New Trends in Mobile Technology Leadership

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Abstract: *The mobile device market proved one of the most dynamic, with the leader in intelligent phones changing at least four times during the last decade. At least one important acquisition was registered during 2013 (when Microsoft bought Nokia's mobile phone division) and this event is slated to induce major shifts within the structure of this market. With this story we aim to provide information related to trends foreseen for this market.*

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1. Introduction

Leadership and innovation stand as critical elements for the development of a company acting within the mobility area. Nokia was the first undisputed leader in the domain, once it had launched first smartphones (the now famous Nokia Communicator) and the first OS for them (Symbian OS, a Linux-originated operating system). Later on, Research in Motion (BlackBerry) became the smartphone leader, by means of design innovations (the famous QWERTY keyboard). At the same time, BlackBerry became the first vendor to supply an efficient e-mail solution for smartphones. Soon enough, these two first pioneers were succeeded by Apple's iPhone, the device that became leader by means of Touch technology, innovative design and exquisitely efficient marketing campaigns. Subsequently, when Google launched Android technology, Samsung began its own smartphones development process and soon replaced Apple as leader of the market, with an impressive portfolio of mobile devices on offer.

According to both IDC and Gartner, the mobile devices manufacturer market is currently dominated by Samsung. According to researches made by the two market research companies, Nokia currently holds the third position (more details are available within the "Mobile phone manufacturers market" below table).

2. Literature review

It is common knowledge that the average lifetime of technology products continues to shrink. High tech companies face the constant need to innovate to stay competitive. The race to market has intensified, and a company's ability to consistently produce profitable innovation will separate the winners from the followers in this competitive market environment.

Schumpeterian competition as a process of innovation and selection is increasingly viewed as the key to achieving sustained aggregate economic growth, by screening out the least innovative firms and promoting the most agile ones (Caves, 1998). With regard to high tech companies, where innovation is understood more directly, for example, in terms of R&D investments or new product innovation, a more complex pattern emerges. The timing of innovation (Christensen, Suarez, and Utterback, 1998), commercial strategy and relatedness among business lines (Mitchell, 1991; Willard and Cooper, 1985) have a strong influence on the duration of new companies' leadership in one field. On the whole, the idea common to all these contributions is that innovative companies could grow faster, be more profitable and ultimately survive for longer, but not for ever. A maximum of ten years has been deducted by some studies. Only one in ten companies is able to sustain a steady and profitable growth for several consecutive years (Christensen, 2003). Only 13% from the 1854 companies analyzed by Zook and Allen proved to grow significantly and consistently more than ten years in a row.

The pace of competition will only accelerate, and the success depends on identifying the right opportunities and capitalizing on them through superior execution.

Disruptive innovation, as introduced by Christensen, describes a process by which a product or service takes root initially in simple applications at the bottom of a market and then relentlessly moves up market,

eventually displacing established competitors. By launching the mobile phones, telecommunications companies surpassed classic phone producers. Years later, launching the intelligent phones disrupted the simple mobile telephones.

Nowadays companies know they need growth to survive, but innovation is not easy (Christensen & co, 2003). Managers know innovation is the ticket to successful growth. When companies keep improving their existing products and services to meet their best customers' needs, they eventually run into the "innovator's dilemma." By doing everything right, they create opportunities for new companies to take their markets away. Established companies historically have struggled when trying to create new markets. Success seems fleeting and unpredictable.

Companies march along a performance trajectory by introducing successive sustaining innovations—first to remain competitive in the short term. But, firms innovate faster than our lives change to adopt those innovations, creating opportunities for disruptive innovations (Christensen, 1997). Although sustaining innovations move firms along the traditional performance trajectory, disruptive ones establish an entirely new performance trajectory.

Technology-driven segments such as semiconductor, telecom, consumer electronics, life sciences, original design manufacturers, and hardware and software providers face growing challenges. They will need to adapt to fast-changing markets, rethink processes and capabilities, and leverage suppliers and partners to become more productive and competitive on a global basis. In most cases they will need to look beyond the four walls of their companies for innovative ideas and ways of doing business.

The industry leaders combine customer and industry insight with innovation and world-class execution. This is the study-case this paper is going to present in the following. The leader of the market – whatever would be Microsoft, Apple, Samsung, need to manage innovation, optimize their portfolio, and launch new products and services that broaden and deepen customer relationships, at the best moment.

These companies need to focus on strategic business and technology decision-making including how to: leverage intellectual assets, create integrated supply chains, propose innovative growth strategies, effectively manage product development, and optimize the value of products and services throughout their lifecycle. Sometimes they are successful in doing that, sometimes they are overlapped by their competitors.

3. Companies presentations and history

Apple

Apple is an American multinational corporation headquartered in Cupertino, California, that designs, develops, and sells consumer electronics, computer software and personal computers. Its best-known hardware products are the Mac line of computers, the iPod media player, the iPhone smartphone, and the iPad tablet computer. Its consumer software includes the OS X and iOS operating systems, the iTunes media browser, the Safari web browser, and the iLife and iWork creativity and productivity suites.

Apple was founded by Steve Jobs, Steve Wozniak, and Ronald Wayne on April 1,

1976 to develop and sell personal computers. Fortune magazine named Apple the most admired company in the United States in 2008, and in the world from 2008 to 2012. Apple is the largest publicly traded corporation in the world by market capitalization, with an estimated market capitalization of $446 billion by January, 2014. As of September 29, 2012, the company had 72,800 permanent full-time employees and 3,300 temporary full-time employees worldwide. Its worldwide annual revenue in 2013 reached $170 billion. Apple achieved widespread success with its iPhone, iPod Touch and iPad products, which introduced innovations in mobile phones, portable music players and personal computers respectively. In addition, the implementation of a store for the purchase of software applications represented a new business model. Touch screens had been invented and seen in mobile devices before, but Apple was the first to achieve mass market adoption of such a user interface that included particular pre-programmed touch gestures.

Samsung

Samsung Electronics Co., Ltd is a South Korean multinational electronics company. It is the flagship subsidiary of the Samsung Group, amounting to 70% of the group's revenue in 2012, and has been the world's largest information technology company by revenues since 2009. Samsung Electronics has assembly plants and sales networks in 80 countries and employs around 370,000 people. Samsung has long been a major manufacturer of electronic components such as lithium-ion batteries, semiconductors, chips, flash memory and hard drive devices for clients such as Apple, Sony, HTC and Nokia. In recent years, the company has diversified

into consumer electronics. The company is generally regarded as pioneering the phablet market through the Samsung Galaxy Note family of devices.

Samsung has been the world's largest maker of LCD panels since 2002, the world's largest television manufacturer since 2006.

Nokia

Nokia is a Finnish communications and information technology multinational corporation that is headquartered in Espoo, Finland. The company provides Internet services, including applications, games, music, media and messaging services, including free-of-charge digital map information and navigation services delivered through its wholly owned subsidiary. Nokia provides also telecommunications network equipment and services. As of 2013, Nokia employed 90,000 people across 120 countries, conducts sales in more than 150 countries and reported annual revenues of around €12.7 billion. In September 2013, Nokia sold what was once the world's largest vendor of mobile phones to Microsoft as part of an overall deal totaling €5.44 billion (US$7.17 billion). Stephen Elop, Nokia's former CEO, and several other executives joined the new Microsoft Mobile subsidiary of Microsoft as part of the deal, which closed on 25 April 2014.

Nokia had been producing commercial and some military mobile radio communications technology since the 1960s. In 1987, Nokia introduced one of the world's first handheld phones. Nokia was a key developer of GSM (Global System for Mobile Communications), the second-generation mobile technology that could carry data as well as voice traffic. Probably the most important strategic change in Nokia's history

was made in 1992, however, when took the crucial strategic decision to concentrate solely on telecommunications. The worldwide popularity of mobile telephones, beyond even Nokia's most optimistic predictions, created a logistical crisis in the mid-1990s, prompting Nokia to overhaul its entire supply chain. By 1998, Nokia's focus on telecommunications and its early investment in GSM technologies had made the company the world's largest mobile phone manufacturer, a position it held until 2012. Between 1996 and 2001, Nokia's turnover increased almost fivefold from 6.5 billion euros to 31 billion euros. Logistics continued to be a major advantages over rivals, along with greater economies of scale. Nokia launched its Nokia 1100 handset in 2003, this still being the best-selling mobile phone of all time.

Microsoft

Microsoft Corporation is an American multinational corporation headquartered in Redmond, Washington, that develops, manufactures, licenses, supports and sells computer software, consumer electronics and personal computers and services. Its best known software products are the Microsoft Windows line of operating systems, Microsoft Office suite, and Internet Explorer web browser. Its flagship hardware products are Xbox game console and the Microsoft Surface series of tablets. It is one of the world's most valuable companies. Microsoft was founded by Bill Gates and Paul Allen on April 4, 1975 to develop and sell BASIC interpreters for Altair 8800. It rose to dominate the personal computer operating system market with MS-DOS in the mid-1980s, followed by the Microsoft Windows. Since the 1990s, it has increasingly diversified from the operating system market

and has made a number of corporate acquisitions. In May 2011, Microsoft acquired Skype Technologies for $8.5 billion in its largest acquisition to date. As of 2013, Microsoft is market dominant in both the IBM PC-compatible operating system and office software suite markets (the latter with Microsoft Office). The company also produces a wide range of other software for desktops and servers, and is active in areas including Internet search (with Bing), the video game industry (with the Xbox, Xbox 360 and Xbox One consoles), the digital services market (through MSN), and mobile phones (via the Windows Phone OS). In June 2012, Microsoft entered the personal computer production market for the first time, with the launch of the Microsoft Surface, a line of tablet computers.

With the acquisition of Nokia's devices and services division, the company will enter the smartphone market.

BlackBerry (formerly known as Research In Motion - RIM)

BlackBerry Limited, formerly known as Research In Motion Limited (RIM), is a Canadian telecommunication and wireless equipment company best known as the developer of the BlackBerry brand of smartphones and tablets. The company is headquartered in Waterloo, Ontario, Canada. It was founded by Mike Lazaridis, who served as its co-CEO along with Jim Balsillie until January 22, 2012. Originally a dominant innovative company in the smartphone market for business and government usage, with 43% US market share in 2010, the company has in recent years declined precipitously, in part because of intense competition from Apple's iPhone and Google's Android brands. Due to such competition, the company's share

was dramatically reduced. The majority of BlackBerry's remaining value lies in its patent portfolio, which has been valued at between US$2 billion and $3 billion.

The primary competitors of the BlackBerry are smartphones running Android and the Apple iPhone, with Microsoft's Windows Phone platform emerging as a more recent competitor. For a number of years, the BlackBerry was the leading smartphone in many markets, particularly the United States. The arrival of the Apple iPhone and later Google's Android platform caused a slowdown in BlackBerry growth and a decline in sales in some markets, most notably the United States. When the Apple iPhone was first introduced in 2007, it generated substantial media attention, with numerous media outlets calling it a "BlackBerry Killer". BlackBerry then began to decline.

4. Market trends and changes for mobile devices

Operating systems for the mobile devices

The operating system for mobile device market is currently dominated by Android, with a market share around 70 percent, according to market studies issued by IDC and Canalys. In terms of operating systems market predictions for 2017, both IDC and Canalys foresee slight decreases in market shares for Android and iOS. According to IDC, Windows market share will triple within the next four years (from 3.9 percent in 2013 to 10.2 percent in 2017). Canalys foresees an even greater increase, with details published in the aforementioned box.

Major shifts within the next two years are foreseen in terms of the market structure for mobile devices. According to Canalys, by 2016 shipments of classic mobile phones will decrease by 17 percent, while those involving smartphones will increase by 17.9 percent. Corresponding increases for tablets will go beyond 35 percent, while laptop shipments will decrease by some 6 percent. More details are available with the "Market structure for mobile devices" box.

Technological advantages for Microsoft

For Microsoft, technological advantages are related both to software designs achieved by Nokia in recent years (many of them in partnership with Microsoft before the acquisition process ended), and to facilities granted by Window 8 and Windows Phone 8.

Nokia Here (previously known as Ovi Maps and Nokia Maps) is currently one of the best geographical localisation services; it is available on Nokia mobile devices and is used by important global names in industry (like BMW, for car GPS systems, Garmin, also for GPS range of devices, and so on). Localisation services are extremely important for mobile devices, as such services are used by the bulk of software applications. Quality services in this field stand as a guarantee for the optimum functioning of such devices.

Microsoft Office represents an important asset of the company, as the Office Suite of applications is part of Windows Phone 8 devices. Currently, Office is by far the most used office applications suite; consequently, its integration with mobile devices may represent a guarantee of clients rerouting their preferences in this area. Voice over IP (VoIP) services represents another Microsoft advantage, as they will undergo an integration process on Windows operated mobile devices

once Microsoft acquired the widest spread global service of the kind since it bought Skype.

Cloud computing know-how that Microsoft achieved so far is also very important. By means of integrating One Drive service (previously known as SkyDrive) with Office 365, important advantages may be offered for large ranges of users.

Microsoft will also add important functionalities within the entertainment area. Xbox Live is already a mature service and smartphones have lately succeeded in capturing important shares on the portable console games market. Many game manufacturers (among them the leader, Electronic Arts) lately bought smaller companies specialised in games for mobile devices (on Android, iPhone, Windows Phone) and market share increases in this area have been consistent.

Price strategy

By selling terminals in different price ranges, Samsung proved it was able to become a leader of the mobile communications market. Its product portfolio included smartphones that begin with a price tag of under EUR 100 (e.g. Galaxy Young) and end with their + EUR 500 star, Samsung Galaxy S5). When compared to this, Apple and BlackBerry both had market strategies exclusively targeted toward the high end area of smartphones.

Nokia's strategy in terms of mobile devices range is similar to Samsung. The product range begins with Nokia Lumia 520, a roughly EUR 100 device and ends with Lumia 920, 925 and 1020 models.

The Application Development Area

The Windows Phone app store currently holds the smallest number of applications when compared to its main competitors. By the end of 2013, this number went beyond the 200k threshold. At the same time, iPhone applications exceeded the 1 million level, while the number of Android applications went beyond 1.2 million by October last year. However, Microsoft benefits from an important advantage in terms of applications development. The company currently holds one of the most complete SDKs (Software Development Kit) for mobile applications. Windows Phone 8 facilities of the SDK are completed by an integrated application development environment (IDE) called Visual Studio. It is an environment that decreases the time needed for the development of such applications. Visual Studio is available as free software for programmers, with its Visual Studio Express version for Windows Phone.

Microsoft added friendly environments for application development to the facilities aimed for programmers. Project Siena stands as an example of integrated development environment, which is dedicated to non-programming experts, as the whole application development process is visually achieved.

User experience

The user experience is the final test for all the mobile devices. This was, at their time, the reason for the phenomenal success of Blackberry, and then Apple, and now Microsoft Nokia Lumia: the new, excellent, exquisite customer experience

5. Conclusions/Discussions and implications

It is hard to exactly foresee how Nokia and Windows OS will evolve within mobile devices area. Nokia and BlackBerry recent

histories showed leader changes may any-time be possible. Nokia made some strategic errors not only in terms of innovation in mobility, but also in terms of operations. The best known example is the mobile devices factory in Jucu, Cluj County, where Nokia Clasic devices for Africa and Asia were slated

for manufacturing. The manufacturing facility stayed open for less than three years and a half, as it subsequently and quite naturally has been moved to Asia. The rightful strategy and a corresponding innovating process may get Nokia a market leader position again.

Top 10 mobile phone manufacturers in 2013 (millions of units) according to Gartner					Top five mobile phone vendors, shipments, and market share in 2013 (millions of units), according to IDC				
Vendor	2013 sales	2013 market share	2012 sales	2012 market share	Vendor	2013 sales	2013 market share	2012 sales	2012 market share
S a m - sung	444.4	24.6%	384.6	22.0%	S a m - sung	446.7	24.5%	409.4	23.6%
Nokia	250.8	13.9%	333.9	19.1%	Nokia	251.0	13.8%	335.6	19.3%
Apple	150.8	8.3%	130.1	7.5%	Apple	153.4	8.4%	135.9	7.8%
LG	69.0	3.8%	58.0	3.3%	LG	70.0	3.8%	56.6	3.3%
ZTE	59.9	3.3%	67.3	3.9%	Huawei	55.5	3.0%	47.5	2.7%
Huawei	53.3	2.9%	47.3	2.7%					
TCL	49.5	2.7%	37.2	2.1%					
Lenovo	45.3	2.5%	28.2	1.6%					
Sony	37.6	2.1%	31.4	1.8%					
Yulong	32.6	1.8%	18.6	1.1%					
Others	613.7	34.0%	609.6	34.9%	Others	845.2	46.4%	753.1	43.3%
TOTAL	1,807.0	100%	1,746.2	100%	TOTAL	1,821.8	100%	1738.1	100%
Source: Gartner (Feb 2014)					Source: IDC (Jan 2014)				

Worldwide device shipments by segment (millions of units) according to Gartner Gartner				Smart connected device market by product category (shipments in millions), according to IDC					
Type of device	2013 sales	2014 sales	2015 sales	Type of device	2013 sales	2013 share	2017 sales	2017 share
PCs desktop / laptop	296.1	276.7	263.0	Desktop PC	134.4	8.6%	123.1	5%
Tablets (ultra-mobile)	195.4	270.7	349.1	Portable PC	180.9	11.6%	196.6	8%
Mobile phones	1,807.0	1,895.1	1,952.9	Tablet	227.3	14.6%	406.8	16.5%
Other ultramobiles (hybrid and clamshell)	21.1	37.2	62.0	Smartphone	1,013.2	65.1%	1,733.9	70.5%
Total	2,319.6	2,479.8	2,627.0	Total	1,556	100%	2,460.5	100%
Source: Gartner (March 2014)				Source: IDC (Sept 2013)				

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