokia has been slow to react to the introduction of smartphones by Apple in 2007 and has been progressively losing market shares ever since. Also, this happened because the smartphone category of the mobile phone market was the only one growing, with feature phones, entry-level phones and ultra low-cost phones sales declining.

So, companies like Apple and Samsung focusing of the high-tier smartphones were the ones which registered the best performances, while Nokia, whose strategy was to have a large portfolio of products to address every segment of the market, started to increasingly lose its power.

Nokia has been then forced to cut jobs and move its manufacturing activities in Asia, closing its factories in Finland, to face the continuous losses, which reached the alarming amount of €1.3 billion in the first quarter of 2012. The possibility of a Microsoft takeover was then becoming every day more real, and it culminated in the effective acquisition of Nokia mobile phone business by Microsoft in September 2013, for € 5.44 billion.

At the end of 2013, Android and iOS maintained their leadership in the mobile phone market. They accounted for 93.8% of all smartphone shipments for the year, with Samsung and Apple being the biggest companies in the market.

Smartphone market growth has been strong for all 2013, but this growth is going to slow down in the following years. OEMs are still focused on high-price high-margin smartphones like the Galaxy Note 3 and iPhone 5S, but the consumer demand is increasing for low-price devices. Samsung has sustained its market lead thanks to the variety of the offering of its Galaxy smartphone, like the Galaxy S4 Mini which is a cheaper variant of the Galaxy S4.

Nokia led all Windows Phone vendors with its 89.3% market share, thanks to its portfolio comprised of both entry-level and high-price smartphones. But whether or not Microsoft's recent acquisition of Nokia will prove to enough to bring back to glory the old mobile phone giant is yet to be seen.

## **CHAPTER 5: DRIVERS OF NOKIA'S SUCCESS AND FAILURE**

During the years, Nokia has changed its business model to face the types of demand of a given period. This attitude to innovate both the technology adopted for its mobile phones and its own business model made possible for Nokia to become the world's greatest OEM.

But why then Nokia has lost its place as the leader in the mobile phone market? Because it failed to do what has greatly done in the past: innovate. It essentially failed to adapt to the new challenge that Apple brought into the mobile phone market with the introduction of smartphones.

This is similar to the downfall of Motorola, the first biggest mobile phone manufacturer in the history: it kept doing what it did best, producing devices which were becoming obsolete (1G phones in the case of Motorola, feature phones in the case of Nokia), and it has been slow to react to the increasing demand for newer, better mobile phones (2G phones for Motorola, smartphones for Nokia).

In this chapter, we will see how Nokia has been able to craft its business model in order to become the leader of an ever-changing market like the mobile phone one, and the reasons behind its recent decline.

## 5.1 Drivers of Success

One of the successful moves made by Nokia has been the decision to focus its business activities in the mobile telecommunications sector.

During the 1980s, Nokia has been an highly diversified corporation, which was composed by various business units like rubber, paper, cables, TV's, telecom networks and mobile phones, created mainly through mergers and acquisitions (M&A).

Nokia relied heavily on M&As as part of an aggressive internationalization strategy, and this allowed it also to acquire the most various competencies related to different markets.

Of all these competencies, though, the ones that were related to mobile telecommunications proved to be the most fruitful, and by the mid 1990s Nokia started to divest of all the other businesses units other than the two related to the telecommunications product area, Nokia Mobile Phones and Nokia Networks.

Nokia strategy was to heavy focus on technological innovation—and commercialization of the corporation's own and others' technological innovation.

To make this possible, Nokia decided to rely almost exclusively on strategic alliances to obtain required externally available capabilities, instead of M&As. In this way, it could maintain the focus of the company on the mobile phone market, while strengthening its core capabilities

When deciding whether to collaborate or not, Nokia had to consider if it had the competencies to produce the technology required for their products by itself and in a rapid way. In fact, speed was crucial in such a fast evolving market like the mobile phone one, and so, to be competitive, it preferred to outsource the production of the required components to other firms, which could develop these product or service rapidly enough. Some examples are network elements, provided by network operators, and complementary products, such as integrated circuits, which Nokia prefers to purchase from other companies rather than produce them itself.

What Nokia decided to work on directly were its core competencies, which represent the main strength of a business. These important activities were research and development, mobile phone production, product design and marketing.

What's interesting is that the production of devices was carried out in high-wage countries like Finland, United States and Germany. This decision was taken because mobile phones were considered core technology by Nokia, and so it deemed necessary to employ highly skilled labor force in order to produce them. This shows that the company was more concerned about quality rather than the cost of labor, which it could have reduced by outsourcing production in low-wage countries like China, South America or Eastern Europe.

Another reason for Nokia to decide to collaborate with other companies was the possibility to enter in new geographical areas. Collaboration for market access has been

essential for entering the mobile phone market in countries like China, Brazil and Australia. To avoid the restrictions in market access imposed by the governments of these nations, Nokia had to nationalize their production facilities abroad, thus delegating part of the production process to a local manufacturer or allowing a local company to sell the products on behalf of Nokia. This type of collaboration started to become less important once Nokia became a strong global company.

What has been and is still relevant for the success of the Finnish OEM is collaboration for developing innovative elements for the mobile phone market, in the form of innovative features and services.

One of the most important innovation brought into this market has been the introduction of mobile operating systems, which started the process of “technological convergence” and the rise of smartphones.

In 1998, to face the coming convergence of mobile phones and the Internet, Nokia decided to join forces with the other two biggest OEMs at that time, Ericsson and Motorola, and Psion, a software developer. They formed a major joint venture, Symbian Ltd., with the aim to develop a mobile operating system for smartphones, the evolution of feature phones. This mobile OS was called Symbian, and it was freely licensed to a wide range of OEMs.

The strategy that Nokia decided to employ was to create a common standard for smartphone, with the intent to eliminate platform competition that could arise and make so that its dominance could not be threatened by a standards change in which it wasn't



involved directly. The decision to make it open-source was taken to nullify potential threats which could erode its profits derived from the selling of handhels and base stations.

Once the Symbian OS started to be adopted by OEMs, Nokia immediately became the best seller of Symbian mobile phones, accounting for more than 80% of all the sales related to this kind of devices and the majority of all smartphone sales until 2008. Nokia has been swift to exploit the opportunities created by the technological convergence, and this allowed it to maintain its leadership even after facing changing market conditions.

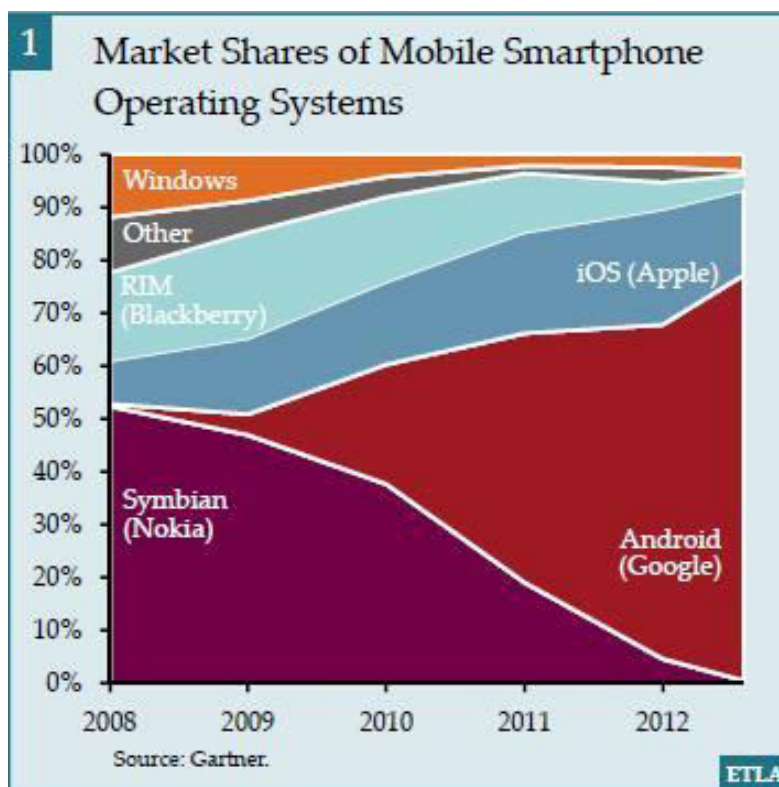
But then, what actually went wrong after 14 years of dominance of the mobile phone market?

## **5.2 Drivers of Failure**

In 2007, Nokia was still the leader among the original equipment manufacturers, but it started to lose its market power ever since. The main threat has been represented by the rapid convergence of digital communications, information systems, consumer electronics, software and other digital content. This process is called “digital convergence”, and it moved the locus of value creation to the Internet. This time, Nokia hasn’t been able to adapt in time, and it started to face problems in dealing with the new competition.

The main competitors now were Apple, with its iOS, and Google, with its Android OS. They started to gain more market shares year after year, while Nokia was trying to find a way to better react.

At first, it decided to collaborate with Intel to develop a new mobile OS to replace the now obsolete Symbian, called Meego. However, in 2011, Nokia decided to change strategy and rather adopt another OS, the Windows Phone 7 developed by Microsoft. This has been an unexpected decision, as Nokia has been proven successful in the development and adoption of its own operating systems before, and also because Windows Phone 7 OS was lagging behind the iOS and Android.



Source: Ali-Yrkkö et al. (2013)

The main problem is that Nokia kept using its Symbian OS for too long, making also slow progress in developing its successor, MeeGo, despite the high expenditures in R&D dedicated to it. Shortly after his arrival at Nokia, CEO Stephen Elop decided to change strategy, abandoning the MeeGo project and adopting the mobile operating system produced by Microsoft, in order to start rapidly to compete with Apple and Samsung by delivering a new line of smartphones. As the company was spending too much money without reaching any fruitful result, the new CEO had to opt for the least-worse strategy, which has proved not to be successful.

As the sales continued to be unsatisfying, Nokia had to announce thousands of job cuts and huge reductions in costs, with negative consequences especially for R&D.

Losing faith in the Windows Phone OS strategy, and starting to run out of money, Nokia decided to sell its business to Microsoft. Thanks to this decision, the period of losses came to an end for Nokia, which could be able to obtain more than € 5 billion. Now that it has the money to do so, it can try to employ new strategies, like engaging in new businesses via acquisitions or in-house development.

The high expenditures and low profits made Nokia start questioning itself whether high-quality manufacturing was still a strength or just a commodity. In fact, its main competitors, Apple and Google, rely on outsourcing the manufacturing in order to reduce costs, as they don't consider it as a core competency in their business model. They focus on software, rather than hardware, and this seems to pay out in this new form of the mobile phone market.

## **CHAPTER 6: CONCLUSIONS**

In order to be successful, a firm must employ the right business model according to the opportunities and challenges it faces in the market. It is essential to understand that the firm's ability to innovate its business model is core for allowing it to be competitive and to possibly be the best among all the other players. This is particularly true for a fast-evolving market like the mobile phone one.

Nokia has been one of the most successful company because it has been able to readily understand the opportunities presented by the mobile phone market at the moment of its birth, and managed, thanks to the decision to focus exclusively on mobile phones, the collaboration with other firms and continuous innovations (in strategy, device features and services), to become the biggest OEM for 14 years straight.

Problems emerge when things start to get taken for granted, when the success of a firm make it underestimate the potential threat arising from changes in demand or new competition. This happened first with Motorola, the first mobile phone giant in history, with the evolution of first generation (1G) phones into second generation (2G) phones, and then to Nokia, with the appearance of smartphones in the landscape of the mobile phone market which caught Nokia unprepared, and allowed companies like Apple and Google to thrive, at the expense of the Finnish OEM.

The mobile phone market has seen two major revolutions: “technological convergence” and “digital convergence”. The first kind of convergence established that the hardware (i.e. product features) was the locus of value creation, while the second moved it to software (e.g. operating systems).

Nokia has been successful because it dealt directly with its core competencies, not relying to outsourcing for processes like manufacturing, a decision that allowed Nokia to deliver high value creation by producing high-quality devices.

When it decided not to employ its own new OS, MeeGo, and instead to rely on the product of another company, Microsoft, precisely the Windows Phone OS, Nokia didn't exploit the source of its success anymore, and the move has resulted in a disaster, with the final acquisition of the company by Microsoft in order not to be strangled by debts and go bankrupt.

In order to become again one of the biggest players in the mobile phone market, Nokia needs to start treating the operating system as a core competency of the company, and develop its own OS to use for the new smartphones which will produce from now on. This is not an easy task, as Apple's iOS and Google's Android now have the highest number of smartphone applications, but Nokia can't rely anymore on the production of superior hardware, so it has to start treating manufacturing as a non-core competency and focus on software development as a core activity, the most important in the current landscape.

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