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Mobile Application as a Business Strategy



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Mobile Application As A Business Strategy

The mobile phone market has gone through a revolution with the increase of power of the devices and the popularization of smartphones. Similarly to the change operated into the IT business more than two decades ago, the mobile phone market switched from hardware oriented to software oriented. The redistribution of powers over the market has generated new opportunities and mobile applications have become a major stake for the market's actors.

The purpose of this research is to assess the validity of the opportunity seen in mobile applications and demonstrate how this market can support a growth strategy. To do so, an extend amount of literature of various nature was reviewed and an interview was conducted. To ensure the legitimacy of the findings, it explores the idea of strategy as seen by some of the pioneers of business strategy as well as by expert firms in the domain. The mobile phone market evolution is also traced in order to support the relevance of the mobile application market. The mobile application market is detailed and particular attention is given to the key points differentiating this market from any other.

Beside confirming the potential of the mobile application market to support growth, the findings reveal the strong influence of the market's characteristics on the strategic decision making. The popularity of the target operating system and the rules of its associated application store cannot be neglected. Deciding on a revenue model or pricing a mobile application are complex tasks which cannot be avoided. The success of a strategy elaborated around the release of a mobile application is highly based on the attention given to the details of this market.

KEYWORDS:

Business Strategy, Mobile Application, Smartphone

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Finally, I want to thank Nata. Thank you for being there for me and reminding me that life can be as simple as a smile.

To my son:

Tes différentes origines sont ta force.

Ta famille s'étend au delà des frontières,

Là où la chaleur du soleil reflète celle du cœur.

Ici, là-bas ou là-haut, nous t'attendrons,

Toujours.

Ne te contente pas d'opinions fragiles et biaisées.

Cherche les faits, solides et avérés.

Car peu importe ce qu'ils diront,

Il y a une vérité qui ne peut être niée;

Ton père t'aime,

Inconditionnellement.

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1 Glossary

3G

This term describes the protocols used for operating third generation digital cellular networks.

Cross platform

This term describes a piece of software intended to run in various environments. Often, IT environments are not compatible between each other. A cross platform application is ensured by its developer to run in multiple environments.

Ecosystem

Describes all interacting parts of a closed technological environment. An operating system, its editor, the applications developed for it, the developers and the users are all part of the same ecosystem.

Firmware

Piece of low level software hosted in persistent memory of a device. As it provides the lowest level of control over the hardware, it is necessary for the firmware to be maintained even if the device was running out of battery.

GSM

Created by the European Telecommunications Standards Institute, the Global System for Mobile communication covers the protocols used for operating second generation digital cellular networks.

Hardware

Describes the material composing a computer.

HTML5

HTML is a markup language used to structure the content served on the World Wide Web. In its 5th version, the language acquired features which allow to present web based applications as native applications. It trades some of the performance for better cross platform abilities.

Kernel

Low level piece of software which translates application instructions into data processing instructions to be treated by the hardware. It is considered the core of an operating system.

MMS

The Multimedia Messaging Service is a mobile phone data transmission standard which covers how to send multimedia content from a phone to another. It is based on the SMS technology and extends it.

Native application

Native applications are applications which are developed using a specific programming language adapted to the platform on which they will run. Native Android applications are developed in Java while iOS ones are developed in Objective C. Native applications offer a tighter integration with the operating system and better performances.

Open Source Software

Piece of software of which the source code is made available to the users. The licence of such software allows the user to study, modify and distribute it further.

Operating System

It is a set of integrated pieces of software which manage a system's hardware and provide an interface to application in order to access the hardware resources.

PDA

Personal Digital Assistant. It usually takes the shape of a hand held device which allows to manage a calendar and access documents. Smart-phones will come from the evolution of the merge between PDA's and mobile phones.

Platform

It is a combination of a hardware framework and a software framework providing a base to run applications. It is a generic term to describe the complete environment of an application. When talking about an application, the target platform is the environment which will host the application.

Software

Is a non material part of a computer. It is a production of the mind in written form which allows for controlling the hardware part of computers.

WAP

Stands for Wireless Application Protocol. It is a technical standard in the mobile phone industry which allow for transferring information over a mobile wireless network. It was among the first technologies allowing for Internet access from a mobile phone.

2 Introduction

2.1 Background

For any business and or industry the quest for growth is necessary to prevent it from disappearing. The rise of information technologies has provided many businesses and industries with means to support this quest. Beside the tools, these technologies, an industry of their own, have opened a whole new world of possibilities to individuals, as much as to companies. The popularization of computers with Internet access has strongly supported the globalization trend. It changed the way many conceptualized business and trade as it brought foreign markets closer. It made it easier, sometimes even possible, for some entrepreneurs to meet success and become massive actors of the world economy.

During the past years, the modern world has been subjected to a similar technological revolution in the shape of the popularization of mobile phones. Through stages, these devices have literally changed the way we communicate with each others. Think about the time when someone, on his way to a meeting, could not warn of a delay caused by an accident. Now a simple call or even a text message is enough to bring flexibility into everyday life. The latest stage of this revolution was started in 2007 with the release of the iPhone. It pushed the industry in a whole new direction and at a very fast moving pace. From the moment the competition started to really put up a fight, prices have continuously dropped and so, we have seen the smartphones invading our homes. With them, new possibilities came. They brought new ways to communicate but as well completely new activities which were not possible to have before or were simply tied up to a computer with an Internet connection. These devices brought the full Internet experience into our pockets, on the go and with easy access, just like computers did when they entered our homes.

In many ways, this business sector is similar to the IT business. Both started as hardware oriented businesses where the best device, technically, would be the race winner. Then both markets have undergone a transformation, turning the attention away from the device and putting it on the possibilities of it. It is no longer about how good the device is, but about what the customer can do with it. This important change

transformed tremendously the shape of the mobile phone industry. The powers have switched hands over time and it is now a software oriented business. Looking back to the IT sector, after the same change in this sector, new businesses came to life taking full benefits of the new possibilities. Companies like Google, search engine, or Amazon, arguably the world's biggest book-store and not only, or eBay, based their business on IT despite their core activities being of a different area. They are leads when it comes to take advantage of new opportunities. Contemplating the success of these companies makes it easy to understand why there is such turmoil around the mobile phone business. It seems to follow closely on the path of the IT business. Furthermore, with mobile devices becoming more and more powerful, the difference between mobile phones and computers tends to become slimmer.

2.2 Purpose of the study

Despite mobile applications being a real trend at the time of writing, nearly no researches can be found in order to support strategic decisions for growth. The field is so new that very little academical writing can be found and it mostly concerns the technical details of mobile applications or solely revenue streams. This research is needed because it intends to cover a large spectrum of aspects of mobile applications as a business. With so, it intends to provide an overview of the mobile application creation process within a strategic decision framework.

The purpose of this study is to be a starting point for entrepreneurs, small or big companies, anyone who has heard of mobile applications and wonders if he could benefit from it. It aims at evaluating not only if there is such an opportunity in the mobile phone market as compared to the IT market but also to provide a preliminary guideline to how to support a growth strategy with a mobile application. Like all transversal fields of business, many classical activities are involved into creating a mobile application. Examples are activities like market analysis, project management or marketing. However there are differences and implications which are unique to this sector and are essential to avoid major risks.

Upon completing the reading of this research, members of top management of business structures should have a large strategic overview of the mobile application market. It should give them an idea of the effort and resources required to engage in such development and the appropriate points to be monitored.

2.3 Research questions

To fulfil its intended purpose, this research should indicate ways for a business to navigate into the mobile application market in order to achieve growth. The following questions should be answered along this problematic:

- What is strategy? Growth strategy?
- Is there really such an opportunity in the mobile phone market?
- Why mobile applications? How can they support business strategy?
- Are there risks or differences with the regular Internet based market?

2.4 Research methodology

For this research work I chose to have an hybrid approach in order to have the most reliable results despite the particularities of the field. As a matter of fact, the mobile application market is fairly new and there is very little amount of academical writing to describe it. Besides, being tightly linked to the high-tech world, most of the information concerning this market is delivered via related means, like Internet publications. We have already established that the goal of the research is not to make a complete list of all ways to benefit from mobile applications, this would be impossible. It rather aims at presenting the main ways to do so, by matching market situations and real life case studies.

The research will be mainly based on literature reviews. The literature will cover all topics of the research. It is necessary to ensure a good understanding of the subjects which will be approached and explored. To gain a more precise understanding of what strategy is, the literature for this part will be coming from various authors. From well-known pioneers, to successful business advisor firms, we will gain an actual view of what is business strategy.

The mobile phone market will be detailed based on documentation published by the business actors which made it. I will trace its evolution in order to reveal the powers behind its expansion. I will as well use the work of passionate professionals and press publishers who followed the evolution of this market from the beginning.

The mobile application market will be described using documentation from the makers, the users and the experts who are involved in its evolution. This market affects people all around the world and that is why the use of international sources will be a strength. Additionally, data from an interview of a Senior Development Manager of a local firm will be used to consolidate the findings.

Through this process of investigation, analysis and assessment I believe we will see an accurate representation of the challenges presented by the mobile application market.

2.5 Research limitations

The areas approached by this research work are literally immense and there is an obvious need to limit the scope of the research. Areas like business strategy or software project management are by themselves complete expertize domains. For the needs of this research, I will narrow the notion of strategy to its growth purpose. The research will demonstrate that this choice is relevant as for many authors, it is one of the main purpose of strategy.

As well, despite mentioning some of the software engineering aspect of the mobile application creation process, the research will stay focus on the strategical decision making aspect. It is understood that details of the software engineering process, notoriously the cost of development, can greatly affect the decision making process. Technical details of mobile applications present a similar case. Beyond the choice of the target platform for the application, the choice of technology to be used, HTML5 or native for example, can greatly affect the overall process. But there again, debating which technology is more promising for the future or is more appropriate for certain usage is not the goal of this research work. These aspects are common to all software development processes and despite their relevance, they are part of a different area of expertize and out of the scope of this research.

I will as well restrict the research to mobile phones as opposed to mobile devices in the broad meaning of the term. Mobile devices like tablets can bring some variations into the trends which will be described here. The fact that, so far, most tablets sold are not permanently connected to the Internet changes the way applications are to be considered. However, their influence stays relatively marginal considering the massive majority of mobile phones on the market. Therefore any notion of mobile devices in the subsequent document must be understood as mobile phones.

A more abstract limitation of the research is set by the nature of the market itself. As it will be explained in the research, this is a very fast moving market with new trends and new usages appearing at a rapid pace. As a matter of fact, trends have appeared during the time of writing of this research. I can mention a new marketing trend which consists in selling to other mobile application developers advertisement space and time within an application. Such trend, even if very interesting could not be taken in account. The need for limiting the scope is an obvious reason but as well any study of such early trend would not provide any reliable results. Instead, the research will focus on trends which have already been exploited sufficiently to assess their evolution.

3 Business Strategy

3.1 Strategy? Origin of the term and definition

The term “strategy” is a derivative from the Greek word “stratégia” which, around the year 1700, defined military generalship. It is believed that the exact term appeared first in the year 1810.(Reference Dictionary, Merriam-Webster.com.)

The definition of strategy has evolved through out the years but still matching quite closely its original military meaning. Nowadays, the term is used in various domains which taint its meaning with their own particularities while sharing a common background. The primary meaning of strategy as define by Merriam-Webster in 2013 is:

“The science and art of employing the political, economic, psychological, and military forces of a nation or group of nations to afford the maximum support to adopted policies in peace or war. The science and art of military command exercised to meet the enemy in combat under advantageous conditions. ”

This definition clearly oriented towards geopolitical issues is supported by more basic understandings which are defined by BusinessDictionary.com as:

“1. A method or plan chosen to bring about a desired future, such as achievement of a goal or solution to a problem.

2. The art and science of planning and marshalling resources for their most efficient and effective use.”

These definitions introduce the notions of plan and finite resources which are mostly key to any human problematic and which give all importance to the term. Regardless of the subject, human problematics almost always involve a goal and a finite amount of resources to reach it. We, indeed, live in a world of finite resources.

A strategy can then be understood as a high level plan to manage available resources in order to reach a defined goal.

This definition is the extracted essence of what strategy is and could then easily be ported to the business context. As a matter of fact, even a very successful company can only have finite resources available to operate. In an ever changing world with sometimes unpredictable events, the challenges of maintaining a business can be as many goals to reach with the said resources.

3.2 What is a Business Strategy?

Many well-known writers have debated about the definition of strategy in a business context.

3.2.1 Definitions

George Steiner

George Steiner was one of the first writers to refer to a concept of business strategy. In his book entitled Strategic Planning published in 1979 and still considered as a reference in the subject, Steiner pointed to several definitions of business strategy, common at the time of writing. Some of these definitions were that strategy was top management's duty, referring goals and targets which are crucial to a company and consisting of the actions to achieve them. Steiner mentions Druker's definition of management's prime task which matches his own definition of strategic planning. Both agree that strategic planning is about setting goals in order for the decisions taken today to lead to these goals tomorrow.

Henry Mintzberg

In 1987, Henry Mintzberg postulated five most common ways in which people used strategy. They are commonly known as Mintzberg's 5 P's.

Mintzberg claimed that strategy could be, a plan. As such, it would be elaborated ahead of the actions it would apply to. The goals to reach, as well as the path of events to follow, would be carefully studied before anything happened. The plan could even be supported by a document detailing how to get from a situation A to a target situation B.

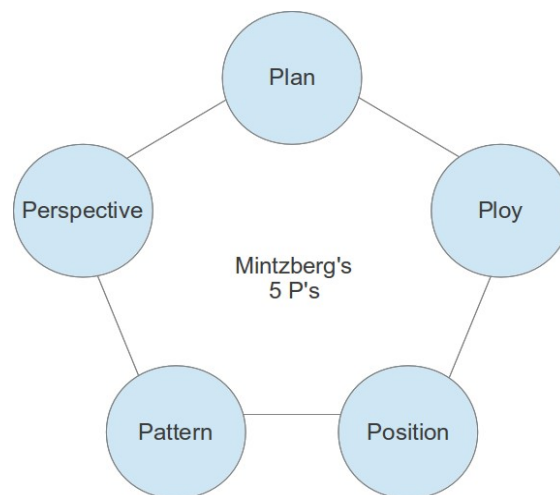


Illustration 1. Mintzberg's 5 P's

Strategy could also be a pattern of actions over time. Mintzberg explains that the repetition of actions over time becomes in itself a strategy. Like a presenter would always pay particular attention to the water supply during his meetings. After a while it enters his strategy for a successful presentation. The difference here with the plan is the intention. The effect of the action might not necessarily have been planned ahead, but it has become part of the strategy. Thus the fundamental characteristics of the two: a plan may not be implemented while a pattern might have not been foreseen.

Mintzberg went on and proposed that strategy could be a ploy. He saw that trying to get the best outcome of a situation, mainly facing competitors, by plotting to influence the environment could be part of strategy. Therefore a major retailing chain could maintain the rumours of it opening a large shop in an area, discouraging competitors from establishing in this area. A company could purchase patents which are needed by competitors to launch new innovative products. It could as well attack competitors based on patents, to slow them down in the release of their products.

Then strategy could be a position taken by a company, like serving exclusively a certain market range. It is illustrated by the occupation of an entire spot in the business environment which would shield a business from competition.

Finally, strategy could be a perspective, a high level direction for the business. This perspective reflects the way the business envisions the world around it. It sets the priorities, may them be efficiency, brand image or customer satisfaction. Thus, it conditions the company's actions and reactions to any event in its environment.

Mintzberg argues also that strategy is what appears over time as the primary plan gets confronted and adapted to the ever changing reality. In this evolution over time, the

pattern of decisions taken, driven by the original direction set for the business is what Mintzberg defines as emergent strategy. (1994.)

Michael Porter

In his Harvard Business Review article "What is Strategy" of November-December 1996, Michael Porter, writing about competitive strategy, promotes strategy as both a position and a plan. According to him, strategy is about differentiating the business from the competition. Gaining competitive advantage purely by operational effectiveness is only temporary. This is due to the easiness for competitors to copy new management best practices and get new technologies in use. The value for a business is not then about how much of the market it can cover, but at the opposite direction, how specialized it can get in a specific area, leaving no room for competition in this sector. The customer should be able to clearly identify the value brought by the company over the competition. The business should so choose a position and take part into activities which will support the choice of position. Porter suggests that strategic competitive advantage emerges from one of three sources.

First a company can head to serve few needs of many customers. This means having a small range of product categories used by many customers. In such case the company can develop an expertise regarding this offering which will be difficult to match.

A company can as well set its objectives as to serve a large set of needs but for a small range of customers. It is then the customer which becomes the expertise of the company. By focusing on serving a particular category of customers, the company optimizes its offering in coherent ways to bring satisfaction to these customers. It is possible for it to offer full service or full range of products for a particular usage.

Finally, a company can set to serve a broad range of needs of many customers, but in a market limited in size. The limiting factor is of course the size of the market which again allows the company to be consistent in offering adapted products and services. The market as to be carefully chosen and bounded in order to obtain a manageable and profitable niche.

In any case, Porter defends that the differentiation is the goal that any strategy should achieve in order to provide the company with a durable competitive advantage.

3.2.2 Why is it needed?

Direction

The reason why a strategy is needed by a business is deeply embedded within the definition of the term strategy and the very nature of a business. A business is an entity, representing people, involved in a transaction, leading to a satisfying outcome for all parts involved (Reference Dictionary, Merriam-Webster.com). As such, it is important to establish before hand the purpose of this interaction. For the selling part, the strategy responds to just that. It defines what is the purpose of the company. From there, it specifies more precisely the goals to be achieved and the ways to do so. In other words, this high level vision sets direction for a business. It documents the destination which was defined before starting the journey as well as the path to be taken. Without it, it would be nearly impossible for a business to recognize that it has reached its destination. The business would have nearly no meaning and could find itself paralyzed into inaction. If one doesn't know where he goes, how is he to get there?

Remark: The buying part can also be entering a transaction by following a strategy. Particularly in the case of business to business trade, the choice of a provider for a customer often follows a strategic plan.

Drift

But even with targets set, without a strategy detailing the steps to reach them, a business is in great danger to drift away from its objectives and become unprofitable. This organizational or strategic drift is made by relatively small changes which occur in the operational units of a company and which may steer it away from its original goals. The Illustration 2 exposes this phenomenon. It shows how in the first phase, a business incremental changes allow it to stay close to the environmental changes. In the second phase, the changes are not efficient enough for the business to stay in relation with the environment, it is the Strategic Drift. Business often enter a phase of flux, the third one, where changes are made with the intention to enhance the business's position but they are insufficient on the long run. At this stage, there are only two possible outcomes for the business. A deep transformational change can bring back the business on track, absent of this, the alternative is death. (Johnson, Scholes and Whittington, 1998.)

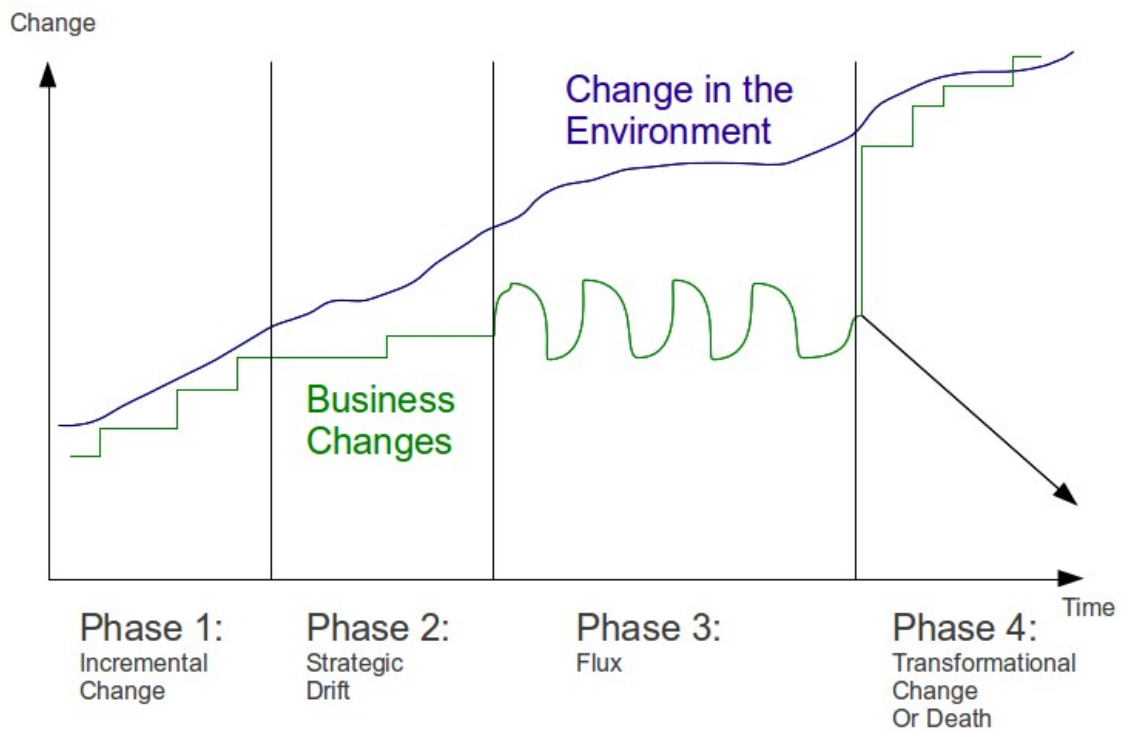


Illustration 2. Strategic Drift

These are common behaviours of professional units in rather large companies. Each professional unit is viewed by its management as running its own business. As a consequence, goals and processes are set to reach “local” level of excellence. But these goals and processes might not fit the overall strategy of the company. (Strategy Capstone.)

Another factor influencing and even creating this event is the ever changing context of a business. To remain competitive a business must constantly adapt to the fluctuations of its environment. However, each change, each adaptation represent a risk for mistakes and taking a path away from the profitable line of the business. Technological innovations for example can lead to tremendous changes into consumer habits. It is commonly agreed that the Internet revolutionized the way people used to purchase things and the Web 2.0 deepened the gap further. The mobile phone revolution seem on the way to do just the same. If the management of a company continues with obsolete habits in regards to such changes, the company is likely to drift away from its market. A company who suffered just that was Kodak, long time leader of its market. Despite witnessing the changes due to the arrival of digital cameras, George Fisher, then CEO, did not push for the implementation of a transition strategy. The company's

management kept arguing that the business would be saved by the same target, subject of the change.(Strategy Capstone.)

If there is not even a strategy to benchmark these changes against, it becomes nearly impossible to evaluate their impact until it is too late. By setting the main direction for the business, a strategy allows for measuring the effective direction taken.

Learning

This measurement becomes in turn one of the corner stone of the learning process inside the business. Originally, the purpose of all business tools and best practices is to reduce uncertainty and allow for more accurate planning of the future. The strategy represents the base line of this plan. Its effectiveness can so be measured and changes compared in terms of efficiency. Without a strategy, every action would basically be unrelated to the others and the outcome would be simply pure luck. It would be impossible to take conclusions out of the actions taken as it would be impossible to relate cause and effects. The patterns driving the market and crucial for good management, would be hidden under a sea of events which would be impossible to relate to specific preceding actions.

Even if we consider that each business is unique and best practices must always be adapted to each particular case, a business in its environment responds to some patterns. These can be identified and can help for proper decision making in the system composed of the business and its environment. Acquiring knowledge of the forces and the mechanics between them, in this system, will allow the business to navigate its way better. A clear define strategy is required to allow for this learning process.

3.2.3 Which stage of the Business life?

Early

Business strategy is in fact the basis of any business. Starting businesses have it expressed as a business plan. It is where the meaning of the business is defined. It describes its goals and the reasons why they are believed to be achievable. Along with the description of the ways to be taken to achieve the goals, these are the core components of a business plan. It is an important step for a starting business as it

forces the evaluation of the market and environment of the future business. Any team considering seriously to start a business should conduct such research in order to further ensure the viability of its project.

A business plan is often required to secure investments to start up a business. Many tools are available to support the content of such plan. A SWOT analysis will further describe the future business in its environment for example. It can as well be interesting to include a description of the background of the team attempting the project. (Entrepreneur, Smarta.)

These elements are essential to ensure that the business does not start with an obvious handicap which might lead inevitably to its end. It is normal for investors to want to assess that they are not investing in a project with a promise of failure.

All of these help to clarify the situation of the business to come and reduce risks by minimizing unknown factors before launching the business.

Ongoing

But strategic planning is also an ongoing task which needs to be conducted in cycles. Because the environment of business is in constant evolution, adjustments have to be made for the business to stay ahead of the competition. This means that it is not sufficient to design and implement a strategy. It needs to be designed, implemented but as well evaluated and the process needs to be repeated again.

This should be done as much as necessary. Each actions taken has to be aligned with the strategy of the company and the effects of this action have to be benchmarked against it. This is because the strategy which is effectively implemented and realized, called the emerging strategy, might be different from the one carefully crafted ahead, the planned strategy. (Balance Score Card Institute.)

It is then important to take in account the fact that the realized strategy might not serve the original purpose in the same fashion the planned one would have. The cycle of re-evaluation can be part of the implementation plan of the strategy but it can as well be dictated by unexpected events and significant changes in the environment.

Changing direction

Sometimes, the environment of a business changes so radically that the business suddenly becomes at risk to simply stop its activities and disappear. It is necessary for

a business in such situation to dramatically redesign its strategy. Failure to do so, might be equivalent to a death sentence. Once again Kodak, would be a great example of a failure to adapt to a massively changing market and was forced to exit this market for its survival. On the over hand, a company like IBM, faced with the switch of the IT market from a Hardware valued market to a Software valued market, could reorganize itself to focus on professional and service offerings. Despite being hit by the change, the company succeeded to remain a strong competitor. (Gerstner 2002.)

This transition has to be part of the strategy of the company to reinvent itself in the new environment described by the market. It is a specific case of the ongoing monitoring which should be operated on the regular strategy of a company. It indicates that a business should always know, at any point in time where it goes and why. The answers to these questions must always be clear to anyone involved into the management of a business.

3.2.4 Different levels of Strategy

The different level of strategies are defined to cover the levels of decisions encountered within an organization (Jim Riley 2012).

Corporate Strategy

This matches the first level of decision present in all companies. Members of top management are responsible for establishing this strategy. It is concerned with the overall purpose and scope of the business to meet stakeholder expectations. This is where the vision of the company is set. It answers the questions related to the identity of the organization and what it is meant to achieve. It is mostly based on this strategic level that investors are granting or not their trust. It is as well there, that they can use their influence to steer a business. This strategy acts to guide decision-making throughout the business. Corporate strategy is often stated explicitly in a "mission statement". (Bain & Company, Jim Riley 2012.)

The identity of the organization is further described in terms of values. These are often not monetary values but moral codes which will define the way the company will be driven. Some might emphasize the idea of fair business while others will promote respect for the value of work. This moral identity further distinguishes a business from its competition. (Deloitte.)

Business Unit Strategy

This strategy is closer to the tactics employed by the organization to compete in a specific market. It defines how the business is to implement the Corporate Strategy in this market. At this level, strategic decisions about choice of products are made. It defines how the company is to meet needs of customers and gaining advantage over competitors. It is as well here that exploiting or creating new opportunities is decided. All decisions made are subjected to the Corporate Strategy and are to support it. The relation between the two levels of strategy is very important despite the differences in the goal of each Strategy. No effective decision should be made if it was to go against the values of the organization or it would be out of the corporate strategy vision. The later case could very well be the starting point of the drifting phenomenon. (Johnson, Scholes and Whittington 2008, Jim Riley 2012.)

Operational Strategy

Last of the levels of strategy is the operational strategy. This level deals with the way the day to day work is to be executed in a corporation. It concerns how each part of the business is organized to deliver the corporate and business-unit level strategic direction. Here are discussed working processes, communication channels and resource handling. It is a very important level of strategy as it is the closest to the employees in terms of visible impact. A bad organization and poor level of management will impact employee's motivation and in turn their productivity. Poor choices of tools to be used to execute daily work could have the same effect with the same consequences. These relations between people must be handled in accordance to the higher levels of strategy and to the local legal framework of course. It is often at this level that the previous levels of strategy are materialized. An organization promoting innovation within its walls will have to create processes for collecting data and ideas internally. It is mostly how it is managed at this level which will define if it is a successful operation or not. Good strategies, poorly implemented, will not yield the expected results. (Johnson, Scholes and Whittington 2008, Jim Riley 2012.)

3.2.5 Different types of Strategies

There are as many Corporate strategies as there are corporations in our world. Trying to make a list of them all would be nearly impossible and furthermore it would be useless. Each corporation has to define its own line of sight according to its own specificities. The market, the competition, the location, in other words the context of a business is to be taken in account. Even two companies seemingly identical in the same market could not really be identical, just because, they wouldn't be employing the same people. Therefore by definition, they wouldn't benefit from the same resources and skills even if they can seem equivalent.

Operational strategy covers a large amount of fields, each of which is a domain of expertise in itself. There are loads of documents available to go deeper into fields like employee management, network management or customer relationship management. These best practices are evolving over time and representing great guidelines for improvements in corporations. However, they are the practices which Porter mentioned as not sufficient to maintain competitive advantage as they can quickly be implemented by the competition.

It is so the business unit strategy level which provides the guidelines on how to steer a business durably ahead of the competition. These are some of the different types of strategies among which a business can choose.

3.2.5.1 Treacy and Wiersema

In 1995, Treacy and Wiersema exposed a higher level framework to define the possible orientations of strategy. They identified the following three "value-disciplines" which can be the unique underline base idea of strategy in a business.

Operational Excellence

When a company pursues a goal of operational excellence, it aims at leading its industry in price and convenience. Such company will focus particularly on reducing overhead cost and eliminating intermediary steps in the production and delivery of goods and services. It will seek to optimize and align all business units with this strategy in order to achieve maximal efficiency at minimal cost.

To achieve so, these companies will mostly setup or reorganize themselves around powerful information system. These grant access to unified logistic systems and have a tighter integration of the different activities involved from order entry to product or service delivery. They speed up the information flow from market demand to production plant in order to better plan the production schedule. At the same time, they reduce the need for human intervention in the process, reducing further the costs.

However, some authors like Porter, mentioned earlier, think this strategy insufficient on the long run to ensure a competitive advantage. According to them, it should be to the least coupled with a careful selection of a limited targets in order to provide a lasting advantage to the company.

Customer Intimacy

Unlike the preceding strategy, this one is turned towards the satisfaction of each customer's particular need. While companies looking for operational excellence are most likely to make large market segmentation, like personal versus professional, companies looking to achieve customer intimacy are likely to make many sub-segments. The operational cost of such strategy is likely to be higher but the profit is evaluated on the long term relationship with the customer rather than on a single transaction.

Customers of such company will benefit from customized services and products giving them the feeling of being listened to, heard and considered as a person. The customer will feel that the company cares about providing the most adapted service and product for solving his issues. This is part of the company's strategy which then ensures that the customer will come back in the future, not only for the prices, but for the service and for the insurance that he will get the best product for his needs.

The logic here is different as it requires to spend time with each customer or sub group of customers rather than looking for maximum efficiency for each transaction. But with the support of information systems and good organization, companies can as well optimize these contacts. They can for example assign a group of customers to a sub group of advisors specialized into the services the customers are particularly interested in. The key words for such organization are flexibility and responsiveness. Here as well, strong information systems can be of help. It seems obvious, in a physical house appliances shop, to be directed to the sound specialist when one wants to buy a home cinema system. In the case of exotic banking products online consultancy, sorting the

customers may be a bit more difficult. Well-built voice systems or websites will provide crucial advantage in optimizing the work flow by automatizing part of the process without breaking the feel of personal service. For this service to match the customer's expectation, the seller or adviser must know at all time all the possibilities he might dispose of and which could fit the customer's need. Quick access to large amount of sorted data becomes then a necessary asset.

Product Leadership

Product leaders are fast moving companies which main characteristics are to be innovative and fast. These companies are always releasing state of the art products in very limited time. They constantly look for improvements in their products and services, producing themselves the products which will render their own obsolete. They develop an open minded culture which allows them to recognize potential for innovation where ever it presents itself, even in the competition. Once such potential identified, they are quick to decide to move forward in order to hit the market as soon as possible. This strategy has the effect of keeping them constantly ahead of the competition. This position is a risky one as such company constantly moves into the market with new features and innovations which all represent potential for failures. It must be able to react quickly to signals and events from the market in order to keep control of the evolution as much as possible. The initial investments can be considerable but the company gains and maintains the advantage of the first mover.

The culture of the company is the key point for such system to be efficient. The entrepreneurial spirit has to be preserved in order for management to take decisions quickly and be willing to take risks. Employees must be selected for valuing the constant evolution and not the individual success. Achievement of one project should just be the start of the development of the product which is going to kill the newly born one. Administration has to be limited to the minimum and communication has to be optimized to support fast decision making. These conditions are essential to reach the fast moving pace required to be a product leader.

3.2.5.2 Ansoff

The Ansoff Matrix emerged from the author's consideration that the options for a company's growth are function of two statuses of two parameters, the market and the

products and services whether they were new or not. The crossing of these statuses and parameters produces four strategies among which a company can choose to ensure its growth. (Ansoff 1957)

The notion of growth here is to be considered as a permanent process companies must pursue to maintain their position within their market or potentially grow. According to Ansoff, the market evolutions and changes create an environment in which a business can not maintain its position, relative to the competition, just with constant operation. Changes in the market create tendencies which expend if not counter balanced. If the market grows and a company does not do anything to conquer parts of the newly available shares, it will fall behind its competitors. With increased revenues, the competitors will then be able to engage in further actions to conquer even more shares, reducing further the part of the original business. Therefore, Ansoff considers that the pursue of growth must be at the center of a business strategy, it basically is the strategy.

Matrix

Tab 1. Ansoff's Matrix

Products	Existing	New
Markets		
Existing	Market Penetration	Product Development
New	Market Development	Diversification

Market penetration

Market penetration is a growth strategy according to which companies focus on selling their products to existing markets. It is the least risky of the growth strategies as it involves very little unknown for the company which already has experience in both markets and products and services. Therefore, trying to further penetrate a market where it is already in, often, is the first strategy attempted to grow any organization.

However, factors in the market itself can influence the efficiency of such strategy. Some conditions are required to make such strategy viable. First, the market should

not be saturated. The saturation of a market by its different actors makes it difficult to impossible to grow on the specific market. Too many forces, already in place, would prevent an existing actor to simply take over the rest of the market with the same offering. Secondly, the market should present an increasing industry growth rate but a decreasing competitive market share. This indicates that there is a reduction in the market saturation rate and so a potential for growth in the gap which has newly appeared. It literally indicates a faster growth rate of the market compare to the capacity of the actors in place to capture these market shares. A third condition which can make a market penetration strategy viable is the nature of the products or services concerned by this market. Certain goods individually represent the full potential value of the offering to the customer. It is the case for the car industry for example, where a vehicle is bought and represent the full need of the customer to have a personal mean of transportation. People are likely to acquire a new vehicle when it will be time the renew the existing one or if their financial situation changes dramatically and involves the need for higher end models. But some other products, despite representing most of the value by themselves, provide even more value when they are multiplied. The photography industry is a good representative of such types of products. If a camera is likely to be bought as a single object, lenses are specialized for particular usages. Therefore, people acquiring cameras with interchangeable lenses are likely to acquire several lenses until they cover their range of usage. As a consequence, in a market where all customers would already be equipped with one lens, it would still be possible to market more lenses to the same customers as the combination of several lenses brings superior value compared to a single one. The clothing industry is an even more obvious example as people continuously grow their wardrobe following their needs but as well desires and social codes. Such markets present potential for growth by their ability to absorb more sales of the same products to the same customers. Finally, another characteristic of the market can be mentioned, the possibility of gaining competitive advantage by economies of scale. With such advantage a company could become more profitable than its competitors despite sharing equal parts of the market. This advantage could then be transformed in order to conquer more shares of the market.

This is possible because mostly, the implementation of such strategy requires heavy investments in marketing, advertising and growing of the sales force capacity. Any advantage in terms of profitability can be used for marketing investments. These investments are representing the main risk in such strategy. They require careful

evaluation of the potential growth compare to the initial investments in order to avoid wasting resources in low growth potential actions. Some marketing actions or events can have unwanted or side effects. The impact on the overall company of actions such as discounts and distribution of coupons have to be evaluated too as they might impact the image of the brand for example. These are not suited for a luxurious brand which customer's do not worry about price but about exclusivity and quality.

Product development

Product development strategy leads companies to develop or modify products or services to serve the existing customer base. It may seem that this strategy would be easy as the customer base is known but it actually isn't. Despite the customer base being known, a lot of uncertainty are surrounding the new products and services and the needs they are to fulfil.

Companies must conduct two processes in parallel to handle such strategy. The first process has to do with the products and services themselves in terms of idea generation, product design and detail engineering. The same investments required by regular product development process are required in this case and all associated risks come with them. The second process concerns the knowledge of the market needs. In order for this strategy to be successful, companies must have acute knowledge of the actual and future customer needs as well as of the competition. Market researches and analysis are essential to this success. A simple SWOT analysis can be enough to fuel idea generation for new product development. Inputs can come from various places. Internal sources can be the company's own research and development department or more generally any employee. Inputs can also come from external sources like customers, trade shows and exhibitions.

However, many directions can emerge from such researches. Companies must accept the fact that they can not be everything to everyone and thus find the direction which best suits their objectives.

Product development is often conduct in one of three ways.

Product diversification

This involves modifying products and services in order to conquer new markets. It is a particular type of product development as it is directed to new markets. Companies pursuing this strategy try to leverage the brand image and product and services

experience to enter new markets. The differentiating point of these markets can be demographical or different price level for instance.

Product modification

Slightly more common, this strategy involves working from existing products and services with existing customers. However, new customers can be attracted to the new offering. The focus here is to add extra features to the existing products in order to influence the customer. Providing different size and color of the same product can be enough added value for the customer to purchase another product. Differences in performances can push customers to accept paying a premium price. Bundling existing products and services can influence customers into buying additional products and services which they wouldn't have considered separately.

Product revolution

This is the riskiest option in product development as it describes a case where the customer has no prior experience with the product or service. It requires development of brand new concepts. As with every new offering there is a risk of rejection by the market.

The level of uncertainty involved with any product development strategy is such that companies shouldn't rely solely on their own knowledge and experience of the market unless this knowledge is really extensive. Conducting or purchasing further market researches can be a determining asset in avoiding the waste of resources associated with the release of a product or service failure.

Market development

This strategy for growth leads companies to enter new markets with their existing products and services. Companies following this strategy try to leverage their knowledge and expertise of serving their products and services to reach new customers. Here, the key piece is to have knowledge of the current market and the new target. It must be understood why the new target is not yet a customer and the differences from the existing customer. This is basic to evaluate the market potential as well as the tactics to be employed to conquer it.

Companies have to evaluate if they have the resources and the will to commit them to such strategy. The investments required to enter a new market can be massive

depending on the characteristics of the market including the existing competition if any. Advertising and promotion efforts can be very costly and can represent a risk for businesses. There as well, market researches can help limiting the risk.

Also, entering a new market can mean that what constituted the competitive advantage of a business previously will no longer apply in the new market. The characteristics of this one being different, it is important for businesses to also evaluate if they will have to adapt to the new market and reinvent their business in order to acquire and maintain a new competitive advantage. This case would make the initial investment for success even greater and even more risky.

Many tactics are available to achieve a market development strategy. Some of the most common are:

New geographical markets

Expanding into new geographical markets often means to expand into foreign countries. This strategy, if well executed can be a great asset for a company. It can provide solid sources of revenue which can be used to fuel further growth of a business. Having gain access to a new market can help entering the surrounding ones. Gaining access to a new foreign market means gaining as well access to a new culture and so, to new talents, new visions. It is a great potential for innovation. It can also provide reliability to the business as its sources of revenue while still depending on a global market, would not all be affected by local events in region. Natural disasters or political instability could affect one source but likely not the others.

However, the risks linked to such plan are equally great. A different culture is something quite complex which needs to be evaluate carefully. It needs to be understood in order to find out the local characteristics of the buying process. Failing to conduct proper researches to validate these points are almost a promise of high cost in waste of resources. There are many ways in which a business can educate a market to the use of its products but one should never neglect the local cultural influence which may interfere in the process.

New product/service utilization to create new segments

This strategy might be the easiest one to grow a business as it requires minimal investments into product and service. It might be as simple as promoting the full potential of a product. It is about finding new ways to use the existing products and

services in order to attract more customers. However, the idea generation process might be challenging. It might require investments into market researches or the creation of a customer community which will provide inputs for the new usages. A regular process of idea management needs to be put in place to favor idea generation, then collect and evaluate the potential of ideas.

Once found, the new usage is to be marketed properly in order to reach the new customers. Here is where the cost can be high and must be balanced by the market potential.

New distribution channels

Adopting or creating new distribution channels allow businesses to reach customers in different ways and so sometimes to reach customers not reached before. The possibilities in terms of distribution channels are plentiful and companies should consider the proper combination according to their markets and objectives. For some companies, selling their products and services online can be the key to reach much more customers and even in other geographical segments. For others, it might be about finding retailers in order to reach their customers. Partnering with a manufacturer of complementary products can as well be a solution to grow a customer base.

The risks associated with such solutions are various and need to be measured in each situation.

Different pricing policies to attract customers or create new segments

Price segmentation is a way to increase revenues on a market. It is particularly profitable for industries which have high fixed costs. In fact, these costs get balanced with the amount of sales. The product and services offering can vary slightly as well as the means of acquisition, they must match real customer need segments. Pricing tactics are multiple. A renting offering can be proposed for the customers who might have temporary needs for the products and services or who do not want to be bothered with such assets. This formula is often more expensive for the customer on the long run but requires less initial investments. At the other end, customers who have more important needs could benefit from volume discount making the products and services offering more attractive to them. Some might even consider purchasing more than they initially planned because the discount represents then an additional value to them. Discounts can as well be proposed to customers based on the duration of their

relationship. However, pricing is a delicate science which requires careful attention as it can greatly influence the outcome of such strategy. Excess of prices in any directions might yield negative results.

All these tactics aim at providing customers with more fitting offers based on the same products.

Diversification

Diversification is a form of growth strategy that takes a company into new markets with new products or services. Different reasons can bring companies to choose a diversification strategy.

One case is that companies might wish to create and exploit economies of scope. In this case, the company tries to utilize its existing resources and capabilities in other markets. This way, it keeps its current operating cost similar but targets either more customers either more sales to the same customers. This can be a very relevant choice if companies have under-exploited resources or capabilities that cannot be easily disposed of or closed. Using a diversification strategy, companies may therefore optimize the use of their resources and make them able to serve new market segments.

Another reason can be that managerial skills within the company may be successfully applied in other markets. If the markets require similar capacities in management, companies can add new ranges of products which will be handled along side the existing ones with the same processes. In such case, the operating cost may vary but the overall workload for the company can stay under control as no major changes are necessary in the organization of the company.

A third reason can be found in that companies may also want to spread financial risk over different markets and products, so that the entire success of the company is not relying on one single market or product only. It can increase companies reliability as profits from one market can help compensating for potential losses on a contracting other. It can also be used to provide further opportunities for companies engaged in a saturated market.

Furthermore, companies pursuing a diversification strategy may be able to cross-subsidize one product with the surplus of another. They can this way elaborate more flexible and risky strategies like to driving out competition of a market by sustaining a price competition for longer period of time.

There may be many other reasons for companies to use a diversification strategy however Jefferson&Associates recognize three types of diversification. These actually match some of the reasons presented.

Concentric Diversification

Companies engaging in concentric diversification aim at developing their offering with products which are technologically similar to their existing ones. They can then leverage all their experience and acquired know-how in the field to apply it to the new product range. Typically, the biggest change comes from the marketing and communication of the new product.

Horizontal Diversification

Horizontal diversification leads companies to expand their range of products and services with new offerings to the same customers. Companies use their knowledge of their customer target to identify a need or a possibility for them to offer more to the same target. It is particularly indicated in markets where the customer show high loyalty to the existing product. With a good balance of price and quality, the customer might remain with the same provider.

Another way to understand horizontal definition is linked to the activity of the company. Companies would add new products and services in their offering but at the same level of production of its current products. A retailer might engage into retailing other products, furniture manufacturers might enter furniture spare part manufacturing, in each case, the core activity remains the same.

Vertical Diversification

At the opposite end, vertical diversification is achieved when companies release products and services related to theirs but preceding or succeeding them in the production line. It often means that these companies enter markets held by their providers or their customers. Also called Vertical Integration, this process can be valuable for companies able to leverage their managerial skills to handle one more

node in their value chain. Integrating a part of the value chain to the business can provide cost reductions as well as diversification. When the operation is towards suppliers, it is said backwards and can secure a company's access to raw material for instance. In the opposite direction, it is said downstream and allows a company to take control of the retailing of its products for instance.

Conglomerate diversification

This is the most extreme form of diversification as in this case, companies enter new markets with new products and services unrelated to their existing ones. The company's expansion and profitability are commonly the main goals for such strategy. In such operation, companies might try to leverage the full potential of the brand as sole portable asset, but not always.

In fact, this depends on the mean chosen to execute the strategy. The diversification strategy can be implemented by internal development of products and markets but as well by acquisition of another company. If the brand of the acquired company is recognized in its market, it can be valuable to preserve it, at least for a time, to maintain the customer's loyalty. The same goes in case of association with another company or importing and marketing of products manufactured by another company. The decision for re-branding or not the products and services will depend on the market characteristics. Companies can as well license new technologies from others. The marketing effort will follow the same rules but the products and services development will mostly resemble the internal development.

However, it is important for companies to realize the possible danger of diversifying their scope of operations too much. This strategy goes in almost strict opposite direction than what Michael Porter advocated as strategy to develop a durable competitive advantage. Going into a unknown market with new products puts companies in situation of great uncertainty. It automatically means that companies are lacking experience into the new field of competences they have to acquire to lead this strategy. There is a great risk of distraction, taking the attention away from the core business and diluting the focus into too many directions. For this reasons, Diversification is considered the riskiest options of the Ansoff matrix and should only be considered is the current market and products do not offer any more possibility for growth.

3.3 Summary

It appears that the understanding of Strategy comes in many different ways from the different authors who are writing about it. All these different definitions expose to us how various the view of strategy can be. However two facts come out of this review. First, the different understandings of Strategy are not mutually exclusive. Therefore, we can conclude that the different authors are just expressing different sides of the same notion. As a consequence, strategy is involved at every stage, every level and every moment of the life of a business. It is the essence which flows in a business to guide every steps of it, from the overall vision to the choice of practical tools. The second fact is that despite it being a versatile concept, all the mentioned authors agree on the purpose of Strategy as to guide a business's actions in and reactions to its environment in order for it to, at least, maintain its position and potentially gain more market shares.

Growth is the purpose of Strategy. Growth can be achieved in many ways, not always as self evident as gaining always more customers. Sometimes it can be about gaining all of a small kind of customers for example, some other times, about being the most cost efficient. But regardless of the method chosen to achieve growth, they are subsequently numerous ways to implement the chosen strategy. At its basic, growth is simply not falling back behind the competition and or the market itself.

Strategy is a key concept to business. It is crucial from start to avoid waste of resources into projects promised to fail. It is necessary to maintain a business ahead of the competition and to keep up with the changes in the environment. At dawn of a business life, it can mean salvation if designed properly but it's absence would mostly yield death.

Strategy comes at different level of a business and as well in different forms and shapes. The levels are recognizable by the amount of details they cover. The higher level of Strategy covers the overall direction in which a company should go, while the business unit Strategy concerns more the how this goal is to be reached in regard to the environment. Finally, the operational level concerns the how within the company, this strategy is to be implemented.

Several types of strategies were presented in order for a business to grow. These types of strategies are covering mainly the business unit level. They give indications on how a business can behave in its environment in order to gain market shares and revenues.

For the purpose of this study the understanding of Strategy will be limited to the gain of revenues in any possible shapes. Strategy, as plan of action to reach a defined set of goals, is top management's duty. Therefore, considering the board meeting room of a business as the starting point, I will explore two directions. The first case will be of a newly created company or a new branch of a company, not related to the existing one, launching around a mobile application. In this case, the Strategy comes in the earlier stage of the business and being a successful business on the mobile market is the target. The second case will be of an existing company considering expending its business with a mobile application. In this case, the change in Strategy comes during the operating time of the business and the goal is to grow the business by supporting the existing activities with a mobile application. The Ansoff Matrix proposes several ways to support this case.

By studying publications and practical cases, I will expose different ways for mobile applications to generate revenues. I will highlight important points to be taken in account along the way leading to this achievement. In fact, the mobile application business has particularities which must be known by anyone tempted to enter this market.

But to understand clearly why mobile application can be such an attractive business area, we must understand the evolution of the mobile phone market.

4 Mobile phone market

4.1 Evolution to smartphone 2007

The mobile phone industry has evolved a long way following few major factors. The first of these is the data transmission technology which went from very limited to allowing for video streaming on phones. This technology dictated, at the beginning, what was possible to do with the devices. Once it reached a good enough level, it wasn't anymore a bottleneck for the evolution. The second factor is the devices themselves. If the transmission technology provided the bandwidth, it was up to the phone manufacturers to make their devices appealing to the customers. This went through a string of improvements, even some revolutions, to achieve the devices which we currently use. Finally, this industry wouldn't have reached the success it met if the devices had been kept in the same price range as the early available ones. The ever decreasing price of the entry level devices contributed to the popularity of mobile phones as new mean of communication. The first version of the Motorola DynaTAC (Pict 1) was commercialized at the price of 3995 American Dollars (PCMag, 2013). Nowadays, the most expensive devices, regardless of manufacturer, are sold for about 750 US Dollars (ExpertReviews). There is no doubt that such decrease in price level, as much of devices as of the associated services, made it affordable for the masses to be equipped.



Pict 1. Motorola DynaTAC

4.1.1 Wireless Transmission

The mobile phone technology roots can be traced back to the year 1918 when wireless communication was tested on board military trains in Europe (Dutch Phone Museum). However the first commercial offers for mobile communication devices appeared in the United States of America in 1947. The AT&T company was one of the first on this market with their Mobile Telephone Service or MTS service. The previous year, they had made history by placing the first phone call from a vehicle. Despite being a revolution for its time, this service was very limited due to its technical capabilities and only a maximum of forty thousand subscribers could benefit from it. The devices were far from portable and the service was quite expensive, limiting its market target even further. The same year, AT&T engineers designed what will become a wide spread standard for mobile telephony, the Cellular system. However, it would take some years to make this design a reality as the technology for it did not exist yet. (AT&T.)

In 1971, the ARP system was launched in Finland. It is considered one of the first commercially successful mobile communication offer with reaching 100% coverage in six years and reaching more than ten thousand users in the same time lap. (EngineersGarage, TechGig.)

Cellular networks, the base of the technology still used at the time of writing, followed. Through time and with the evolution of the technology, the different major steps will be called retrospectively “xG”, x being the step number.

The first Cellular network, to be deployed was in Chicago and was built in 1977. Later called 1G, it was built over the analog system which consisted of a network of cell towers. Known as Analog Mobile Phone System or AMPS it allowed users to switch cell towers while calling. The Japanese telecommunications company NTT launched theirs two years later and it became the first to cover an entire country. Then the Nordic Mobile Telephone or NMT, built in 1981 and covering Denmark, Sweden, Norway and Finland, became the first to feature international roaming.

In the 1990's, the GSM standard appeared in Europe and later claimed the title of 2G for second generation. With this standard much more services could be offered with mobile telephony. Thank to this system, the first person to person SMS was delivered. It was in Finland in 1993. The first downloading services appeared too, allowing users to download ringtones.(MakeUseOf 2012.)

3G networks appeared in the early 2000's, in Japan first and quickly in other countries. Based on more efficient wireless transmission technologies, these networks brought the devices closer to computers. The tremendous increase in bandwidth capacity, up to 7.2 Mb per second, resulted into an explosion into online media accessibility. It is currently the most spread standard in mobile communication. (Vodafone Australia, SitePoint 2012.)

4G networks are already being deployed and offers commercialized in several countries. Despite a lack of formal agreement on a standard, the technologies which are used, claiming bandwidth in the order of 300Mb per second are considered legitimate for the 4G title.(MakeUseOf 2012, 4G Store.)

4.1.2 Devices

Dr Martin Cooper is credited with the creation of the first mobile phone from which all current devices have evolved. In 1973, Dr Cooper, executive at the Motorola company, created the Motorola DynaTAC or Dynamic Adaptive Total Area Coverage. While previous devices were restricted to vehicles because of their size and weight, this one, with only 25 cm in length and about a kilogram in weight, was a real portable device. However, it will take more then ten years to the Motorola company to transform this prototype into a commercial offer (Pict 1). (Motorola.)

In 1989, Motorola introduced the MicroTAC (Pict 2) which was the first ever pocket size device. The IBM Simon (Pict 4), arguably the world's first smartphone, appeared as early as 1994. It combined the functions of a phone and a PDA in one device, allowing to send and receive faxes and emails and manage a calendar among other things. Two years later, the Motorola StarTAC (Pict 3) was the first phone to embed a vibrate function as well as a display screen. Its clamshell form factor and its light weight of 88 grams made it a very popular cell phone. Again, two years later, the first mobile phone equipped with a color screen was released. In 1999, Nokia released the 7110 (Pict 5) which featured a WAP function granting access to the Internet on the phone. The following year, the 3210 (Pict 6) was the first phone with an integrated antenna. This rather simple phone, featuring games and customizable ringtones, was a success for the brand which sold 160 millions of them. The following 3310 (Pict 7) was popular in Europe and 126 million units were sold.

The early 2000's saw the coming of other important multimedia features. The Samsung Upoar (Pict 8), first phone to embed a mp3 audio file reader, the Benefon Esc! (Pict 9), first to integrate a GPS or the Sharp J-SH04 (Pict 10), embedding a camera are representatives of these new multimedia oriented phones. The first touch screen phone appeared as well in the early 2000's. (Vodafone Australia.)

In 2003, the Nokia 6600 (Pict 11) was considered a very advanced device as it was equipped with Nokia's new operating system Symbian OS. The notion of operating system had already appeared before for such devices, but with this device, it was one of the selling argument.

Another aspect of the evolution of mobile phone devices was demonstrated with the release of Motorola's V3 (Pict 12). Along with all features brought by its predecessors, this phone came with a widely acclaimed design. When released in 2004, it became a standard for the industry in terms of sleek design.(WebDesignDepot.)

By the time 2007 was reached and Apple released the Iphone, the mobile phone devices had come miles away from their ancestors. They had evolved from brick looking like calling machines, to sleek, small, multimedia capable, personal assistants with gaming station abilities as well as road trip assistants. They were clearly moving towards becoming mini computers.



Pict 2. Motorola MicroTac



Pict 3. Motorola StarTac



Pict 4. IBM Simon

 <p>Pict 5. Nokia 7110</p>	 <p>Pict 6. Nokia 3210</p>	 <p>Pict 7. Nokia 3310</p>
 <p>Pict 8. Samsung Uproar</p>	 <p>Pict 9. Benefon Esc!</p>	 <p>Pict 10. Sharp J-SH04</p>
 <p>Pict 11. Nokia 6610</p>	 <p>Pict 12. Motorola V3</p>	

4.1.3 Market evolution

The mobile communication market has constantly grown in size since its creation. Originally, it had two strongly linked components which are still present nowadays. To be able to communicate via mobile communication, an user needs a handset device as well as a service plan from a mobile communication service carrier. These two elements are defining the two major aspects of mobile communication market. These

two sectors have evolved and grown hand in hand, as motivated by each other. The creation of mobile networks lead to the popularization of mobile devices. This popularization fuelled the need for more efficient networks. This, in turn, opened the gate to more possible uses of the bandwidth. The link between the two is so strong, the market oriented itself in such way that most of the devices are actually sold by the carriers. These ones have all interest into having the most popular devices available for their network and manufacturers have all interest to have their devices sold by the most popular carriers.

The carriers are responsible to deploy networks via heavy equipments which implement communication standards. It is the capacity of these networks that the carriers market to the end user in various plans. It is common to find offers divided in three parts, voice communication, SMS communication and access to the Internet. By modulating these components, each carrier defines its range of offering for the market. The competition in this segment of the market is articulated around area coverage, reliability, price and capacity offer to the customer. It is concentrated on regional areas where the offers are tuned to the market. In 2000, this market had grown to a 139 Millions Dollars worth and went on to reach 37 Billions in 2009 (Vodafone Australia).

The devices, on the other hand, are providing the users with the means to access the networks. The manufacturers of the mobile devices have to work closely with the carriers in order to create products which are compatible with the networks deployed in the areas they are destined to be sold. However, unlike the carriers, the device manufacturers would mostly design one device for several areas. Phone manufacturers involved into various geographical areas would often have quite a complex offering as the markets needs can vary greatly from region to region. The competition for manufacturers, for a long time, was about technical innovation. The market saw an almost continuous stream of innovations constantly challenging the established state. The overall level of devices has improved with time. The devices became smaller and lighter. Their screens first appeared then became of much higher quality. The sound and quality of transmission improved. The design too was greatly improved. The number of functionalities within a device constantly increased to such extent that mobile phones started to replace other devices like portable music players, GPS navigators or even video game consoles. The manufacturers had the full responsibility of developing the hardware and the software composing the device, giving them great control over their products. However, it also created a very fragmented segment of the

industry where habits taken from using one device could hardly be transported to another device from a different manufacturer.

In the third quarter of the year 2007, the industry shipped 283 millions of devices world wide. Nokia, then market leader, shipped by itself nearly 40 percent of this quantity. The overall industry was growing by 6.4 percent over a year. (Cellular-news.)

4.2 The game changer: Apple iPhone

On June 29th 2007, Apple released its first mobile phone, made public the previous January by, then CEO, Steve Jobs, as a combination of three devices, a “wide-screen iPod with touch controls”, a “revolutionary mobile phone” and a “breakthrough Internet communicator”. The device, named iPhone, was waited by so many people queuing outside the company's shops in the USA that it was nicknamed the “Jesus phone” by the media. It was the achievement of a 3 years development project started by Apple in partnership with Cingular Wireless.

This device concentrated many of the latest hardware innovation at the time and some new ones. It was equipped with a liquid crystal display which marvelled in everyday use. It was also lacking features which were then common like the ability to record videos or send MMS. What made this device so particular was mostly its design and its finely tuned operating system. It was able to accommodate future usages and was thought in order to make the phone nothing less than a hand held computer. It was integrated from start into Apple's eco-system and was focused on the usage the consumer will have for it. As a matter of fact, the device abilities could be extended by applications, providing for an even brighter future. It brought a completely new experience to the mobile phone user.

With its characteristics, it was so desired by the public, it marked the beginning of a major change in the mobile phone industry. Until then, carriers had the stronger hand on the manufacturers. Mobile phones were considered cheap devices, mere vehicles used to access the value of the network. Carriers could decide which features would be implemented by actively pressuring manufacturers, but also passively, by simply not opening their network to the features. It was also a mean to lock a customer to a particular network as many devices and features would not be inter compatible between networks.

The iPhone blew this vision away as customers of competitors would leave their carriers to sign up at Cingular Wireless, then AT&T, just to have access to the device. The competitor carriers were facing a real haemorrhage of customers which was meant to last as AT&T had a 5 years exclusivity deal with Apple. They became hungry for competitor devices which could help them retain their customers and in the process were ready to give up some of their control over the production chain. Another major change which followed was that, the carriers started to open their networks in such way that a greater compatibility was achieved between them. This would facilitate the coming of new customers or former customers, from competitors and now already possessing their favorite devices. (Wired, September 2008.)

Apple sold about 6.1 millions of the first generation of its device in a bit more than a year, bringing the company in the top 5 of mobile phone manufacturers in terms of revenues (Apple First Quarter report, January 2009). The following generations confirmed the success. By 2010, Apple was generating more than 50% of the global mobile phone sales profit with as little as 4% of the market shares (The Economist, February 2011).

4.3 The competitor: Android

It is in this context that the competition appeared in the shape, not of a device, but of an operating system for mobile phones. Software giant Google had earlier bought a start-up company working on a project called Android. Google's team kept on working on the system and it was presented to the public the same year the iPhone was. (Open Handset Alliance, November 2007) The first Android equipped mobile phone, the HTC Dream, was sold in September 2008 (HTC Press Release, September 2008). The change started by the iPhone moved the focus from the brand and look of the mobile phone to the possibilities of the device and its easiness of use. The iOS operating system powering the iPhone had by then gain a solid reputation. Android was presented as an alternative to it. As it had been designed from the start to equip mobile devices, this new operating system benefited from major positive points to guaranty its success.

Technically, it was based on the well known and tested Linux kernel. This point alone ensured that this operating system could be easily adapted to be ran not only on state of the art smartphones, but also on weaker devices. (Androidology, November 2007) The potential base of phone able to support the operating system was then enormous

and the more devices would run it, the more relevant the eco-system would be. Android benefited as well from its parent's business model which allowed for a quick adoption among business partners. Google licensed the system for free to its partners, concentrating its earnings on other aspects than the direct licensing. In fact, Google made Android an Open Source Software making it easy for its partners, wishing to customize the system, to be able to do so in a convenient way (Dave Bort, October 2008). Furthermore, Google made it easy for third party developers to create applications for the devices running Android. In such way, any Android device could see its abilities enhanced much like the iPhone.

Suffering manufacturers could see salvation by focusing their effort in manufacturing hardware and adapting Google's Android to provide a safe and positive experience to their customers. Google's expertise in software development ensured that the operating system would be properly supported and its financial power ensure that it would be properly marketed. Soon enough, proposing an Android phone represented a low risk choice for most manufacturers. Google's permissive rules allowed the count of available applications for Android devices to quickly grow. (Official Android, September 2012)

A combination of factors were added to support the success of the operating system. Google's policy allowed to simplify the mobile manufacturing process, giving a chance to many new manufacturers, mainly in emerging countries, to appear. They could focus completely on the hardware part of their devices and install a stock version of Android to ensure a minimum of satisfaction to their customers. (Arstechnica, November 2012) By doing so, they grew even more the base of devices running Android. The ever increase in computing power of mobile devices and IT devices in general made it possible for Android to conquer more and more market shares by expending into the lower end of the market. (AppleInsider, October 2013)

The success of Android confirmed the change in the mobile phone market. The switch from hardware centered to software centered market was clear as software giants had now the stronger hand in it. Was left one software giant which had so far not been able to catch up with the competition.

4.4 The challenger: Windows Phone

In 2010, Microsoft released Windows Phone as a response to Google's Android and in an attempt to counter the apparent domination of Apple's iPhone. This operating system was different from the previous Windows Mobile operating system from Microsoft in such that it was aimed at the consumer market rather than enterprises. (Arstechnica, March 2010)

It featured a new interface called "Modern" which was meant to be radically different from what other software makers were providing. However, the main characteristic of the competitors was also implemented into this system, the ability to receive applications created by third party developers. Despite being a proprietary product Microsoft intended to promote its system toward developers in order to gain their interest. Microsoft's incentive program towards developers successfully raised awareness for the system. In the third quarter of 2013, 21% of developers were using Windows Phone platform (Developer Economics, July 2013). In 2011, Microsoft also made a key alliance with former number one handset seller Nokia. The substance of this partnership was to merge some of the companies services like application stores, make some others available to each others products, like Nokia navigation system in Windows Phone and mainly for Nokia to adopt Windows Phone as unique operating system for its smartphone line. (Microsoft Press Release, February 2011) This meant that Nokia would completely give up its own operating system, Symbian. This partnership was said to be important for both parts. It was to allow Nokia to catch up with the competition with a differentiating factor and to provide Microsoft with Nokia's solid experience in handset manufacturing and a well known brand to support Windows Phone. (CNET, December 2012) Both partners open goal was to create a third mobile eco-system, to compete with Android and iOs. In September 2013, Microsoft will go on and acquire the mobile phone division of his partner (Official Microsoft Blog, September 2013).

The success of the platform was mitigated at start. Despite the partnership with Nokia and multiple updates aiming and enhancing the software, Windows Phone had difficulties to gain market shares. Starting at 1.6% of market share in the second quarter of the year 2011, it was representing 3.3% of this market 2 years later. This low percentage is to be contrasted with the progression which consolidates clearly the position of 3rd runner of Windows Phone in the race for the operating system crown. (Gartner, August 2013)

We can see through the evolution of this market how much potential it has for further growth. The fast evolution as much as the quick adoption of this new technology by the masses provide for tremendous opportunities and it is easily justified why many businesses would find interest in it. We have as well seen how this evolution has lead to an operating system dominated business. It resembles the same revolution undergone in the IT business with the switch from hardware to software oriented market. It tells us why mobile applications could be part of a promising strategy.

4.5 Status of the market

4.5.1 Sales numbers

In 2012, 1.7 billion mobile phones were sold world wide. Over a year, it represented a raised of 1.2%. The mobile phone market was dominated by few manufacturers. The top five of mobile phone vendors was composed of LG with 3.2% of total unit sold, ZTE with 3.7%, Apple with 7.8%, Nokia with 19.6% and finally Samsung with 23.7%. These five companies sold for nearly 57.5% of all mobile phones over the year. (Gartner 2013)

The product offering was split, according to Canalys into the three categories.

The basic phone category, which gathers all devices meant solely to receive and emit call and messages. It is considered the low end of the offering. The feature phone category represents the middle range and concerns devices with slightly more abilities than the basic phone. It becomes more and more difficult to distinguish the feature phone category from the last, smartphone, category. Because the technology is evolving rapidly, new feature phones can find themselves equipped with capabilities of devices which were considered "smart" the year before. Another factor is that handset

manufacturers have operated changes during the past years, phasing out their in house operating system softwares to replace them with operating systems with advanced API from partners. Therefore, it is common to find flagships running the same software as lower end products, the hardware providing for the sole source a differences between the two. However, the price remains a common way to distinguish the two categories. The smartphones tend to be significantly more expensive than the feature phones. (CNET, March 2010)

The feature phone category retained the biggest part of the devices shipped in 2012 with nearly 771 millions of units, closely followed by the smartphone segment with nearly 695 millions of units. The basic phones shipped for about 122 million units.

In 2013, a bit more than 75% of all smartphones sold were equipped with a version of Android. The next in line was iOS with nearly 17% of market shares, followed by Windows Phone with nearly 4% and BlackBerry OS less than 3%. The rest of the competitors shared just above 1% of the market. The degradation of BlackBerry OS in favor of Windows Mobile indicates that the top three is unlikely to change for the next years, only the distribution of market shares might evolve. (IDC 2012, 2013)

The very nature, new nature, of the market also goes into this direction. The mobile phone held by a consumer is the result of the synergy between several parts. A manufacturer creates the hardware which will be controlled by an operating system, from a partner or created in house. The third component is the applications created by other entities, which add functionalities to the device. These entities have interest into developing their applications for these platforms because of their popularity and the incentive programs provided by their respective creators. Considering the expertise and size of the companies supporting these ecosystems, it would be very difficult for another competitor to come and disturb this market efficiently enough to change the top three operating systems in a short time.

The sales numbers are confirming the potential of this market. With already more than three quarters of a billion smartphones sold in 2012, this particular part of the market is expected to grow even further. One could even envision that like in developed countries, emerging countries will operate a complete switch of their offering to smartphones. This promises the mobile phone application market to a bright future. The major actors which are battling for capturing shares of this growing market are making so by opening opportunities for developers to grab a part of it. But the

opportunities are not always the same between the different ecosystems. The reasons can be found into the details of the situation.

4.5.2 Geographical Distribution

We have seen that the three leaders of the market have well defined positions overall, however the distribution of market shares between the three isn't uniform over the world. The details of numbers within region, reveals some tendencies, basis for future evolutions.

Since 2012, China is the world's biggest market for smartphone sales. At the end of 2012 it represented 26.5% of the market while the USA, leader until then, represented 17.8%. The three following nations, United Kingdom, India and Brazil represented respectively 4.5%, 2.5% and 2.3%. The expected growth for these countries, in the short to mid term, changes the picture quite some. In fact, by 2016, the market shares of the three firsts are expected to decrease to 23%, 14.5% and 3.6% while the two last would see their shares growing to 8.5% and 4.4% allowing them to send the United Kingdom to the fifth position. (IDC 2012) Therefore it is clear that the smartphone market is evolving and the countries with the most potential for growth are likely to influence this evolution.

But if one looks closer at the market shares distribution as shown by GlobalStats to this point, it reveals differences compared to global statistics. In fact, in the BRIC countries (Chart 1) where smartphones can still be considered as new, Android seems to clearly lead the expansion of the market. This can be explained by the low price point of devices running Android. But in countries where smartphones have been representing an important market segment for years, like the United States of America (Chart 2), iOS still maintains a lead. However, this is not true for all. In the case of France (Chart 3), the market shares evolution shows radically different tendency as Android seems about to take over iOS. In fact, only the release of the latest iPhone seems to have delayed this event. In Finland (Chart 4), iOS and Android are running in head of the race but Windows Mobile is a solid challenger with more than 20% of market shares. Here again, the explanation can be found outside of the real benefits and qualities of each platform. Nokia Mobile used to be part of the Nokia company, a Finnish company, which benefited from a reliable customer base at home. It is probable that many customers are still more attached to the brand than to the operating system ran by the devices.

Here is revealed an important point to consider in the process of choosing a development platform for a mobile application. We can see that the global distribution of market shares can be significantly different at global level and at local level. Even the evolution of the said market shares might be significantly different at global level and at local level and from countries to countries.

It creates the necessity for a company to carefully evaluate if the geographical location of its customers matters and if so, where they are and so, which platform they use. Even if the Internet gives access to a world wide potential customer base, the ways to reach it are multiple and can even be costly. This problematic is non trivial. Many parameters can enter into the equation of locating a customer base. If we consider an approach of deciding first where is the target, in the case of an expansion to a specific location for example, the usual market studies needs to be done to ensure the relevance of the product for this market. With an approach of targeting as many customers as possible, one could decide to create an application for the actual leading platform. But this would not necessarily be the best strategy as the users of the leading platform might not be the ones with means to purchase an application if it was to be sold for example.

However, the truly global nature of this market indicates already a great potential to support companies which would engage in a Market Development strategy around geographical new markets. Smart-phones are being sold almost all around the world and with them people gain greater access to the internet. The combined power of the mobile phone market and the online selling market make for a stable base for growth.

Smartphone OS Distribution

BRIC

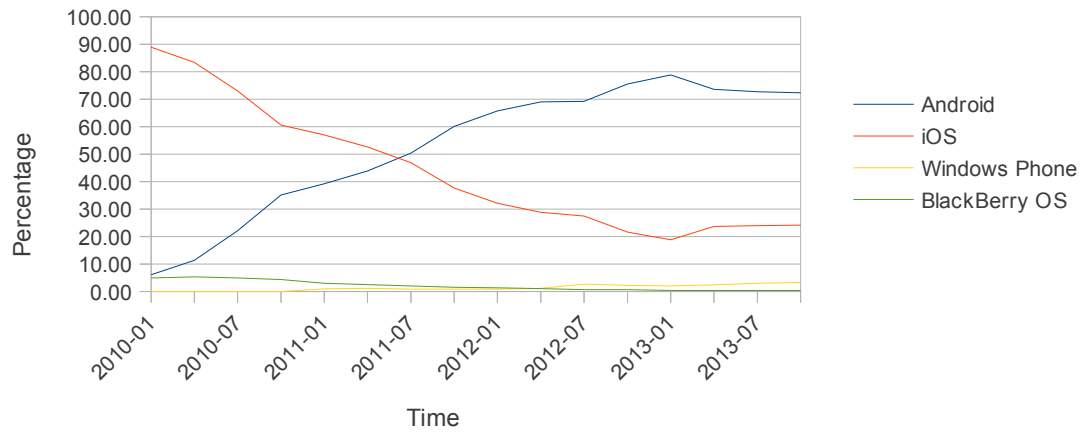


Chart 1. Smartphone OS Distribution in BRIC Countries

Source: GlobalStats

Smartphone OS Distribution

USA

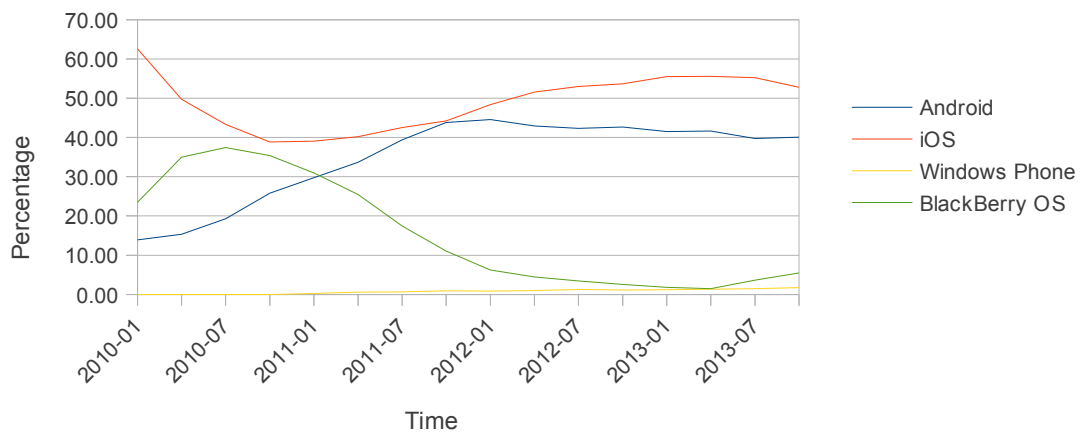


Chart 2. Smartphone OS Distribution in USA

Source: GlobalStats

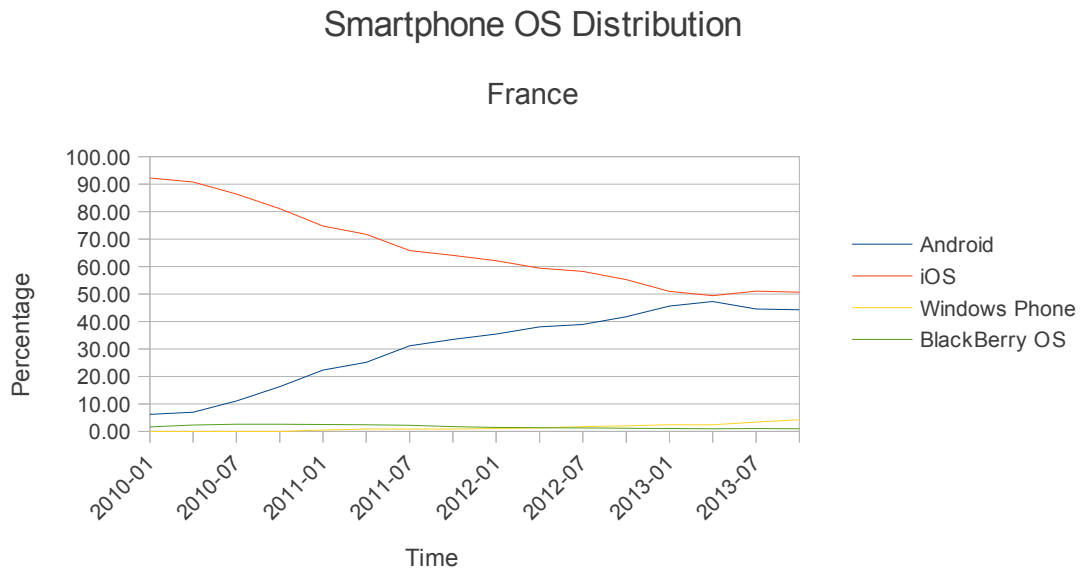


Chart 3. Smartphone OS Distribution in France

Source: GlobalStats

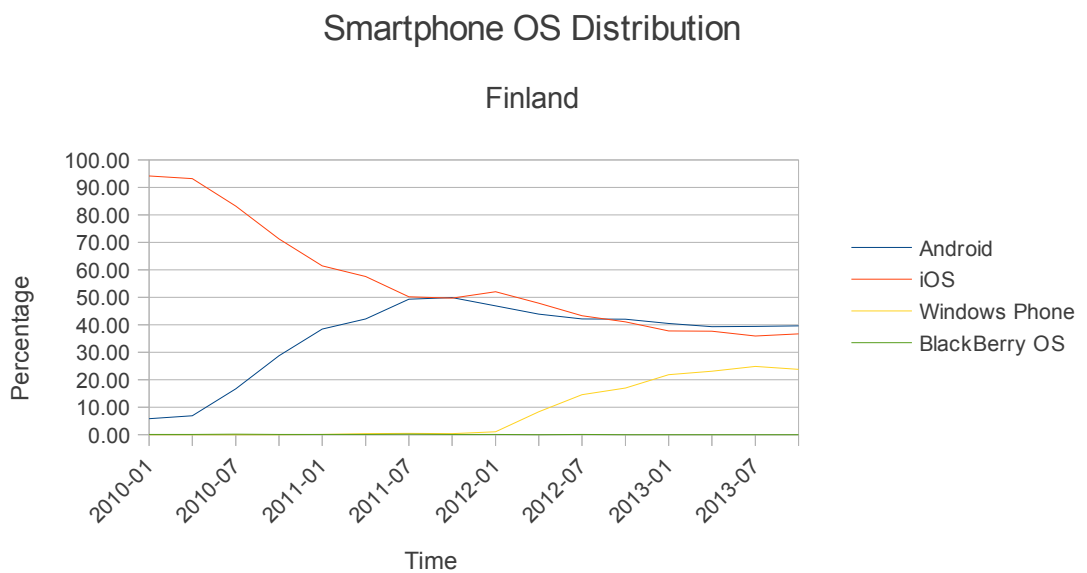


Chart 4. Smartphone OS Distribution in Finland

Source: GlobalStats

5 Mobile Applications

Before exploring the nature of mobile applications, it is necessary to understand the current software stack involved into the operation of a modern digital device. This stack has evolved from the former model to grant flexibility to the devices.

Before, the user operated the hardware directly through a hard coded software, called firmware, which was deeply integrated with it. This software was specific to each product and was basically set once for life. At the contrary, an operating system is an intermediary higher level piece of software which interfaces with the hardware through drivers. On the other side, it sets an unified base for any application which needs to access the hardware. As a consequence, enhancement to the device's software can easily be made by upgrading pieces of the operating system. Furthermore, it provides a stable interface to application developers who do no longer need to worry about particular specificities of the hardware as they are hidden under the operating system layer. Finally, it guarantees to the developer the possibility to develop once and be ensure that the application will run on any device which runs the operating system in the proper configuration.

5.1 What is a mobile application?

A mobile application is a small piece of software created to be executed on mobile devices like smartphones. It makes use of the advanced APIs provided by operating system editors in order to interact with the operating system and further, with the hardware of the device. By this mean, it expends the range of usage or the device to fulfil unforeseen needs at the time of manufacturing. Mobile applications are generally limited to a single functionality. This is mostly due to hardware limitation, but it is as well part of their desirability. Users can hand pick the functionalities they want to be available on their devices.

Some applications are designed to replace some stock functionalities of the devices like multimedia players or email managers. Some are made to provide completely different features like games or training assistants. Some are even made just to customize the look and feel of the device to the taste of the user. These applications can be free or can cost a fee to the end user.

This point is one of the most important one when considering a mobile application as part of a business strategy. It is necessary to define how the application will serve best the business and if it needs to be directly sold to the end user or not. In case it was decided to sell the application to the end user, it would have a great impact on the whole project and on the options available down the production line. Some platforms are more open than others and allow for multiple means of distribution of an application. It leaves the company willing to create an application free to explore its possibilities in terms of distribution channel, pricing, marketing or customer data handling. Some platforms are more controlled and have tighter rules concerning publication. Choosing to distribute an application, particularly at a cost, through these platforms, will mostly present additional challenges. Typically, the authorization for publishing the application would be function of a larger set of criterion. These added considerations will mostly have matching figures on the budget of the project.

5.2 Publication channels

Like any piece of software, the cost of creation of a mobile application depends on many factors. The classical software creation project criterion have to be evaluated to assess the viability of the project. The choice of a or several target platform can impact the technology used for the development and the cost of the project. However, some other factors are to be considered well ahead of these considerations. As a matter of fact, each platform has a set of particularities which need to be considered as high priority. One of such priority is the allowed distribution channels for an application. As already mentioned, not all platform dispose of the same rules for publication and distribution channels might be more or less controlled.

Remark: It is to be mentioned that, in the present document, Android has been used as the name for one system. However, the reality is that many versions of Android are co-existing on the market. There are multiple reasons for this status which vary depending of the interest of the various actors of the market. Some manufacturers might lack interest in maintaining devices which are seen to have a short life time. For others, it might be part of a strategy to push users to renew their devices. Despite sharing common characteristics, the different versions of the Android operating system are not fully compatible. This can affect the development process of an application as the balance between the cost of supporting several versions and the reduce reach of a single version has to be considered. (OpenSignal, July 2013.) For the rest of the study,

Android will be considered as the most popular or soon to be most popular version of the operating system. This choice is supported by the fact that Google has acted towards the unification of the versions of the system recently. The new version 4.4 of Android was made technically manageable by lower end devices. The goal being that ideally all devices would be sharing the same version of the system. At least it is expected to reduce greatly the amount of versions in use. (VentureBeat, October 2013.)

Once the application developed, it will need to be distributed to the consumers who are willing to take it in use. Unlike computers and laptops, mobile phones are not equipped with CD and DVD readers from which new software could come. However there are multiple ways from which, technically, a software could be added to the device.

Many devices are equipped with SD card readers. A SD card could host an installer for an application. Smart-phones have access to Internet which then could be an entry point for the application. The USB connection which equips the majority of devices could be used to transfer the application from a computer.

Regardless of the chosen process, installing an application on the device should be the easiest possible for the user. The whole operation should not require any particular technical knowledge to avoid provoking fear and rejection of the application. But the mentioned means are technical entry points and they are not always all available, depending on the operating system. As a matter of fact, the situation is simple regarding this issue. Two opposed methods are implemented by the 3 top actors of the market. First, Google allows its Android operating system to accept applications from diverse sources. Through a simple manipulation in order to lower the security level of the system, a user can install an application by any possible mean. The two others, Apple and Microsoft, only allow a single channel of distribution for applications implemented for their operating systems, the application store.

The most common way for users to acquire new applications is through the use of such stores. Each operating system publisher has joint to its product an official application store. Apple's store was baptized "iTunes App Store" while Google's is named "Google Play" and Microsoft's "Windows Phone Store". The official store is the only way an end user can get an application installed into a device running iOS or Windows Phone. Android is again here more open as it even allows for third party stores to provide the same services.

5.3 Application stores

An application store is a digital platform used to promote applications to end users. Access to it is mostly granted through a component of the operating system it is designed for. It mostly takes the shape of an online platform on which the user can browse through applications sorted by categories. Each application presentation is composed of a title joint with a description of the features it proposes, optionally some screenshots, rating and comments from other users and finally a price. Applications can be proposed for free to end users but some are distributed at a cost. On the other side, the creation of an account on the store by the user, often mandatory, gives advanced management possibilities. It is possible to access the store through a web interface and to handle from there the installation or removal of applications onto and from a device owned by the user. Sometimes, it can even allow the store to automatically remove an application which has been revealed as compromised. (ComputerWorld, December 2011)

The integration of application stores within the operating system makes it the most popular option of distribution for an application. It makes it easy for the user to find an application and guarantees to the developers a large audience with access to all markets reached by the store publisher. In 2011, Application stores were representing more than 40% of the application distribution and raising while every other channel was decreasing (Developer Economics, June 2011). It is safe to say that, even if the use of application store varies by platform, distributing through an application store has become some what mandatory. A company having an already existing base of customers with a customized communication channel might not benefit fully from application stores and could be seen as an exception. But in most cases, avoiding application stores means a target narrowed down to Android and potentially tremendous amount of resources sank into marketing. This might not sound so bad considering that Android is the most used platform of the moment. But the issue isn't so simple, particularly if the application is to be sold. Android is also used into low end devices, so users of Android are multiple and not all can afford to pay for applications. On the other hand, iOS users might be fewer, but the high price tag for Apple devices indicates that these users have more financial means or more will to spend money into their mobile phone and so potentially into applications.

Each operating system is linked to an official application store from the same publisher. In the case of Android, multiple third part application store are also available. However, considering the massive domination of the official application stores of this market, I will narrow the search to these three (Developer Economics, June 2011).

Each of these official stores has its own process from registration to publication of an application. These processes can differ greatly and influence the cost, in time and money, associated to publishing an application. It is a non negligible factor in choosing a store and so a platform. (VisionMobile 2011) I will focus more on the other, less technical, characteristics which can influence the decision making process.

5.3.1 Certification process

One of the most tedious task when considering publishing an application on a store is the review of the requirements for certification if there is one. The application store owners have defined different strategies in order to validate the publication of an application. Apple strictly forbids for an application to link to external resources and content while the two others allow it. For Apple's App Store and Microsoft's Windows Phone Store, there are quite strict rules regarding what an application can and cannot do. Aside from general quality rules regarding performances, design and security, there are as well contents and behaviours which are considered off limits. They do not allow any erotic content into applications, rejecting "de facto" any which would be developed by producers of such material. Also, applications which have for sole purpose to promote the sale of other products are not allowed. These two stores are similar in the fact that a human being tests and checks for the application conformity to the policy of the publisher. In theory, it makes it impossible for an application not in line with the store rules to be published. But we will see later, that this process can fail. The store publishers advocate the protection of their customers to support such rules. More technical rules might affect the application development process as requirements are imposed for the compatibility. It is often about technical conventions set by each store publisher. But these issues are falling into the normal process of software engineering when the choice of technology and tools is made for the development of the application.

Google's Play Store is different as in its case, there is no human verification. This might seem like a great risk for the company to see undesirable content appear on its store. However, the impact of such event would be limited as a process is implemented in the

store allowing users to alert about a non appropriate application. In this way, the first users of an application act as sensors for it. A wrongful application is likely to affect the few first users but also to be quickly removed and banned.

(Apple Support, Microsoft Support, Google Support)

5.3.2 Geographical reach

Application stores do not have the same reach in terms of countries and services. Often, the availability of the store in a country depends on the service which is required. The Windows Store proposes to users the possibility to download applications from 231 different countries while the iTunes Store offers it to users in 155 countries. The Play Store, on the other hand, makes a distinction between free applications and sold applications, proposing the download possibility to users in 136 countries in the first case and only 134 in the second. Furthermore, both Microsoft's and Google's platform only allow a restricted amount of countries from which developers can submit applications, 121 in the case of Windows Store and 32 or 148 for Play Store, depending on the price of the application, whether it is to sell or not.

(Apple Support, Microsoft Support, Google Support)

This adds one more layer of consideration about the geographical location of the users a company tries to target. In addition to the popularity of a platform, it is necessary to evaluate if the services required are made available in this area by the application store. This can particularly affect application to be sold regarding the availability of payment means.

5.3.3 Cost of entry

The stores require developers to register and pay some fees to be able to publish applications. Once again, if the principle is the same, each store publisher has its own policy concerning the matter. Google has the simplest policy with a one time 25\$ fee required to open an account. Microsoft request an annual payment of 49\$ or 99\$ depending on the account owner being an individual or a company. Finally, Apple has the greater amount of levels as it distinguishes individuals from companies but as well companies which do not plan to publish their applications on the official store. Apple charges an annual fee of 99\$ in the two first cases and 299\$ in the last one.

Remark: Apple proposes the creation of free accounts for universities looking at including application development for its iOS platform in their curriculum.

To these fees must be added the cost of the development tools. All of the publishers advertize the fact that their development tools are free. However, the understanding of cost varies from one to the other. Google's development tools are in fact cross platform. It allows for the development of Android applications from any computer running almost any operating system and noticeably Linux distributions which are free for most of them. However, in the case of Windows Phone, the development tools edited by Microsoft require a Windows running computer to operate. The Windows licence can then be added to the cost. Apple goes one step further by requiring the developer to possess one of its latest Mac products as it has to run the latest of its Mac OS operating system. This adds a significant amount to the cost of entry.

(Apple Support, Microsoft Support, Google Support)

If this point will not represent a big obstacle for companies with large enough budget for development projects, it will certainly matter in the case of a small single developer company.

5.3.4 Pricing policy

Each application provider has its own way to control the pricing of application. Unlike the preceding policies, Apple seems to be the most opened on this subject as it allows developers to freely define the price of their application. Microsoft limits the developers in a range of prices from 1.49\$ to 999.99\$. Google, usually the most opened company, restricts developers to a range of prices from 0.99\$ to 200\$.

This policy shows that no generalities can be made about the different application stores. Google Play Store is not always the most opened and the iTunes Store the most controlled one. Each point needs to be studied by the company willing to publish an application. Even if the range of prices allowed in each store is quite wide, it can still, in some cases, influence the choice of target platform.

(Apple Support, Microsoft Support, Google Support)

5.3.5 Revenue streams

They are many ways for an application to generate revenues. Not all are accessible from each platform.

Trials

It is common to allow a user to try an application before charging for it. It is helping future customers to discover the product and thus to evaluate their need for it. But trials are not handled in the same manner in each store. With Windows Store, the developers can provide a trial version of their applications to their customers in a simple manner as the store includes facilities to allow this. After expiration of the trial period, the user has to explicitly initiate the buying process. Google's Play Store do not benefit from the same facility. In this case, the concept of trial for an application has to be carried out in one of two ways. Either, the developer allows for a period of time before charging for the application, in such case, it is mostly a payment delay. At the end of this delay, the user is automatically charged unless he or she has removed the application from his or her device. The other way is for the developer to create a separate application with limited functionalities in order for the user to try the application at no cost. Apple's iTunes Store only proposes the later solution.

In-App feature and consumable purchases

This type of purchases is made by the user from within the application. For example, a game user can buy extra weapons for his character from within the game itself but using very real money. All of the stores support this type of transactions, allowing the developer to propose extra features to be purchased from within his application. But here too, the differences are quite noticeable.

For an application which is published on the Apple Store, all purchases or resources used within the application are required to be made using the store billing system and all are subjected to the Apple cut. On the other hand, it is forbidden to use the store billing system for charging resources not consumable within the application. On the Windows Store, Microsoft's cut only applies on transactions made with the billing facility of the store. However the developers are free to chose another billing solution and in this case, the cut does not apply. Google's developers are required to use the store's payment system but the company recognizes two cases in which its cut shouldn't

apply. First, if the purchase is linked to physical goods, like buying a pizza or a massage session from within the application. The second case concerns digital goods or services which might be consumed outside of the application itself. A digital music album could illustrate this case.

Subscriptions

It is possible for the developers to design applications which require recurring payments. All providers implement this possibility by using their in-app purchase API. Therefore, the revenue share policies are applied in the same way. Unlike the others, Microsoft does not allow for these subscriptions to be limitless. The developer must decide of a time frame, within a year, over which the user will have to explicitly allow for the renewal of the subscription.

Advertizing

An application can display advertisement to the user in order for the developer to gain more revenues. General rules apply for the Windows Store and iTunes Store like it cannot be an application sole purpose and the advertisement shouldn't be disturbing to the user. The difference comes mainly from the provider. Microsoft and Google, despite proposing their own advertisement solutions, allow both for any advertizing provider to be used by the application. It is considered independent from the platform. Apple on the other hand requires the usage of its own advertizing system and retains a cut on the revenues generated by the advertizing.

5.3.6 Revenue share

For many application developers looking at selling their creations, this is an important point to consider. It is this policy which will define which percentage of the sells of the application will be received by the developer and which part will be kept by the store publisher. The choices made by the store publishers are quick to review as they are very similar regarding this matter. Apple and Google claim exactly the same 30% cut on the applicable sells. Microsoft claims 30% until the application sells for 25000\$ US following what, Microsoft only claims 20%.

However, as mentioned previously, there are important differences on which revenues the provider's cut might apply.

5.3.7 Pit Falls

The examination of the details of each store's rules is an important task which should not be neglected. There are numerous ways and areas in which a misunderstanding or an unforeseen consequence can be dramatic for the business. Several companies have suffered from such neglect and not only small ones.

Microsoft, Apple and the Sky Drive application

As a matter of fact even companies as big as Microsoft can get caught into the rules of the stores. The incident occurred on December 2012 and was about one of Microsoft's mobile application, Sky Drive. Even if Microsoft and Apple are rivals, they are both providers of numerous products and it is not uncommon for the customers of one to be as well customers of the other, for other products. Microsoft via its Sky Drive service offered to its customer access to an online storage space where they could store files and be able to access them where ever they could access an internet connection. The mobile application, published on the Apple store and distributed free of charge, was meant to allow them to access and send files to this space from their mobile devices. (Microsoft Sky Drive)

The situation became problematic when Apple rejected an update from Microsoft for this application. A link inside the application was the cause of the problem. This link allowed customers to subscribe to paid plans granting them more storage space and other advantages. As a matter of fact, Microsoft's service offer was segmented in several plans starting with a free limited storage size and evolving to more important services with the paid subscriptions. Apple considered these subscriptions as being in-app sells and thus claimed its 30% cut to Microsoft. Of course, Microsoft was more than reluctant to transfer a significant part of revenues from a major product to its partner and competitor. The situation came to a lock, each company arguing in the direction which favored itself.

In fact, to avoid paying the 30% claimed by Apple, Microsoft argued that its customers could access the service in many different ways. Furthermore a subscription could last way longer after the customer would not possess any Apple products, would he wish so. In this situation Apple would still perceive a percentage of sells no longer related to its products and services.

In the other corner, Apple relied on its tight rules for the application store. All sells made from within the application, for resources used within, are to be made via Apple payment services and subjected to the cut.

Another set of rules, prevented all of Microsoft's propositions to solve this problem to be implemented. Microsoft proposed to simply remove the link to the commercial offer from within the application, making it a non profit earning application. Users would be forced to subscribe to commercial offers from outside the application. This proposition could not satisfied Apple as, one of the rules of their application store is that if the application developer proposes the same application for other platforms, the one made for the Apple store must contain at least the same features as the others. This is to ensure that iOS users will benefit from at least the same level of experience than users of competing platforms. But a consequence is as well that if an application is proposed with the possibility for in-app sells on a competing platform, so must the one in the Apple store and thus, the sells should be subjected to Apple's cut.

Another possibility would have been for Microsoft to remove all together its application from the store owned by its competitor. There again, things could not be this simple. Many third party developers were Microsoft's customers and used the Sky Drive service to support their application. Because their applications linked to Microsoft service which could lead the user to make a purchase, third party developers could find themselves part of the conflict. As a matter of fact, they did. Apple blocked the possibility for these developers to update their applications in the same way it blocked Microsoft's update. The situation seemed locked with Microsoft's customers taken hostage, the rules of the Apple application store leaving it no other choice than to pay the 30% claimed. (The Next Web, December 2012)

The situation found its way to a solution in March 2013. Microsoft and Apple, after months of discussions, had found a middle ground in order to satisfy everyone's interest. The Sky Drive application was updated in the Apple store, the new version was deprived from its link to the commercial offers. Despite the details of the agreement not being released, there is little doubt that Microsoft's power and influence in their business sphere, helped it to push its competitor and partner for a way out of this situation, without having to pay the 30%. (The Verge, April 2013)

AppGratis

When a company does not have this power, things can go terribly wrong, terribly fast and with no real way out. The AppGratis company and its application of the same name went through just that. AppGratis is an application which proposes daily discovery of other applications to its users. Through it, users can discover applications and benefit from the price reduced to nothing and from discounts on in-app purchases. It is a marketing tool for the developers who want to have some exposition for their products. The company was created in 2008 and the application was proposed on the Apple store. Everything was going fine, the application was successful and the company had found its business model allowing it to be profitable. Its revenues were coming from application developers who wanted to gain further awareness for their creations and thus would pay AppGratis to have an application promoted through theirs for a day. The audience was particularly responsive as to start with all applications promoted by AppGratis were free to download during the day. It made it easier for the users to download and try the applications. The application was allowed on the App Store and thrived, reaching twelve millions of users by April 2013, date when the trouble started.

Already back in October 2012, the company faced an issue with a new guideline which forbade applications displaying or proposing for sell other applications in the same manner the Apple store does. It is easy to see the similarity into the services but the company managed to convince his account manager that there was fundamental differences in the way the services operated. The update of the application was approved and business went on. The company raised 13.5 millions dollars in funding in January 2013. In the beginning of April 2013, the application was approved for another product of Apple. But few days later, the application was pulled out of the store for violation of the very same rule as in the 2012 case in addition to a rule about how to use the push notification system. The application was pulled out, never to return. (AppGratis Blog, April 2013)

In many regards, it seems that this application was flirting with the rules of the Apple store. As a matter of fact, this application's sole purpose is to promote others. Its large base of users around the different markets of the Apple store proved it to be useful and fulfilling a need. Its activities and business models had several consequences which are not obvious at first sight. In the application stores, the popularity of an application is measured by the amount of times it is downloaded. Being able for a developer to pay a

company in order to ensure a massive amount of downloads in a short time becomes then questionable. Besides, this lead to temporary disturbances of some of Apple's own tools of measurement on which are based the top classifications of the applications. Another consequence could be that some users would not visit the application store so often and just wait instead for the daily free application from AppGratis. (AllThingsD, April 2013)

In any case, the question is not about whom of Apple or AppGratis was right in this conflict. The important point is that it reveals the relative fragile position of a company betting on a single platform and application store. In such case, it becomes dangerously dependant of the platform and store owner who can pull the plug at any time and to the least change the rules at any time. It is then necessary for the application developers to evaluate how their business model can impact the one of the application store provider. It can help evaluate the likeliness that rules might evolve and make their application non compliant to the rules.

AppGratis could not find a solution to this problem and was forced to give up its iOS based business. Despite the fact that existing users could still use the application, it couldn't use anymore some of the features which were key to its success, like the push notification. With this feature, the user is reminded from within the iOS operating system to check for the newly published offers. Users would have instead to do the check pro actively which would certainly decrease the amount of download generated. Consequently, it would impact the visibility expected by developers into the Apple top charts, which was one of the main selling point of AppGratis. Instead, the company would have to rely on emails and an online application to keep its user base engaged, two quite weak means. (TechCrunch, April 2013)

Eventually, AppGratis decided to switch platform and moved to Android, with the development cost which was implied by such decision.

5.4 Application Pricing

Regarding pricing, three categories of applications can be distinguished on application stores. Applications made for the use of companies or professional customers which can be highly priced. These entities can incorporate the applications in their set of business tools. Much like physical tools or computer systems, these applications come to strengthen a business by fulfilling a particular need. As such, they can be charged in

a manner which reflects the value added of the product to the customer. It is difficult to access data about these applications because they fall into a category which is hidden to regular users into most stores. Some applications are still quite pricey despite being expected to be used by regular people. But there again, these people are not so regular. VIP Black, one of the most expensive application of the Apple store is one of such. Priced at 999\$, this application is meant to be used exclusively by millionaires and gives them access to a range of luxurious offers from upgrades in exclusive hotels to booking of jets. (iVIP) However, these applications are rather few compared to the large majority of the two other categories. The majority of applications in application stores is either free or charged for less than 5\$. (Flurry Analytics 2013, Best Computer Science Degrees via Mobile Marketing Blog 2013)

The current trend is going towards the free to download applications and they are expected to represent 90% of downloads on all stores in 2013. It is less than two points up compared to 2011 but nearly ten points up on the Apple App Store alone and it is expected to keep growing. (Flurry Analytics 2013, Gartner 2012)

A clear trend seems to be emerging as application revenues generated by in-app purchases are increasing rapidly. This trend has replaced the paid to download model as most profitable model. (Distimo 2013) The clear move along this trend does not really simplify the dilemma of application pricing.

Generating revenues by charging for downloading an application is simple to implement for the developer and simple to understand for the customer. It is particularly convenient for independent developers who can release a one hit wonder and not have to sustain a heavy cycle of evolution for the application. Each iteration of the application will bring new users who will generate incomes up front. However, this model also comes with some expectations from the customers. Customers who pay for an application are expecting it to be free of advertising and expect later updates of the application to be included into the initial price. It leads to a limited one time payment per user, forcing the developer to ever seek for more users in order to generate revenues. As well, it makes it difficult for a developer to remove features from an application at a later stage as users have paid for these features. (GIGAOM 2013)

Games have traditionally taken advantage of such pricing model and are well represented among the best selling applications (Business Insider, 2010 and 2013).

Two models of free applications are opposed to the pay to download model. In one case, revenues are generated through in-app advertising. This model, like the previous one is rather simple. Users are now used to the concept and expect to find advertisement within free applications. This model provides revenues to the developer on the long run as they are generated for as long as the user keep using the application. The down side is that even if users are used to advertising it is still considered as a disturbance and it should be controlled so it does not affect too much the user experience. (Mashable 2011) This can be difficult to do as revealed by Forrester in a 2012 survey. 70% of surveyed people declared finding in-app advertising disruptive. As a matter of fact, considering the reduced size of mobile phone screens, classical web advertising by banners and pop ups can be particularly un-adapted. Besides, applications are meant to serve a very limited amount of purposes. The advertisement needs to be closely link to the application's subject in order to decrease the disturbance and increase the user's interest. (Go Local Apps 2013) Finally, advertisement is notoriously known to be a very low revenue source per hit. Such solution requires a serious amount of users even just to balance the cost of development of the application. Social Networks like Twitter and Facebook are using this model to monetize their mobile applications.

The other model is the in-app purchase model. As mentioned, it is very successful at the time of writing. It allows developers to have a continuous stream of revenues with users buying features from within the application. The model is highly based on the micro transactions, generally around the money unit or less. Such transactions of small amount give the user the feeling that he or she does not spend much. Furthermore, users unable to purchase a full application for a premium price can still access the feature they value the most. This model matches quite well the game industry too. It is now common for players to purchase items for a character within the game or bonus in order to gain more chances to win. The opportunity here is as well one of the down sides of this model. The developer can constantly had new features or items to be purchased by the user, keeping up the interest. But it as well means that the application does not generate any revenue passively. The developer needs to be constantly working on additional features. Then the life time of the feature needs to be handled. A permanent item can not be handled as a consumable one. Furthermore, the user needing to reinstall the application on a new device for example should not need to purchase again all the still valid features he or she had already acquired. The management of accounts and recovery can become much more complicated for the

developer. These down sides can explain the reason why this model seems to be more adapted to large companies. (Go Local Apps 2013, Mashable 2011, GIGAOM 2013)

CamScanner is an application which uses this model. The free model of the application provides the same functionalities as a document scanner. From within the application users can by an extra feature which allows to send documents to fax machines. (Sitepoint, November 2012)

It is a complex choice to make, but it is important to understand each model and the level of revenues they are likely to generate along side which requirements they will bring. This parameter has to be crossed with the details of the application store chosen to publish the application. The cut of the publisher on the revenues generated by the application depend on the revenue stream and so, on the monetizing model decided.

Another parameter as a major influence in the potential revenues generated for the different monetizing models. As mentioned earlier, the capacity to pay of the users of the different platforms might not be the same. This difference goes quite a long way and the financial performances of the store are to be taken in account.

5.5 Financial performances

The ability to generate revenues through an application store does not depend only on the model chosen for monetizing or the amount of customers reached. It also depends on the customers capacity and willingness to spend money into mobile features. This reflects into the financial results of the different stores. Despite grabbing 74.4% of market shares, Google Play only generated during the first quarter of 2013, 1.1 Million of US Dollars. In comparison, Apple with 18.2% of market shares, saw its store generating 5.1 Million US Dollars. (VentureBeat, July 2013) But these numbers even if they are important, just represent a part of the issue. First, we know now that application store owners do not charge on the same basis. It would be too simple to simplify the equation to “develop for iOS to make money”. One should remember that Android is the dominating platform in amount of downloads and potential customers. The Windows Phone store is not a bad choice either for successful applications thanks to Microsoft's more generous policy. Furthermore, the decision depends also on the ambition supporting the application. If the application is to be sold at a low price and expected to reach a large base of customers, maybe the size of the customer base is to be given priority. If the same application was to be sold at average price or requiring

a recurring payment, maybe the capacity to pay of the customer base would be the priority. If the application was to reach a very niche market, localizing the customer base and which platform it uses would for sure be the priority.

Tab 2. Earning distribution per application store

Earnings	Below poverty level	Above poverty level	Not interested
Google Play	54%	26%	20%
Apple Store	55%	34%	11%
Windows P. Store	61%	19%	20%

As a matter of fact, choosing one or another application store does not promise an application to success or to failure. The percentage of application below the poverty level, so generating less than 500\$ a month, is equivalent for Apple's and Google's store as shown in (Tab 2). Even Microsoft's store despite significantly lesser market shares is not too far off. The differences are greater when considering the percentage of applications above the poverty line, iOS leading the others with 34%. This gets balanced by the percentage of developers interested in money. (Mobithinking, May 2013.) It shows that iOS developers are more interested in profits compared to the two other platforms. It becomes clear that such criterion is to be taken in account when considering a platform for the development but it is not a rule engraved in stone. Statistics can help to chose but ultimately developers do make the statistics with their choices. Therefore, the choice of the monetizing model and the choice of the platform are going together.

Of course this concern does not apply if the developer is uninterested in profits or if the application can generate revenues in other ways. In such case it can be totally free for the end user and only the level of adoption by the user counts.

6 Mobile application and Strategy support

In fact, depending on the business model of the company creating the application, there may be opportunities for it to support the business out of the revenue streams mentioned. But to beginning with we can split the mobile applications in categories evolved from the revenue streams defined earlier. Three categories of mobile applications in terms of business strategy support can be found. The applications made to be sold or to sell, the applications intended to contain advertisement and the ones, generally free, intended to support an existing set of product and services. These types define how mobile application can support the strategies which were studied and defined earlier. However, some limitations exists and not all strategies can be relevantly described by mobile application types. For instance, a strategy of Market Development by entering new geographical markets, as seen by Ansoff, can be achieved by the creation of mobile applications thanks to the global nature of the mobile application market. But this strategy will not influence the type of mobile application to be created. Any of the mentioned types could support the entrance in new geographical market. Depending on the market, some types might be more successful than others, but any could do. Each type has strong implications which will be presented now.

6.1 Application to sell

In this category can be placed all the applications which are meant to be the product or service of the developing company. It means that the application is developed with the purpose of being sold or containing features and services which will be sold. In such case, the revenues are expected to be generated by the sells and so we can distinguish two cases further.

6.1.1 High price, small number

The application can be meant to be one of the rare highly priced ones. It implies directly that the customer base for the application is known. Its relative small size is as well understood and accepted. Indeed, we have seen that a massive majority of applications on application stores are low in price with a tendency to become free to

download. Therefore, the audience for a highly priced application is rather small. Many mobile application users would be repelled by the price and would not even try to understand what the product is about. Therefore the marketing power of the mobile applications stores would be useless to promote such application.

The customer needs have to be understood and the application priced accordingly. This matches partially one of the tactics defined by Porter to gain strategic competitive advantage, satisfying the needs of a small customer base. The missing point comes when considering that for this to be efficient, a company should make the customer range its expertise and so should satisfy multiple needs of these customers. However mobile applications are mostly designed to serve one purpose. The already mentioned Vip Black application solves this issue by giving access to its customers to a large set of services. Providing access to services is the sole purpose of the application but for the customer, many services are available.

We can easily see that the use of such model follows a particular angle of view of the mobile industry. In fact, it would be unrealistic for a company wanting to release such application to hope to find its customers on the mobile market. It has to go the other way around, meaning that the business must know its customer base and market a particular product or service in the shape of a mobile application. The company would not so much leverage the potential of the mobile application market but use mobile applications as a technical tool to reach its goal. We can find here elements of the Customer Intimacy strategy as defined by Treacy and Wiersema. To succeed fully with this strategy the application will probably need to present a certain degree of customizability. In order to match the requirements of every user, the application will need to be versatile and probably backed up with a solid customer service able to provide a personalized response to each customer or customer segment.

It is likely that the use of the mobile application stores would be just for the convenience of use for the users. This case is rare because it does not match the mass market nature of the mobile business.

6.1.2 Low price, high number

In the usual case, the application will be priced at low point. Because generally most of the sells are made in the shape of micro transactions, it is necessary to generate quantities of these to have a decent return. One of the challenges for a company is

then to elaborate interesting enough contents to encourage the users to buy the application or the features sold within. In addition, the content must be adapted to a very large audience in order to generate the required amount of transactions.

In this case, the Porter's strategy schema which can be seen is to fulfil a specific need to a very large number of people. This can be more or less difficult to achieve depending on the orientation of the business of the company. Not all activity sectors are so easily paired with the mobile phone market. Music is one of the sectors which are easy to pair. Most mobile phones have the ability to play music and quite a large amount of people around the world do listen to music. Knitting on the other hand is a little more confidential as an activity. Therefore the market base for it could be significantly smaller. Of course this needs to be contrasted with the ambition of the company. Maybe the size of the knitting market would be sufficient for a single developer company and probably less for a multinational company as single revenue point. It is probably not the best model for a niche market which cannot justify high prices, but more adapted to broad general markets like gaming.

The gaming activity has taken full benefit of the mobile market. There are many occasions for people to distract themselves using their smartphones and games were developed just for this purpose. For companies already involved into the gaming business, or more generally into the IT software industry, the mobile application market represents a great potential for growth by following a market development strategy as defined by Ansoff. In fact, the mobile phone market can offer a new distribution channel. Successful video games on conventional platforms can be ported to mobile platforms at a lesser cost than the creation of a new game. They can then be sold through this new channel, raising the profitability of the specific licences.

6.1.3 Rovio

Rovio edited the world wide success Angry Bird game following this model. As a video game editor, the company's business was to produce games which would provide entertainment to the users. It is this entertainment that users would be paying for. The company focused its efforts on developing games for mobile platforms. The strategy of the company was so to bring gaming experience to users into their mobile devices. It was at the time already a step aside the traditional video game industry which was more focused on traditional video game consoles.

Rovio had developed more than 50 games before releasing Angry Birds on the Apple Store. The company took advantage of the business opportunity offered by the abilities of new mobile devices and released in December 2009 a game which used the touch screens as main control. (VentureBeat, November 2013) Angry Bird brought together successful game mechanics and the intuitive abilities of touch screens. The game reached the top of Apple's charts in six months and stayed there for months while other applications life time at the top was of two weeks in average. The company developed it for the Android as well as the Windows Phone platforms. This, of course, maximized the reach of the game, making it available to as many people as possible. The game was available in limited free versions which allowed the user to test it. Then, if satisfied, he could buy a more complete version of the game or more levels for the game he had completed. The game and its versions, still available on the stores at the time of writing, are priced between 0.99\$ and 1.99\$.

By the end of 2013, Angry Birds and its following variations are approaching 2 billions downloads of which 25% were paid for. The application supported the business strategy of the company in such that it allowed to bring modern gaming experience to a maximum of users and in a convenient manner thanks to the application stores. The success was such that Rovio's founders decided to redefine the company in a global entertainment producer and not only a video game producer. Strategic partnerships with different other companies made the mascots of the brand recognizable world wide.

6.2 Advertisement based Application

Advertisement based applications are not so different from the applications to sell in the sense that they too, require the development of a successful content. Not all contents are adapted to successful sells.

In fact, there can be many reasons why an application might not be a candidate for sell. In a very competitive markets, it might be difficult to capture enough market shares to generate enough revenues. For example, there are truly loads of music players available on the application stores, some free, some not. Usually paid to download players have a free light, often said "lite", version which proposes basic functionalities to the users and embed as well advertizing. Considering that basically all devices are equipped with a stock music player, a new actor would need serious arguments to agitate this market segment. This market has a major difference with the gaming one.

People might download and use several games but they are less likely to change their music player once they are used to it. In a saturated market, customers are acquired only by taking them from competitors which makes market penetration strategies more complex.

Some applications, despite being practical, do not propose enough value to the user in order to justify a fee. There are features which are nowadays so common to users that none would be willing to pay anything for such services and products, simple grocery list applications for example. These applications just provide a convenient way to replace a pen and paper list. However, none of them is sold as a product on the Android store. All applications in this category which are sold, provide extra features like coupling to a local grocery store, allowing to retrieve prices and calculate the price of the basket before entering the shop.

The important point is that sometimes, it is more valuable for an application not to be sold. It is better to maximize the possibility for it to be downloaded and to generate a continuous stream of income through advertising. This is what this model is about. Maximizing the use of the application for it to generate advertisement revenues. The ways to achieve this goal are clearly different from the application to sell category in terms of price policy. If both are seeking to reach as much users as possible with an interesting content, their challenges will be different. For advertisement based applications finding advertisement which relates to the theme of the application can be difficult. Partnering with a company specialized into this problematic can be the easiest solution.

The grocery list application "Our Groceries Shopping List" uses exactly this model. The application allows for a group of people, typically a family, to share grocery lists over several mobile devices and to be kept up to date of the status of the lists (OurGroceries). The most downloaded version of the application, on the Google Play store, is free to download and embeds advertising. Along side this version, another one is available for a fee. The only difference between them is that the second one is advertisement free. The company designing this application clearly meant it to generate advertisement revenues and seek at satisfying a broader range of customer by proposing also an advertisement free application for a fee. Here, the theme of advertising is quite obvious, super-markets. But for a news application like "20Minutes", which pushes news updates to its users, it can be more difficult. The subjects of the news are constantly changing and so should the advertisement associated to it.

The strategy schema which can be matched by this model is limited to the fulfilling of a particular need of a large customer base. To the least, the customer base must be large enough to cover the expenses linked to the development of the application. Considering that the revenues are coming from the advertisement, it would not make sense to count on a small market to generate revenues. Even for a single developer company, a niche market would not generate enough downloads to make advertisement revenues interesting enough. This model makes sense only if applied in the frame of a strategy which aims at reaching a rather large number of people.

Even so, considering this model at the starting point of a business is non-trivial. Revenues generated by advertisement are low per hit and so the estimated revenue stream has to be realistic. A company with very little expenses, like a single developer company, could very well find in this model a way to survive and even get by. Applying the principles of product development strategy by modification can increase the amount of revenue streams at relatively low cost. If the application product can be duplicated into several products with similar characteristics, like card games, it can be easy to multiply the revenues, one per card game, while limiting the expenses. However, each revenue stream will stay modest. In the case of a large application requiring important resources to be created, the return on investments with this model might not be sufficient.

Despite all this, some very large companies use this model for their mobile application. Facebook is one of such.

6.2.1 Facebook

The social network Facebook was created in 2004 by its current CEO Mark Zuckerberg. The service grew popular among students very quickly. Just few months after being created, its founders were receiving the first buying proposal which they turned down. Continuing its way through gathering more users and receiving investments the company was estimated, in 2006, by Yahoo, worth buying for one billion US Dollars. The company's success was turned into profit by advertizing on its highly trafficked websites.

The mobile application of Facebook counts on advertizment to generate revenues. But this case is particular as the company's entire business is based primarily on advertisement revenues. With its mobile application published as free to download on

all major application stores, Facebook proposes another mean to access its platform. In application advertisement is the type of income the company benefits from much like on its web interface platform. Because Facebook has a massive customer base, the advertisement revenues generated are in relation. In the third quarter of the year 2013, the mobile advertisement revenues reached 882 Millions Dollars so 49% of the firm's total advertisement revenues (TechCrunch, October 2013). Again, this case is particular because the business of the company is fully oriented towards this type of revenues. Therefore, the advertisement process of Facebook is optimized to provide the highest possible rate of conversion to advertisers, which in turn, raises the value of the service provided by Facebook. In other words, because the firm, based on the data it accesses from its users, can narrow more precisely a target for a specific advertisement, the value of each view is higher and the company receives higher rates. If the mobile application of Facebook generates revenues by advertisement, it can as well be considered part of the last category, the support applications. It is indeed not in itself the product of the company but another mean to access the main service.

6.3 Support Application

These applications are coming to support or expend the existing offering of a company. Companies with various fields of business might consider expending by the mean of a mobile application. This case can be very complex as each business has its proper particularities. It would be impossible to make a comprehensive list of possible cases as they might be as many as there are businesses. But essentially, a company might want to provide another mean for its customers to access the existing product and services or to provide them with extra features. The application can help supporting the business in many ways which might not generate direct revenues. In fact these applications are mostly free to download. Proposing these applications at a cost to customers would mostly defeat the purpose of it. There would be little to no interest for a customer to pay an extra fee just to be able to access the exact same services. Whereas being able to access the product and services even from mobile phones makes for a good marketing point. Providers of physical goods or desk based services have several obvious interests in such strategy but providers of virtual goods and services as well can find interests in it.

There are few information freely accessible about such use of mobile applications as they are closely related to each company's strategy. But the insight obtained via an

interview of Itella Posti Oy's Senior Development Manager, Vesa Sallinen, gives solid leads on how this process can be articulated.

6.3.1 Itella Posti Oy

According to Vesa Sallinen, mobile applications were implemented to further address the promise of easiness of purchase and use of Itella's products and services. In fact, the company aims at making its products and services available when and where the customer needs them and with ease of access. Mobile applications appeared like a good choice as connected smartphones give customers access to Itella's services when and wherever they want. But other benefits were expected from the mobile applications.

It was expected for them to encourage the use of self-services. By pushing customers in this direction, the company was expecting to be provided with greater cost efficiency. In fact, the use of self-services by customers would for example, reduce the need for human resources at desks to serve the customers and in parallel potentially increase the sells of the concerned products or services. There are so many people who can be served by an agent in an hour regardless of how profitable the requested service is. There are virtually no limit to how many customers can help themselves to an automatic service which they can access to their liking.

Looking further, we can also see that such system would as well raise customer satisfaction. Less customers at the desks would mean less waiting time in general. Furthermore, the creation of mobile application is also expected to strengthen the image of Itella as a dynamic company. Both points are perfectly aligned with the target of the company to be the customer's "first choice in postal, logistics and eCommerce services".

Finally, the mobile applications enabled new revenue streams for the company with the creation of additional services like the ability to send a physical post card from the mobile application.

Cost reduction, increased customer satisfaction, dynamic image and additional revenue streams, these are the many ways in which Itella leverages the potential of the mobile market to support its business strategy. Most of these points do not bring direct revenues to the company but support its strategy with indirect effects. It reveals that

mobile applications can be used to achieve cost reduction and thus could be an element, part of an Operational Excellence strategy as defined by Treacy and Wiersema. The association of cost reduction and increase in customer satisfaction would represent a great opportunity for growth for any company.

The additional revenue streams are in phase with a Product Development strategy as defined by Ansoff. Here, the mobile application allowed Itella to sell new services to its existing customers. The service provided is contained in the convenience of sending a physical post card without having to go buy it, write it by hand and send it. But at the same time, a component of Market Penetration can be recognized as the company can sell more of its postal cards to the same customer base.

These principles, true to Itella, can be recognized into other business sectors where other companies have engaged into mobile application creation.

6.3.2 Banking

Following the evolution of online banking, many banks have created their own mobile application. The basic features provided are easy access to the accounts status and daily operations like payments. Here, the essential benefit for the customer is to have a convenient direct access to his bank account and feel more empowered by it. This point alone could already be a good marketing argument for a bank but it would be short lived as more and more banks provide such service. Some banks are using these application to provide the customers with more features. The Nordea bank mobile application in Finland provides the customer with a bar code scanner. It allows for scanning the bar code of a bill to be paid. Thus it frees the customer from having to type all information in, to pay the said bill and makes it even less necessary for the customer to come and queue at one of the bank's offices (Nordea mobile application 2013). Danske Bank pushes the extra feature a point further as it advertizes on TV at the time of writing, a mobile application feature allowing for easy transfer of money from people to people. These are meant for daily informal payments like cash money is used for (Danske Bank TV commercial). Here we can clearly see that these applications are supporting the bank's business by attracting more customers, empowering customers and possibly reducing the resources needed at desks. We can sense that these applications can help the banks to retain their customers and enhance their image. If a customer was to move in an area where the bank would not have a

nearby office, it would no longer be as big of a problem. Applications can as well help banks to capture more market shares by attracting customers who would be interested into the modern features available. Finally, applications can reduce the operating cost of a bank which might not require as many resources at counters and offices.

We can see here how the patterns revealed by the Itella case can be applied into other activity sectors.

6.3.3 IT

Another way mobile applications can support an existing business can be illustrated in the IT sector and more precisely with providers of IT storage services. By allowing customers to add their mobile devices into their sphere of services, companies might create new ways for the service to be used. A better synergy between all IT devices used by a customer would for sure make for a good selling point. In the domain of cloud computing and related services, it is exactly the case. The concept of cloud computing allows for customers to access services which are hosted online, typically storage space, but not only. A service like Dropbox, competitor to a certain extent to Microsoft's Sky Drive, allows its users to store files online and to access them from anywhere. In fact the service allows the user to define a directory which will be automatically synchronized with the same directory in each of the registered devices. Any change to a file from any of the devices would be automatically transmitted to the others. The service was accessible via a desktop software or via a web page which meant anywhere users could have access to a computer with an Internet connection. With the creation of the mobile application, users could then access their files anywhere their mobile phones could have access to the Internet. New usages of the service are likely to intensify its use and potentially turn customers into paying ones. More devices inter-connected means more files to be hosted. Besides, the business of the company does not change essentially. It still synchronizes files between devices. For the user, it means that documents which are hosted on a computer can as well be available on his mobile phone without cluttering this one or having to bother with different versions of documents. The service could also be used to backup data hosted on the mobile phone. This can be particularly useful as the device can be lost or stolen. By adding a mobile application, at no cost for the end user, to its service offering, the Dropbox company opened the gates to more usages for its services which are as many potential for transforming free users in paying customers. It is close to the Market Development strategy based on new product and service usage as defined by Ansoff.

7 Advises & Conclusion

Reviewing such a large body of documentation and getting in contact with someone involved in the creation process of mobile application, brought a clearer view of the problematic. First, the different domains to be explored to answer the research questions are very vast and complex. The amount of parameters which are involved into problematics of strategy, mobile phone and mobile application market, software development project management among others, justifies each to be expertize areas. It also makes it clear that none can come up with an absolute guideline which would guaranty success to everyone. Success is to be found into the attention given to the details of each domain. But some general truth were verified and can be confirmed here.

A business strategy is absolutely required by any business at any time. As mentioned previously, there is no perfect recipe for success for businesses and even if a market is promising, failure is most likely to happen without a strategy. It is required at any level of a business. Strategy defines its core, its values and so the way it is to react to events in its environment. Strategy defines the purpose of a business and the means it will use to achieve this purpose. Strategy defines the goals of a business and how it needs to be organized to fulfil them. Strategy is one of the main asset of a business against simple disappearance. The changing environment of a business sets it in a position similar as to being on a slippery slope. Without a particular effort, the business would be more or less quickly lead to its disappearance. Even to maintain its position, a business must constantly pursue successful growth. But there are so many ways to achieve growth and they are as many risks to drift away from the market. A carefully crafted strategy protects a business from going away from its course, unnoticed, until it is too late.

The pursue of growth can lead businesses to get involved into innovative markets and technologies. It can be difficult to evaluate the potential of such market without close inspection but as to the mobile application market, it does represent a massive opportunity for businesses of all kind. The switch of the mobile phone industry from hardware oriented to software oriented leaves no doubt about the promising future of this market. With sells of smartphones passing 750 millions around the world in one year, the potential reach of the mobile application market is enormous. Any company

able to leverage properly this potential will see great return in terms of growth, like Facebook and Rovio are.

But despite being a fantastic opportunity this market comes with specificities which require particular attention to avoid traps.

7.1 Have a strategy

This has already been mentioned but just cannot be said enough. One should not let himself blinded by the greatness of the opportunity provided by the mobile application market. Success is not achieved just by engaging in this market. The guidelines for regular business making need to be maintained and applied through the development. The business needs to know what it tries to gain with or through mobile applications. It is necessary for the strategy to be aligned with the reality of the product or service offered through mobile applications. Entering new markets, gaining more market shares or reducing costs, each of these can steer the application development process in slightly different directions. The choices to be made later in this process are inter-connected in such way that the strategy will be the best way to keep the wanted direction. If the mobile application is meant to support an existing business activity by providing other access means to the product or service, evaluate carefully the impact it might have. Success with the mobile application might just hide a simple migration of the customers from former access to the new one.

Most of the subsequent steps can put back the whole strategy in question and it is advisable not to hesitate to revise this one if incompatibilities are reached.

7.2 Define your product or service

This point might seem obvious but it is not trivial. Unlike classical pieces of software, mobile applications are meant to fulfil a very limited amount of needs. At least, until mobile phones reach truly the power of computers and no longer present technical limitations. Where a website could regroup loads of activities under the same banner, a mobile application is likely to do just one or two things. This requires for the developer company to define clearly the value brought to the user by the application and how it intends to bring it. It is relevant whether it is targeting an existing set of customers or new customers. The stakes might be higher with known customers as a badly designed

mobile application could damage the already existing relation. It also requires to define how the mobile application is to reach the strategy defined goals for the company. These two components need to be in synergy for the application to be successful on both ends. The choice is to be made if the mobile application is going to bring value by direct or indirect revenue streams.

However, the ambitions set for the application have to be in line with the strategy of the company. Not all product or service is an innovation and will become a wonder used by all smartphone users. The goals set for the mobile application needs to be realistic. Trying to get comfortable revenues by developing card games might be reasonable for a single developer company but certainly less for a multinational unless it brings important added value to it.

If it is impossible to narrow the list of features of the application around core functionalities a bit like, play poker, send a message or browse files then rethinking the strategy might be necessary.

7.3 Check the status of the market

The mobile phone and subsequently the mobile application market is a very fast moving market. In a matter of few years its face has completely changed. The recent events have set new usage trends which are in their ascending phase. The motion which was started has not yet peaked and provide for great future perspectives. However, these events are also the reasons for businesses to be careful. Innovations have the power to reset entire industries in a very short time. They can come from many different directions when it comes to the mobile application market. The devices can evolve to provide new abilities. The operating systems can evolve to propose tighter integration with other products and grow the scope of what mobile applications can do. Even revenue stream models can appear and change the way mobile applications are consumed.

So even if the latest changes are believed to last, it is always safer to check the status of the market. The relevance of devices as well as the operating systems powering them can fluctuate and modify the market characteristics exposed in this research.

7.4 Care for your customer's location

The mobile application market is powered by the Internet and so, it has a global reach from a geographical point of view. However, the situation is not similar with other web based activities like websites. Websites are made based on network standards which ensure a major compatibility with any device equipped to support this standards. In a near past, competing technologies rendered websites accessible to only some browsers but users had the freedom of having several browsers. This is absolutely not the case for mobile applications. There is no easy way, from a user point of view, to access an application which was not intended for the operating system ran by his smartphone. The distribution of market shares between mobile operating systems can be significantly different between regions or compared to the global distribution. The popularity of a particular operating system is critical information for entering new markets but also for penetrating the local market. This information played an important role in Itella Posti Oy's choice to target Android and iOS first in Finland. It is also this information which pushes the company to consider porting its applications to Windows Phone now. It shows that these numbers are not enough by themselves, they need to be taken in account over time to reveal tendencies and see which systems are raising and which are decreasing in popularity. Failing to consider this point can be very costly as the whole process can be rendered useless. Launching a mass market application in India by targeting iOS as platform would be absolutely unproductive considering the popularity of this operating system.

7.5 Choose one or a set of target platform

The choice of a target platform is a complex but necessary one. The popularity of a platform can be a determining factor in case one operating system would have greatly superior market share compare to its competitors. But in many cases, the two dominating operating systems would gather enough market shares each to be both significant. In this case, as to be kept in mind that these platform do not have a uniform cover of the world, service wise. It can as well be that the geographical location does not matter. Anyway, each platform has its particularities and customer base.

The financial performance of a platform will provide with interesting data to compare with the strategy set for the application. The expected revenues from the mobile

application, specially if it is to generate direct streams of revenue, can be assessed for inconsistencies. It provides indication on the buying power and will of the users of this platform.

Developing for multiple platforms provides for the maximum reach but generates additional costs. Required development tools might be different from platform to platform and the associated cost summed. In some case, the running entry cost is to be added to the maintenance cost of the application. But developing for several platform can shield a company from the dependency to a single operating system editor and application store owner.

If the expected revenues from the application were not realistic compared to the performance of the platform or the cost of entry disproportionate compared to the expected revenues, it might be necessary to go back to the strategy.

7.6 Study the application store and its publisher

Publishing the mobile application on the official application store linked to the selected operating system is practically mandatory in this business. In the case of Android, publishing the mobile application on other stores might increase its visibility, but not publishing on the official store would be a serious handicap. On the two other main platforms, there is simply no other way.

Therefore it is critical to study carefully and in details the rules of publication on these stores. These rules define which application is accepted on the stores and which are not. Knowing the essential part of these rules can help reducing the cost of development of the application by avoiding wasting resources into features not aligned with the rules. Misuse of the resources provided by the stores can lead to the same results and are best avoided from the design of the application. In the case of development for multiple platform it is important to pay attention to rules from one store which might impact the application regarding the other stores too.

However, the rules of the application store are reflecting the image of the company editing it. Knowing the rules of the application store is a good point but not enough. It is valuable to know the editor of the store and its culture. The editor remains master of the store which is a necessity for the mobile application developers. These have to be realistic in regards of their negotiating power with partners worth hundreds of billions of

US Dollars on the market. Not every company has Microsoft's negotiating power and knowing the culture of these actors can help a business not to become another AppGratis case. Staying in the boundaries might not be enough on the long run. One might want to know exactly how far from the rule's limits it operates and the likeliness that in the future it finds itself on the giant's path. Monitoring the evolution of the store editors can as well be valuable to foresee problematic changes in the rules.

7.7 Evaluate the financial validity

At this stage of the process, enough information is known to have a more accurate evaluation of the financial aspect of the project. The revenues expected from the application, the likeliness of completion according to the financial performance of the platform, the part retained by the store publishers, the cost of entry and development tools are known. To complete a financial evaluation of the project, an estimation of the cost of the software development project itself needs to be added. With this partial data, the project can already be assessed.

If necessary, this assessment can be used as the base for debating the pricing policy of the application. This hot topic is to be decided prior development work because it influences the probability of the mobile application to reach its objectives. Depending on the strategy set for the mobile development project, the price range for the application can be very limited. The balance between the required amount of downloads and the revenues to be generated can be quite fragile. Overpricing the mobile application can have dramatic consequences on the amount of downloads expected. Pricing it too low could prevent the developing company to reach its objectives. It is at this point of the project that most financial related information are known and so when the evaluation can be the most accurate.

If already at this point, it appears that the mobile application needs to be priced at a point which does not make sense in the market frame or is not permitted by the store rules, there are reasons to get back to the strategy.

7.8 Openings

It is clear that the mobile application market is a great opportunity for businesses of all activity sectors. The smartphone market alone, growing closer to the billion of devices sold in a year, provide with a tempting future customer base for mobile applications. Taking advantage of this market can be complex but rewarding if handled properly.

However, I would like to conclude this research by emphasizing that the market described here, despite being the main branch of the mobile application market, is still only a subset of it. In fact, the research was limited to the study of mobile applications in the context of the smartphone. This context appears to be stabilizing after reorganizing, but as mentioned earlier, this is a very fast moving industry and innovations can come and shake it at any time. The smartphone side of mobile application targets is a reliable investment for anyone at the time of writing. But for any company which would like to stay ahead of its environment, it is important to look further in time and potentially to research other corners of the mobile application market.

For example, devices like tablets have become common in the past few years. Even if their level of adoption is marginal compare to the smartphone's one, they have been gaining in popularity. The merge between these devices and smartphones has lead to the appearance of super sized phones. The size of the device's screen might affect the way advertisement is displayed and so the revenue model associated with it. If these devices were to keep raising, they could influence the market and change the way mobile applications are consumed.

The release of the first device sporting SailFish OS, a Finnish produced product, might represent a lead for change too. In fact, the announced compatibility of this operating system with Android applications is an exclusive feature. If this operating system was able to leverage some of Android's power, the consequences could be major.

Android could in itself create a full revolution in the mobile application market. Its editor, Google, has shown interest into several industries which could expand Android's reach. Televisions supporting Android are already commercialized. Reports of cars equipped with on-board Android system have been made. The company has also announced its second most expensive acquisition in the shape of a firm specialized into home IT

equipments. The Android ecosystem seems to be expanding in directions way beyond the classical notion of mobile devices. There is no doubt that new opportunities for mobile applications will appear during this expansion.

This demonstrates further that this market is in constant evolution and its potential is not yet fully explored.

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8.3 Video

Androidology: <https://www.youtube.com/watch?v=QBGfUs9mQYY> [referred to 3.11.2013]

Danske Bank: <http://www.youtube.com/watch?v=Bi64FNUstA4> [referred to 3.12.2013]

9 Appendix

9.1 Descriptions

AllThingsD

It was an online publication specializing in IT and startup news and analysis. It was founded in 2007 and lived up until the 1st of January 2014. The owners of the site decided to reorganize their activities around similar sites they possessed.

Androidology

Series of 3 videos hosted on the Youtube platform. They detail the inside of the Android operating system. These videos are targeting developers.

Igor Ansoff

Worldwide known for his work in the area of real-time strategic management, contingent strategic success paradigm and the concept of environmental turbulence. The professor Ansoff was a Russian American mathematician and business manager. He consulted with many multinational companies and its Product-Market Growth Matrix is a very popular tool in business strategic decision processes.

Apple Inc.

Commonly known as Apple, is an American consumer electronics company. Founded in 1976 it is known for releasing products like the Mac computer line, the iPod media players or the iPhone smartphone. The company has been extremely successful with its line of products making in the world's largest traded corporation by market capitalization with an estimated value over 400 Billion Dollars. With its iPhone product, it became one of the major actor of the mobile phone industry.

Arstechnica

It is a technology news and information website based in the United States of America. It was created in 1998 with the aim of providing the largest possible coverage of the IT world from hardware to software and regardless of operating systems.

AT&T Inc.

AT&T Inc. is an American based multinational telecommunication firm. It is the largest phone service provider, both mobile and fixed, in the United States of America. It is the last stage of a stream of mergers and divisions which occurred in the telecommunications sector since 1885. As of 2013 this company employs nearly 250K people.

Bain & Company

Is 40 years old management consulting company. It operates internationally with 50 offices in 32 different countries. The company delivering results by focusing on strategic decisions and practical actions to guarantee success to its customers. The company has won multiple awards for its performances as well as for the work environment it proposes to employees.

Balance Score Card Institute

This institute, based in the United States of America, specializes in trainings, certifications and consulting services. It aims at, through the proper use of the Balance Score Card tool as well as others, helping management actors to transform their companies in "performance excellence". The institute operates internationally.

Business Strategy (Strategy Capstone)

Created by author Michael McDermott, this business online resource platform contains many of the founder's insight on the subject. The platform contains has well an area where members can share their ideas about the business.

BusinessDictionary.com

Edited by WebFinance company, this online dictionary claims to give access to 25000 business related definitions. WebFinance specializes in advertising based websites which does not make it a specialist of the subject. However, the definition of business strategy mentioned in the dictionary of the firm has been re-used multiple times by university teachers or business bloggers.

Canalys

Canalys is a market research and data analysis firm specialized in the telecommunications and IT sectors. With offices in Europe, America and Asia, the company aims at delivering accurate data and analysis in both of its expertise areas. It counts multiple multinationals among its customers such as Google, AT&T or HTC.

Cingular Wireless

It was an American mobile phone carrier. It has now become whole part of AT&T Mobility LLC.

CNET

CNET is an American technological website founded in 1994. It publishes reviews, news and articles about technology and consumer electronics. It is now part of CBS Interactive.

Dr Martin Cooper

Dr Martin Cooper is an American inventor who pioneered the field of mobile phone telecommunication. While working at Motorola in 1970 he conceived the first hand held mobile phone and was the first person in history to ever make a call from such device.

Deloitte

Is the largest services network in the world. Founded in UK in 1845, the firm employs a little over 200K people around the world and received over 32 Billion Dollars in revenues in 2013. It provides consultancy, audit and advisory to businesses in more than 150 countries. Its areas of expertise are covering a wide range of business concerns like accounting, risk management, outsourcing or even bankruptcy.

Developer Economics

It is a knowledge resource concerning the application market. The online platform is the online support of VisionMobile's acclaimed market research about the application economy. It provides insights and tool benchmarks to developers willing to engage in a mobile strategy.

EngineersGarage

Is an online website started in 2010. Its main subject is high technologies with an orientation towards electronics. The site contains loads of tutorials allowing its readers to create diverse

electronic circuits which can interact with technological devices. Articles from technological experts describe in depth new products and technological trends.

ExpertReviews

This technology website is defined by its owner, Dennis Publishing, as the definitive technology buying guide. It features numerous product reviews and insights on the high tech world. The website benefits from an active community which can comment on article and product reviews.

Facebook

Facebook is the world's largest social network. Created in 2004 by Mark Zuckerberg, CEO at the time of writing, the network has rapidly gained popularity among students from the United States of America before conquering the world. With over 1.15 billion users, the company's worth is estimated at over a hundred billions Dollars.

Gartner Inc.

Is an American technology research and advisory firm founded in 1979. It provides its customers with various services and products around technology market research. Its direct customer target is mainly composed of CIO's. Gartner's researches have been cited by many news medias. It employs over 5K people.

Louis V. Gerstner, Jr.

Former CEO of IBM, from 1993 to 2002. He is credited for saving the company from a potential disastrous plan and allowing it to become profitable again. Turning the company around was a difficult process as some of the company's culture core components had to be challenged. Ultimately, despite some defeats in regards of losing control of the PC market, IBM was saved, profitable and successful again.

GlobalStats

Based in Dublin, this company through its tool StatCounter provides statistical information to website owners. With this information, owners can better understand the interaction of users with their websites. GlobalStats also uses this data to compute statistics about global usage of the Internet. With 3 millions of website using its technology around the world, the company can present an idea of the latest trends concerning browser or operating system usage around the world. The company's data can not be considered as absolutely representative, particularly

because it is based on an indirect source of information, but cross with other data, it can provide ideas about trends.

Google

Originally a search engine based company, Google grew into one of the top software giants in the world. Founded in 1998, the company now employs over 45K people and reported earnings over 50 Billion Dollars in 2012. The offering of the company has grown way beyond the search engine with a stream of acquisitions. From online video hosting with Youtube, to online advertisement with AdWords, Google is present on many markets. With its mobile phone operating system Android, Google has conquered the top spot in terms of market shares. It is the most used smartphone operating system world wide and the first ecosystem in terms of downloads from the application store.

HTC

Founded in 1997, HTC is Taiwanese mobile device manufacturer. Originally focusing on Windows Mobile OS powered phone, the company expended its product range with Android powered devices. HTC is a founding member of the Open Handset Alliance. At the end of September 2013, the company's smartphone market share was reported below 3%.

IBM

Founded in 1911 as the fusion of 3 companies, IBM is an American technology giant. It markets technology based solutions including hardware and software. Over the years, the company has produced numerous innovations like the magnetic strip cards. Its employees have won awards in multiple fields of science including five Nobel Prizes. It has held the title of most patents generated for the past 20 years.

During its life, the business has undergone several major reorganizations and survived the switch of the IT consumer market from hardware oriented to software oriented. It employs more than 400K people around the world with a turn over above 100 Billion Dollars.

IDC

International Data Corporation is an American firm founded in 1964. It provides market researches, data analysis and advisory in the areas of telecommunications, IT and consumer technology. It is a branch of IDG, the G standing for Group.

Itella Posti Oy

Founded in 1638, Itella Corporation is a Finnish state controlled company. It offers postal, logistics and financial administration services in several European countries among which neighboring Sweden and Russia. Through its subsidiary Itella Posti Oy, it handles the mail delivery in Finland.

Steve Jobs

Steven Jobs was an American entrepreneur who notably co-founded Apple Inc. Recognized as a visionary pioneer, he served as CEO of Apple, overseeing the development of the company's most successful products. The history of Apple is closely linked to him as, in his absence between 1985 and 1996, the company almost went bankrupt. During this same time lap, he went on and founded Next, to be acquired by Apple and co-founded Pixar, to be acquired by Disney. He lost his battle to cancer on October 5, 2011 at age 56.

Kodak

Is an American technology company, created in 1888 and specialized in imaging technologies. It held the top position of the photography market including photographic film for most of the 20th century. The company's fall started not long before the year 2000 when it became slow to transition from film to digital photography as the market switched. Despite several attempts to readjust, the company could not recover and kept drifting away. In 2012 it had to file for bankruptcy. In a last effort for survival, the company had to exit most of the consumer markets where it was involved, selling its assets like patents. In 2013, turned to business to business markets exclusively, Kodak emerged from bankruptcy.

Linux

Linux is a free and open source operating system originally designed for the Intel-x86 hardware based PC's. But since, thanks to its low need in resources, it has been ported to many other hardware platform, more than any other operating systems. It is a leading operating system in areas of high performance servers and super calculators as well as in small devices like routers and automation controls. The Android mobile phone operating system is based on the Linux kernel.

MakeUseOf

UK based technology website, MakeUseOf was founded in 2006. Its primary focus is on software and web applications, but it also covers news and opinions about the high tech world

too. The site receive awards from others like PCMag for the quality of its content on 4 different occasions.

Merriam-Webster

Merriam-Webster is an American dictionary publisher. The first edited dictionaries were the creation of Noah Webster in 1828. The company has been part of the Encyclopaedia Britannica since 1964. The company has published "Webster's Third New International Dictionary" which is one of the most complete English dictionary.

Henry Mintzberg

Renown author and professor in the fields of business and management. He is a prolific writer with nearly 200 articles and books to his name. He has advocated a more hands on approach of the field of management, based on experience, rather than the academical approach attempting, according to him, to transform this field in a science.

Motorola

Motorola was an American telecommunications company. It designed and sold wireless network equipment. It pioneered the mobile phone device industry with its products like MicroTac or the StarTac. After registering tremendous losses between 2007 and 2009, the company was divided in a Mobility entity and a Solutions entity. In 2012, software giant Google acquired Motorola Mobility.

Nokia

Nokia Corporation is a Finnish telecommunication equipment manufacturer. The multinational employs about 100K people around the world and operates in more than 150 countries. The company lead the mobile phone market during 14 years with its different ranges of mobile devices. Failing to keep up with the smartphone revolution, the company's profit on this market have been plummeting. In September 2013, its mobile phone division was bought over by its partner, Microsoft.

Open Handset Alliance

This alliance, founded in 2007 and led by Google, aims at developing open standards for mobile devices. The alliance covers more than 80 firms involved into various domains such as mobile phone manufacturing, software creation, electronic manufacturing or mobile services. The

central software of the alliance is Google's Android mobile operating system which is based on an open source license.

PCMag

Online publication which followed the publication of paper magazine PC Magazine. The magazine was designed as an independent guide to IBM's PC. The publication went on to become more general, treating subjects around hardware and software with experts writing the articles.

Michael Porter

Most cited author in fields of business and economics, Professor Porter has won several times the price for best Harvard Business Review article of the year. Considered an authority on strategy and competitiveness, he has authored 18 books and many articles on these subjects. His work has had a great impact on the common views about business strategy and competitiveness.

Jim Riley, tutor2u

CEO and co-founder of tutor2u, an online educational community around the fields of Economics, Business, Politics, Enterprise, Law and related subjects. The community claims 35 millions teacher and student visitors and the title of leader in publishing of e-learning solutions. Its materials are used in more than 3500 schools in UK and in more than 85 different countries.

Sitepoint

Sitepoint is an Australian publisher of technological books and websites. The main product, the website of the same name, is oriented towards software development but as well treat of more general high tech subjects.

George A. Steiner

Author and co-author of nearly 30 books in the fields of business and management, George A. Steiner is an award-winning researcher and professor. Recognized by several organizations, he has held top management positions in private but as well public organizations in the United States of America.

Symbian OS

Evolved from an operating system created by Psion, Symbian OS was the most used mobile phone operating system up until 2010. It was used by many manufacturers by mainly by Nokia which bought Symbian Ltd. In 2008. The system grew gradually obsolete to the point that some don't even classify it as smartphone system. On February 11, 2011 Nokia announced its intention to abandon the system in profit of Windows Phone. This signed the beginning of the phasing out of the operating system.

TechGig

TechGig is an Indian IT platform sponsored by numerous multinational companies. It aims at providing to Indian IT talent a central place to interact with the high tech world. It is a knowledge center as well as a project incubator truly connecting all various parts of the industry.

The Economist

It is a UK based publication both online and printed. The publication emphasis is on economy in general. Despite not being focused on technology, it does treat subjects of technology with an economical point of view. Founded as a news paper in 1843, the publication is now weekly and distributed in multiple countries.

Vodafone

Vodafone Group is the second largest multinational telecommunications firm in the world. The group, British, was founded in 1991. It operates in 30 countries and collaborates with partners in 40 others. It provides phone services both fixed and mobile but as well Internet and digital television services.

Wired

Wired is an American publication both online and printed. It details how new technologies impact different aspects of life such as culture or economy. The first issue was released on January 1993. The publication is also known for its critical view on promised products or services which are never delivered.

9.2 Interview: Vesa Sallinen

Company and Interviewee

- Name:

Vesa Sallinen

- Occupation:

Senior Development Manager

- Company as seen by you:

The company I work for is Itella Posti Oy.

- Purpose of the company:

Our mission is to provide smooth flow of trade and ease of everyday life. Our target is to be "Your first choice in postal, logistics and eCommerce services"

- Role in mobile application creation process:

My role is a business development role and one of the development areas I specifically look after is mobile services Itella Posti offers to its consumer customers. I am the chairman of a group of people defining consumer mobile strategy for our company.

Mobile Application

- What was the problematic to be solved? The purpose of the application?:

One of our promises to our customers is that our services are easy to purchase and use. Interacting with us is smooth and simple. Our services are there, when and where you need them. Mobile application is one way to address this promise of easiness. At the same time mobile app can enable us cost efficiencies if it encourages consumers to use self-service and even enable new service revenue streams.

- What is the strategy of the company and how does it relate to it?:

See my answer to the question right above.

- Why a mobile application?:

Like written above, mobile app enables consumers easy access to our services whenever they want, where ever they want.

- How was it expected to reach the goal? (Ex: attract young people, reduce cost, sell more product...):

Mobile apps can help us both in reducing our costs and in reaching more sales. They are also expected to strengthen our image as a dynamic company. Mobile services enable e.g. easy self-service tracking of parcels, instead of calling to our customer service desk. It means less load on our customer service and less expensive process of serving customers (and most likely also improves experience of those who anyway need or want to contact to customer service). With some other services we get customers service requests more automatically into our systems and avoid manual steps in our processes.

- Which platforms were chosen? (iOS, Android, Windows Phone) Why? Why not?:
Currently we have our app for iOS and Android plus a .mobi-site for basically any phone that has a browser. These two platforms were seen as the most promising app ecosystems at the time of launch. Now that Windows Phone has gained significant market share in Finland, we are planning to bring our mobile app also to Windows Phone platform.

- What are the 5 most important criterion which guided the platform choice?:

Not sure if I am able to list five criteria, but size of potential customer base that can be addressed with a specific app platform was certainly a key criterion. Not only in terms of how many devices of certain platform is out here in Finland, but also how likely we expect users of certain device platform to start using new apps.

- Was a platform considered priority? Why?:

Out of the two platforms chosen, there was no specific order or priority.

- What distribution channels were considered? Which were selected? Why?:

We are currently relying on Apple's App Store and Google's Play Store in our app distribution. Those have been seen as the most important channels when addressing Finnish customers with our apps. Some of the alternative app stores are more focused on customers outside Finland.

- Were there difficulties related to the rules of the applications stores?:

No specific difficulties.

- Was the strategy created then implemented or did the applications stores rules influence the features in the application? How?:

App store rules have had some impact on the choices we have made related to billing mechanisms we use for chargeable features within our apps (our apps as such are distributed free of charge). As far as we understand, at least Apple's App Store rules do not allow selling physical goods using Apple's billing. As one of the products we sell through our mobile app is a mobile postcard (=you create a postcard in mobile app digitally, but the card is eventually delivered to the recipient as a physical post card via normal mail), we had to use another partner for billing. As such this was not necessarily a huge issue, but in any case the app store rules impacted on our decisions.

- Was the goal reached? (partially? Fully? Not at all?):

I would say at least partially. We are of course all the time looking for even more customers to start using our mobile apps.