Creating value with Qwiki in the firm's business model:

A strategic perspective of implementing a wiki platform by taking advantage of smartphone technology and its mobility in the corporate business world

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Abstract

Title: Qwiki in the firm's business model: A strategic perspective of implementing a wiki platform in the corporate business world

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This dissertation addresses the strategic use of the Qwiki platform in the firm's business model. The objective of this dissertation is to access the strategic potential of the Qwiki platform, under certain assumptions, contribute with knowledge regarding the possibilities and opportunities with its usage and the ability to potentially create and sustain value to the company that holds Qwiki and its clients.

This dissertation presents the available information and knowledge regarding the wiki and smartphone technologies in terms of its developments, its advantages and shortcomings and its incentive to be used by companies, as well as how they can be used together to create value to the holder company and clients. Additionally, it describes the possible opportunities and threats expected with the use of wikis and smartphones with Qwiki.

Two analysis are conducted in this dissertation: the Resource-Based View framework and implementation of Qwiki in businesses and the value created for both the holding company and the implemented companies. These analysis serve the purpose of assessing if Qwiki has the conditions to generate sustained competitive advantage for the holding company and how to implement this platform in order to potentially profit from this technology with said competitive advantage.

It is concluded from the Resource-Based View model that it can, under some conditions, have a strategic impact on the holder business by creating and sustaining competitive advantage. These conditions are namely Qwiki's value increase within the business through user learning processes, experience and network effects, which are tacit knowledge. That is, these attributes cannot be transferable and easily copied to other companies, thus increasing both user switching costs to the competition and the barriers for other companies that attempt to implement similar strategies. It is also concluded with this reasoning that the Qwiki platform and the involving wiki and smartphone technologies can create value to the Qwiki holder company and to companies that adopt it and offer the possibility to potentially profit from the competitive advantage that the platform creates, based on its correct implementation and validation of this work's assumptions and Qwiki future challenges.

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I. Introduction

Wikipedia is a website that gathers volunteers, from all around the globe, who contribute and maintain this encyclopedic platform[1]. As of 2011, it has over 18 million articles in more than 260 languages[2]. It covers a broad selection of topics, such as the popular ones like culture and the arts, history and events and society (Kittur et al., 2009). The wiki concept is integrated with web 2.0 technologies, an environment that allows users to interact, collaborate and share content online[3].

Another concept present today and taking part of millions of consumers' lives every day is the smartphone (Minhyung, 2010). These more powerful and interactive mobile phones are changing the way people behave in society and changing the infrastructure and business models of companies (Minhyung, 2010). The accessibilities of a camera inbuilt to the phone, particularly the possibility of internet access anywhere through wireless or WAP technologies, and video call create new possibilities and opportunities for companies to explore and deliver to their clients (Minhyung, 2010). An example of this change is the iPhone applications, also known as 'apps', having more than 350.000[4] available online created by their users or companies for nearly any use or need.

Introducing the Qwiki[5], a wiki-like site based on the web 2.0 technologies, launched on 24 January of 2011. This concept is defined by creating interactivity and multimedia on wikis, making the website gather content such as information and images from Wikipedia and other trusted sites. Then this content is delivered through a visualization presentation of slides and a robotic voice reading the content. This information can then be accessed through any device that can connect to the internet and has a screen, such as smartphones, laptops or personal computers. This means that any user can search for any kind of information virtually anywhere and have it displayed almost instantaneously at no cost.

The purpose of this work is to elaborate on the strategic possibilities that this platform, Qwiki, enables to companies. It is explored how can linking the smartphone technology with web 2.0, namely wikis, can contribute to better efficiency in a company infrastructure and how this can influence the business organizations and their business models.

[1] http://en.wikipedia.org/wiki/Wikipedia
[2] For Wikipedia Special Statistics, see http://en.wikipedia.org/wiki/Special:Statistics.
[3] Wikipedia. http://en.wikipedia.org/wiki/Web_2.0#Characteristics_of_.22Web_2.0.22
[4] http://www.apple.com/iphone/apps-for-iphone/
[5] http://www.qwiki.com

The main question is thus the following:

- Is Qwiki a potential commercial success for the holding company?

The following questions aid and allow a further comprehension of the research question:

- How can Qwiki's implementation contribute to the value creation for clients? Can Qwiki be a differentiating factor when used in the context of a business model?
- How can Qwiki potentially become a source of profitability?
- What are the main problems and limitations of the Qwiki platform?

In order to answer these questions, this work develops the following analysis:

This work introduces first the aspects of previous knowledge on the subject through a revision literature in the State of Art chapter. These cover the topics of a brief Web 2.0 introduction, the importance of wikis and the usage of smartphones in both user and corporate use. Additionally, the new developments on these areas are explored and their importance to future strategic implementation on companies. Furthermore, the chapter presents an overview of the knowledge regarding the Resource-Based View framework that covers the fundamental aspects of creating sustained competitive advantage. All of these topics are explained in the following chapter State of Art.

The Discussion chapter justifies the reason of study of this dissertation, exploring if Qwiki is a differentiating factor in a business model that delivers value to its clients and potentially increases the profitability of the holding company, contributing in answering the main dissertation question. Further in the Discussion chapter, it is verified the possible sustainable value creation and competitive advantage by the Qwiki platform for the holding company and its clients through the analysis of the Resource-Based View framework. This is analyzed in this framework through verification of a resource's attributes, which is if Qwiki is a rare, valuable, imperfectly imitable and non-substitutable resource, then, once these conditions are met, the resource may potentially generate sustained competitive advantage and value.

As Cooper and Zmud (1990) argue, a company is required to change or adapt in order to successfully implement technological changes, thus businesses that implement Qwiki must change or adapt as well. In doing so, the Discussion chapter explores the implementation of Qwiki platform on three different business areas: tourism agencies, museums and restaurants and how this implementation must be made in order to the company that hold the platform benefits from the advantages and value creation that this platform can contribute to these

businesses, because a successful implementation is necessary to obtain Qwiki's full potential. This analysis also provides an explanation for the possible capitalization of the value created from Qwiki's competitive advantage explored in the Resource-Based View model.

Additionally, the Future Challenges and Limitations of Qwiki chapter analyses subjects such as the vandalism on wiki content, connectivity issues to the platform, security challenges from hackers and faulty smartphones and future research and development for companies that implement Qwiki.

Finally, in the Conclusion chapter it is summarized the findings and discoveries of this dissertation. Likewise, the main question of this work is answered followed by the Future Research chapter concerning this subject.

II. State of Art

This chapter performs an overview of the technologies used in this work, the wiki and the smartphone, as well the Resource-Based View framework. This information starts with the technology background, continues exploring the current development and its main usage, finalizing with their limitations and known problems. These concepts use or rely on Web 2.0 technologies and, thus, a brief introduction on this subject is made in order to expand the knowledge surrounding the wiki and the smartphone. Therefore, this literature provides fundamental insights to answer the research questions of this work.

2.1. Wiki technology

2.1.1. The Web 2.0 technology

Understanding this concept can be done through the words of Chen (2009) where he states that the term "Web 2.0" refers to a perceived second generation of web development and design, it is meant to ease communication and sharing while being secure, and the ability of diverse systems and organizations to work together on the World Wide Web. This platform has then been allowing for the creation of new applications that further increase the collaboration and sharing of knowledge and for the promotion of interactive content (Wainewright, 2006).

Such applications like the wiki show how users can use this platform to expand their and global knowledge on different topics (Kittur et al., 2009). Additionally, it can provide information that is available everywhere, as long there is an internet connection. This allows a smartphone user to engage in this platform and contribute to it, further expanding knowledge, since they too can connect to the internet (Zhang, 2007). However, there are some limitations that are explained in the according technology sections, which impact the usage of these technologies.

So in order to acquire the full potential of these technologies, their implementation must be correctly installed to create value, or as Andriole (2010) states: "Properly deployed [Web 2.0 technologies], they may well permit companies to cost-effectively increase their productivity and, ultimately, their competitive advantage".

2.1.2. The Wiki concept background

The word "Wiki" comes from Hawaiian and stands for "fast". The first wiki software WikiWikiWeb made its first appearance in the World Wide Web by the work of Cunningham (2002), who defines it as the "the simplest online database that could possibly work."

Leuf and Cunningham (2001) describe a wiki as an invitation to all users to edit or create a page within the wiki website, without additional tools besides the web browser functionalities. They argue that the wiki promotes topics by associating them between different pages and allows a user to intuitively create these links and check if the pages exist or not. Additionally, a wiki seeks to involve visitors in a continuous process of creation and collaboration to improve the wiki landscape.

In spite of having these advantageous aspects, a wiki can also suffer from user actions or malicious intent. As Andersen (2005) argues, there are four examples of how a wiki can be misused from its true and original purpose, described below.

An open wiki is subjected to willingness of its users, being them respectful or troublesome. A page can be edited by anyone, if no permissions are in place, to change its content. A user, who can be anonymous, may edit a page and remove all of its content or introduce other types of content non-related to the subject. This is known as vandalism and requires users to revert the page to the original state, prior to the editing, and issue a ban on the vandal IP address. Additionally, one user can edit it to promote spam, that is, include links or information regarding company products, advertisements or even scams. This is known as spamming and can also be reverted.

In some topics, such as religion or history, the users' contribution can be contested due to having a biased point of view and influence the reasoning in some way. These entries are then edited to maintain a neutral point of view by removing any biased content from the page and include as much facts and citations as possible. This ensures that the content is objective and agreeable upon.

Another problem is the improper use of images or copyrighted content. Since all entries written on an open wiki are considered open domain, a user can only contribute with original or with the author's consent. If an entry is infringing copyright, it is either removed or replaced with original content.

2.1.3. The Corporate Wiki: disadvantages and advantages

There are two types of wikis, the open-community wiki such as Wikipedia and the private and enterprise oriented wiki called corporate wikis (Andersen, 2005). Both aim to involve visitors into contributing and create knowledge, simplify with the help of teamwork tasks by removing complexity from definitions or processes (Andersen, 2005).

Having a corporate wiki removes most of the problems found on open wikis such as vandalism, spamming and anonymous users. However, they must keep it simple in order to ensure that users will be focused on the task at hand and contribute or gather all the information required effectively (Andersen, 2005).

Hasan and Pfaff (2006) further show that if management strategy is not aligned with the wiki, if there is risk of vandalism and the uncertainty over quality control and evaluation, and if there is absence of organizational culture of collaboration and knowledge sharing, then the wiki may fail to achieve its purpose. Other authors make additional arguments such as the failure to integrate the wiki within established work practice (Grudin and Poole, 2010), lack of clear guidelines and policies for wiki use (Holtzblatt et al., 2010) and Wiki usability and accessibility (Raman, 2006).

Corporate wikis also have aspects that can help an organization where authors Guy (2006) and Grzeganek et al. (2011) elaborate.

- These wikis allow to link information via new created pages that contain links to other corporate information systems, such as CMS, applications or people directories, and build up knowledge bases.
- They avoid unnecessary traffic of information, such as e-mails, since all the relevant information is shared by the users on the specific page. If there is a project being made, the users can contribute in order to keep all the related information available and the project manager can quickly oversee the entire project. Additionally he can see and address any contribution made by the members. Thus, it can provide a mean of organizing information, where users can manage the new and existing information by editing the content.
- They promote feedback and consensus among users as they can discuss what actions should be taken. An example would be preparing presentations, defining new concepts in projects or writing corporate documentation.

2.1.4. The Wiki implementation in corporate settings

Arazy et al. (2009) conducted a study regarding the wiki deployment at IBM and identify what of how corporate wikis are being used. These authors find five main reasons that they attribute for success at this company:

The first reason is due to the wikis flexibility which allows for implementation of various tasks, being used as a means of collaboration or a simple web portal. Additionally, it is easy to install, to use and to manage (Arazy et al., 2009).

The second reason lies in the possibility of worldwide collaboration as Arazy et al. (2009) states that IBM uses the wiki for "cross-geographical and cross-organizational collaboration", thus creating the possibility of any department and employees to work together independent of their location.

The ability that wikis have to give power to employees and also grant them the possibility of having considerable autonomy and freedom to express their opinions is what defines the third reason (Arazy et al., 2009).

The fourth reason is defined as having very low barriers in adopting the wiki technology and the amount of training that a company needs to handle to its employees is minimal (Arazy et al., 2009).

Arazy et al. (2009) argue that IBM adopted wiki as part of its Web 2.0 technology adoption, which promoted wiki success and is, therefore, the fifth and final reason.

Standing and Kiniti (2011) explore the use of wiki in four firms (Cisco, Pfizer, the U.S. Department of Defense and Angel.com), in order to promote innovation and summarize the findings on the various stages of innovation. The authors argue that wikis can promote an open, constructive, democratic, knowledge sharing and feedback giving environment among employees.

Additionally, the overall efficiency of the firm in terms of knowledge sharing and employee collaboration is increased, with reduced development and technical costs and increased feedback from both customers and employees (Standing, Kiniti, 2011).

2.1.5. The Wiki and Qwiki

Qwiki can be seen as both as community and corporate wiki. This all depends on the nature of the user. If a user is accessing the platform as a regular user, it is using the community part. On the other hand, Qwiki can be seen as a corporate wiki since only enterprises can create their content and make it available.

As such, all the advantages and disadvantages that wikis have being both community and corporate go along with Qwiki.

2.2. The Smartphone technology

2.2.1. The Smartphone background and advantages

The first smartphone to appear on the market was the IBM Simon in 1992 (Schneidawind, 1992). It featured many applications such as calendar, address book and e-mail but it had not physical buttons to deal with. It had a touch screen, where a user would simply touch the screen of the smartphone to input the commands. In 1997 the term smartphone was used for the first time by Ericsson[6], using it as a box label.

There are several differences in where a smartphone distinguishes from a regular mobile phone. These features are explained below.

The smartphone has an operating system, similar to a computer. It can be said that a smartphone has the benefits of both a computer and a mobile phone[7]. An operating system is what can define a smartphone, apart from a better definition, although Raento et al. (2009) defined it as being a new tool, created by the continuous advances in technology and successor of the traditional mobile phone.

There are several operating systems available to smartphone, which serve as a platform for all other software, known as applications or apps. There are several operating systems in the market, namely Android from Google, Symbian from Nokia and iOS from Apple. These operating systems allow for user customization and preferences on their applications, each of them differing in those aspects[8]. The figure below shows the percentage of share of worldwide 2010 Q4 smartphone sales to end users by operating system, according to Canalys[9].

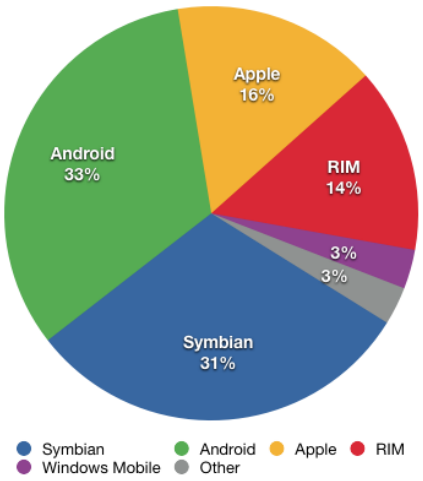

Figure 1 - Percentage of sales worldwide of smartphones in Q4 2010.

Source: Canalys.com

[6] "Ericsson GS88 box". http://en.wikipedia.org/wiki/Smartphone, retrieved 19 September 2010.
[7] http://cellphones.about.com/od/coveringthebasics/qt/cellphonesvssmartphones.htm, retrieved 31 May 2011
[8] http://en.wikipedia.org/wiki/Smartphone
[9] http://canalys.com

Another aspect is the software that comes included. Where most of the software comes already pre-installed with the operating system of choice, or only a set of applications where traditionally installed on regular mobile phones, the smartphone allows a user to create software for its operating system. Additionally, functionalities that involve the World Wide Web become accessible, such as e-mails, file sharing and social networks[10].

While referring the World Wide Web possibilities, the smartphone has a web browser and browse and interact with all of the Web 2.0 content available. These connections are based on 3G and Wi-Fi, and newer and faster technologies such as 4G are becoming accessible.

In contrast to regular mobile phones, smartphones are known for not having a button interface but some have a QWERTY button support, similar to a personal computer keyboard. This touch interface facilities writing on the smartphone either by messaging, writing documents or e-mail.

While smartphones also have the ability to message text, pictures and video, they can also sync with other devices and share these effortlessly. The included camera makes sharing easier since a user can use it to capture the moment for future reference, creating a network capability of real time descriptions of events (Raento et al., 2009).

Raento et al. (2009) states that a smartphone is programmable versus a regular mobile phone and it has features that are similar to a computer such as storage capacity, built-in networking and refined sensing capabilities.

Bluetooth, Infrared and GPS are normally included in the sensing capabilities of a smartphone. These allow a better synchronization with other devices or display geographical positioning data of users' current location or other users and services (Korpipaa et al, 2003).

The smartphone also improves productivity to normal users or corporate (Jewel, 2011). Being able to continuously meet with the pressure of demand of information while striving for organization has been possible with the smartphone tools that are available. Information can easily be reached and shared if needed, allowing for minimize the time spent searching and maximize the time finding and providing information solutions (Jewel, 2011).

Beurer-Zuellig and Meckel (2008) also support the idea of collaboration and work efficiency, by allowing users to synchronize their information which improves their overall efficiency in the processes of information gathering. Additionally, it allows for corporate users from various

[10] http://cellphones.about.com/od/smartphonebasics/a/what_is_smart.htm, retrieved 31 May 2011

parts of the world to work collectively independent of distance due to its real time responsiveness and information sharing.

2.2.2. Smartphone problems and limitations

As with all its advantages, the smartphone also has problems and limitations. These problems can be classified as hardware and software problems. The first problems are related to connectivity issues, namely Bluetooth and Wi-Fi connections. Hackers, users with high technological knowledge, can use these connections to steal or damage certain content on smartphones (Loo, 2009). The second problems related to software are those than allow a hacker to exploit vulnerabilities in the operating system, thus gaining control of it and using it with bad intentions in mind.

Since computers and smartphones now share common software, the operating system, the smartphones are also vulnerable to these attacks. Common attacks by the hackers can be described as retrieving personal information such as e-mails or contacts, sent messages to other phones without prior consent, infecting other phones through the network connections and control remotely the phone to make calls or browse the internet (Loo, 2009).

Schmidt and Albayrak (2008) have stated that since the first appearance of malware in smartphones, the trend is to expand in the future since this is a potential target for hackers. The authors add that allowing for connectivity and characteristics similar to a personal computer, smartphones are always a potential target for hackers since they can use the internet connections, such as Bluetooth or Wi-Fi to control the smartphone.

However, this issue is expanding nowadays and companies and users are underestimating these facts and ignoring them (Schmidt, Albayrak, 2008).

Raento et al. (2009) states that users have a preference for smaller Smartphones but this has a trade-off since smaller smartphones have also smaller interfaces, such as the display and the keyboard, thus becoming harder for its usage.

Additionally, the more features that a smartphone has, the more is its power consumption. As more applications are being used on a daily basis, battery life is exhausted very fast and requires that applications should not be used constantly to avoid battery drain (Raento et al., 2009).

Furthermore, smartphone connections are not optimized and cannot be compared with personal computers. The speed of a network relates to faster information transfer and

increased reliability of the service; however changes are taking place as mentioned before, such as 4G connections (Li, Im, 2011).

2.2.3. The Smartphone software: Operating system description

It is clear that the software that comes with the smartphone, the operating system, differs depending on the manufacturer in terms of characteristics and functions but also if it is vulnerable to hacker attacks (Li, Im, 2011). Li and Im (2011) state that there are seven main operating systems in the world market, described below, apart from Palm due its low percentage worldwide.

Symbian is majorly implemented in Nokia smartphone as well as some products of Samsung and Motorola. It provides PIM (Personal information management) functions and some third-party software. Symbian OS can support office applications and to email, it supports POP3, IMAP4 and Webmail and many push-to-email schemas.

Nowadays, there are more and more smartphones that works on a Linux system. This platform is just similar as a complete smartphone operation system. But the limit lies in its high requirement on hardware which makes the cost higher for software development. While the obvious advantage lies in open source of Linux and free of patent fee.

BlackBerry has the biggest smartphone market share in America. Developed by RIM (Research in Motion), its typical feature is adaption to email system and regarded as business device with less multimedia processing power. It synchronizes well between the operation system and the personal computer for email handling.

The iPhone OS, or iOS, is the operation system especially for iPhone which is developed by Apple Inc. It is implemented on iPhone, iPod touch and iPad. The iPhone OS has its unique design about UI by supporting multi-point touching including swiping, tapping, pinching and reverse pinching. And the inner accelerator can change screen direction by changing the Y axis. Additionally it has the support from Apple's application store for downloadable applications.

Windows Mobile extravagant processing performance of Word and Excel and direct mail handling technology and data storage makes it popular nowadays. Additionally, it shows great compatibility with PC and Office as well as powerful multimedia processing techniques. But WM has defects for high requirement for hardware, software complexity and unstable of operation systems.

Android is an open source handset operation system based on Linux platform. It is composed by operation system, middleware, application software and user interface. Android's objective is to be fully opened and provide complete mobile software.

2.2.4. The Smartphone software: market evolution and trends

The first smartphone device enters the market in 1999 but the general consumer was not ready to accept it due to this technology not being mature (Raento et al., 2009). Furthermore, Levin (2006), cited by Raento et al. (2009) states that smartphone penetration in the market was possible due to smartphone Nokia 6600 in the fall of 2003, where the reasons for its adoption being small, usable enough for user acceptance, enough storage and processing capacity for research purposes.

In 2005, the smartphone market expands and accounts for 6% of all mobile phone sales (Raento et al., 2009), which meant that the majority of mobile phone users were not using smartphones although they are available worldwide[11].

Shih et al. (2010), argue that in 2008 that smartphone market is still on its infancy but continues to grow at a very fast pace, achieving a growth of 35% worldwide[12]. Furthermore, they add that the industry has the capability of growing further before reaching its peak.

One out of five people in the world is projected to have a smartphone by 2011 and by 2014 traffic is projected to reach 3.6 million terabytes (TB), which is 39 times that of 2009 (Minhyung, 2010).

In terms of trends, the International Data Corporation (IDC)[13] believes that the smartphone market will grow by 50% in 2011. It is predicted that in 2015 Windows Mobile Phone will have a market share of 20.9%, making it the second largest after the smartphone OS Android with 45.4%[14].

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[11] Canalys.com Ltd. (2006). EMEA smart mobile device market growth slows in Q1. Online, http://www.canalys.com/pr/2006/-r2006044.htm, referenced May 29 2006 in Raento et al. (2009).

[12] Deloitte: TMT Predictions 2009 – Smartphones how to Stay Clever in a Downturn

[13] http://www.idc.com/

[14] http://scrolllock-capslock.blogspot.com/2011/03/idc-predictions-windows-phone-to-second.html, retrieved 31 May 2011

The same happens for applications, as they follow the trend of the operating systems. A study conducted by Mobile Developer Economics[15] in 2010 show that Android leads the applications while other operating systems are very close to each other, as seen on the figure below.

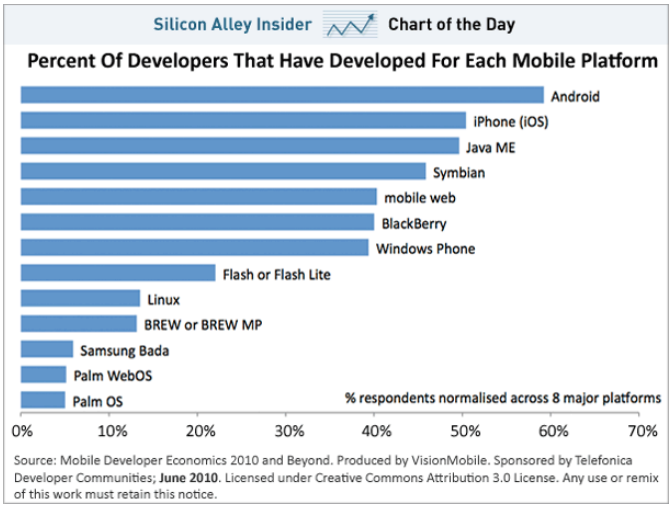

Figure 2 - Percent of developers that have developed for each mobile platform. Source: http://www.visionmobile.com

2.2.5. The Smartphone and Qwiki

The smartphone device allows, as seen before, for mobility and interactivity when browsing content on the World Wide Web. This gives support for the Qwiki platform as it can be accessed everywhere worldwide if an internet connection is available, such as 3G or Wi-Fi. As a growing device on the world, with increasing number of applications for this device, it is a powerful tool for efficiency and collaboration on companies, and using it effectively can increase the firm's overall productivity.

2.3. The Resource-Based View

This section of the chapter explores the knowledge concerning this framework and explains how the four resources' attributes - value, rareness, imperfectly imitability and non-substitutability – have the potential to create sustained competitive advantage and how to correctly analyze them.

[15] http://www.visionmobile.com/blog/2010/07/mobile-developer-economics-2010-the-migration-of-developer-mindshare, retrived 31 May 2011

2.3.1. The Resource-Based View framework

The Resource-Based View (RBV) framework is defined by having its primary focus to determine the strategic resources available to a company. In order to know that, first it is necessary to know what resources are and what is strategic.

In terms of resources, Daft (1983) argues that resources available to a company include all assets, capabilities, organizational processes, firm attributes, information, knowledge, and so on, that are controlled by the same company and enables it to create and implement strategies that improve both efficiency and effectiveness.

Later authors Amit and Schoemaker (1993) say that the term resource is incomplete and that they should be divided into two different subjects. Thus, they propose that the definition of resources has the distinction between resources and capabilities.

The notion of firm capabilities gets a better definition as it is "a special type of resource, specifically an organizationally embedded non-transferable firm-specific resource whose purpose is to improve the productivity of the other resources possessed by the firm" (Makadok, 2001). He further contributes to the distinction of resources and capabilities, arguing that resources are the combination of all available factors owned or controlled by the company and capabilities the capacity of said company deploy the resources. Therefore, capabilities are related to resources, has they depend on their implementation (Makadok, 2001). Hoopes et al. (2003) also argue that resources can be tradable and they are non-specific to the firm while on the other hand capabilities come from the firm that implements them by using the resources within said firm.

A company being strategic is defined by a strategy that creates value for the company. Barney (1991) states that if said strategy creates value and if competitors cannot implement it in the present or in future conditions then it is called a competitive advantage. Said competitive advantage can become sustained if it is able to maintain its position throughout time. Although it can create value for the company, it can also be viewed as removing a sustained competitive advantage from the competitors by employing a resource that disables said advantage (Barney, 1986). Additionally one can only call sustainable to a competitive advantage when all attempts to replicate the strategy have stopped and failed by the competitors, independent of the time frame (Rumelt, 1984). This leads to sustainable competitive advantage being considered unique and irreplaceable by other firms.

The fundamental principle of application of the resources owned or controlled by the firm to create a competitive advantage can be turned into a sustained competitive advantage with some requirements. These requirements imply that resources must be both heterogeneous in nature and immobile (Barney, 1991). Additionally the author argues that these resources must have four attributes to allow a sustainable competitive advantage in a company.

2.3.2. The Resource-Based View: VRIN

This section of the Resource-Based View chapter introduces and explores the four components mentioned earlier in the model's theory. The analysis discusses in what conditions it is possible for these four resource attributes, value, rareness, imperfect imitability and non-substitutability; to create sustainable competitive advantage.

Valuable resources

A valuable resource is defined by the capability of a firm to take advantage of all its opportunities and/or removing all of its weaknesses concerning the environment, thus enabling said firm to implement strategies that improve its efficiency and effectiveness (Barney, 1991).

It is imperative, however, that the company's attributes must be valuable and able to exploit opportunities and neutralize threats in order to be considered resources. Therefore, a successful implementation of resources by the firm that can grant the said definition are considered valuable resources and can be isolated by the firm so it can know which of the resources are responsible for the competitive advantage (Barney, 1991).

Rare resources

In regards of valuable resources, if they exist in great numbers and are owned by firms that are competitors or have the potential to be, then they cannot be sources of either competitive advantage or sustained competitive advantage (Barney, 1991). If a firm is to implement a strategy that creates value using these resources but other companies do so as well, these valuable resources can no longer provide a source of competitive advantage and allows each of the companies to exploit these resources in the same way, that is, both companies implement a common strategy that give no one competitive advantage (Barney, 1991).

Barney (1991) states that the same analysis applies to bundles of other valuable companies' resources that are used to create and implement strategies and that some strategies require a particular mix of physical, human and organizational capital resources to implement. However,

if these company resources are not rare, or even considered to be valuable, then other companies are able to create and implement these strategies, which in turn will not be a source of competitive advantage (Barney, 1991).

Therefore, these resources must also be rare in order to fulfill the conditions. It is important to note that a company having rare resources by themselves does not necessarily mean that it will generate a sustained competitive advantage, although it generates at least competitive advantage (Barney, 1991). Small numbers of companies that possess rare resources are able to generate competitive advantage but if there is but one firm that has the exclusive access to these resources then it has the potential of generating sustained competitive advantage (Barney, 1991). These firms must also know how to successfully implement these resources to gain all of their potential. Nevertheless, the probability of survival in the market of these companies is improved solely by having these resources, which implemented or not, give an edge over the competition (Barney, 1991).

Imperfectly imitable resources

Barney (1986) and Lippman and Rumelt (1982) argue that valuable and rare resources are the only sources of sustainable competitive advantage if the firms that do not have these resources cannot obtain them in anyway, thus calling these resources imperfectly imitable. According to the authors, there are three reasons that make this definition valid, by having one or the combined reasons applicable.

The first reason states that a firm can only get these resources due to unique historical conditions, meaning they depend on their place in time and space (Arthur, 1983, 1984a, 1984b; Arthur et al., 1984). These authors explain that a firm may obtain these resources on its path through history. The company can then implement these resources and create value strategies that cannot be duplicated by other firms, since those did not have the same path in history. Therefore, when this place and time passes and the firms are not able to obtain these space and time dependent resources, these resources become imperfectly imitable.

The second reason is defined by the link between the firm's resources and its sustainable competitive advantage being casually ambiguous. This is defined by the difficulty of assessing which resources are responsible for the sustainable competitive advantage and also the impossibility of recreating successful strategies through imitation of its resources. Therefore, firms that face causal ambiguity cannot know what actions to take in order to duplicate the strategies of firms that have sustainable competitive advantage (Barney, 1991). According to

Lippman and Rumelt (1982), firms that possess the resource that grants the competitive advantage and firms that do not have said resource but try to imitate must have the same level of casual ambiguity in order to be a source of sustained competitive advantage.

In order to remove this lack of knowledge, firms can acquire resources, for instance managers with competitive advantages, or carefully study successful firms and why they are succeeding. On the other hand, if firms with a competitive advantage do not understand why it has a competitive advantage better than other competing firms, the competitive advantage can be sustained because it is not subject to imitation (Lippman and Rumelt, 1982).

The third reason defines as the resources generating the competitive advantage being social complex. This can be explained by having an organizational culture that promotes efficiency and effectiveness, while managers possess great interpersonal relations and good relationship with suppliers and customers (Barney, 1991). It is then possible to identify in the firm which social complex resources add value to the firm. However, a firm that does not have these resources can always make an effort to create them (Barney, 1989).

Non-substitutable resources

The last attribute of resources to become a source of sustained competitive advantage is according to Barney (1991) that there must be no strategically equivalent valuable resources that are either rare of imitable by themselves. The definition of strategically equivalent comes from the fact that if a resource can be separated and successfully exploited, then the firm will be able to reproduce the same strategy and get its value. Doing this will remove the sustained competitive advantage since other firms may use this knowledge as well to replicate the same strategies.

There are two types of substitution: a firm may substitute other firm's resources by creating or having a similar resource that deals the same effect or have different resources that can be considered as strategic substitutes (Barney, 1991). The example that Barney and Tyler (1990) give is that if a firm has a high quality top management that creates value, a competing firm can have a high quality top management too. Although they will have different persons, the strategic value generated by both management teams can be similar and thus it creates a substitute resource, removing the source of the sustained competitive advantage.

In terms of strategic substitutes, the firm may have a very clear vision of the future due to a charismatic leader in the firm (Zucker, 1977) but other firms may have a very clear vision of the future as well but due to a formal strategic planning process (Pearce et al., 1987). Although

these resources are different, if they can both generate the same competitive advantage, then they can be defined as strategic substitutes. These resources do not need to have the exactly same output of value but by other firms having them it means that they are not rare and can be imitable, thus removing all sources of sustained competitive advantage (Barney, 1991).

2.3.3. Applying the Resource-Based View framework

Having covered all the aspects necessary to form sustained competitive advantage, as seen on the figure 3 at the end of this section, it can be summarized all the key concepts in this theory. The first step in implementing a value generating strategy is to identify the firm's potential key resources. These resources are then analyzed and checked for consistency with the attributes mentioned in the Resource-Based View model.

The first condition states that a firm has valuable resources if it has the capability of taking advantage of all its opportunities and/or removing all of its weaknesses concerning the environment. If these valuable resources exist in few numbers and are possessed by a small number of companies then they are considered rare and can generate competitive advantage. Additionally, a company is potentially able to generate sustainable competitive advantage if the firm is the only possible holder of this resource, which invalidates any attempt at implementing similar strategy using the same resources.

The inability of other companies to possess the said valuable and rare resource comes from three reasons. The first reason states that these resources can only be acquired due to unique historical conditions, that is, they depend on time and space. The second reason is due to the ambiguity of the link between the firm's resources and its sustainable competitive advantage, thus not easily identified by other firms unless these other firms acquire resources with competitive advantages or study the success of these firms. The final reason is the social complexity of resources that generate competitive advantage explained by the organizational culture that promotes efficiency and effectiveness, great interpersonal relations and good relationship with suppliers and customers. These reasons are the conditions for a resource to be considered imperfectly imitable, which is the third condition of the framework. The final condition states that there must be no strategically equivalent valuable resources that are either rare of imitable by themselves, thus becoming non-substitutable resources. However if a firm is able to substitute other firm's resources by creating or having a similar resource that deals the same effect or have different resources that can be considered as strategic substitutes then sustained competitive advantage is removed since companies can replicate the same strategies.

In addition to satisfy the previous conditions in order for the firm to be able to generate sustainable competitive advantage with its valuable resources, these must be maintained, created and protected as they can increase not only the sustainable competitive advantages but also improve organizational performance (Crook et al., 2008).

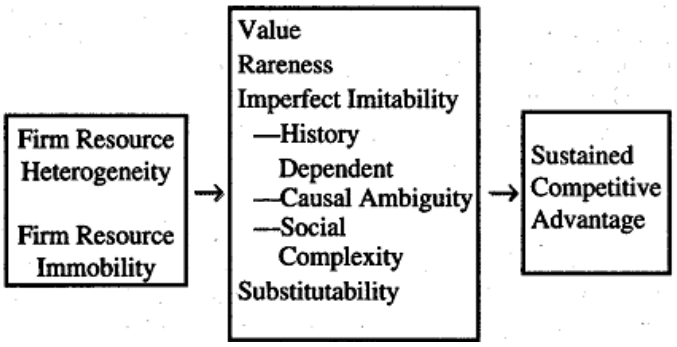

Figure 3 - The relationship between resource heterogeneity and immobility, value, rareness, imperfect imitability, and substitutability, and sustained competitive advantage. Source: Barney, 1991.

2.3.4. The Resource-Based View and Qwiki

This literature proves fundamental in understanding how Qwiki can be evaluated using this framework. By applying the concepts from this theory it is possible to verify if the firm using Qwiki service have the potential of gaining competitive advantages and if they can be sustained throughout time.

If Qwiki is considered a valuable resource then the firm that implement it have the capability of taking the advantage to exploit this platform opportunities and neutralize the threats surrounding the firm. Furthermore, Qwiki can generate competitive advantage to the firm that implement it if it is considered a rare resource and potentially create sustainable competitive advantage if a company has the exclusive access to this platform. If the Qwiki resource is history dependent, creates casual ambiguity or has social complexity then it has the conditions to become an imperfectly imitable resource. Finally, if there are no strategically equivalent resources to Qwiki, rare or imitable by themselves, then this platform is non-substitutable.

In summary, this framework is going to be used in the discussion chapter to help answer the question regarding if there are conditions in which Qwiki has the ability to generate value and sustainable competitive advantage in business models.

The following chapter covers the discussion, where all of the literature serves as a support for this work's findings.

III. Discussion

This chapter discusses under which conditions the Qwiki platform can contribute to sustained competitive advantage and value creation for the holding company, how can the platform be implemented to benefit from said competitive advantage for the holding firm by using smartphones as a way to access this platform and how the value created potentially increases the profitability for the holding company.

The chapter first discusses the theory studied earlier in the dissertation and the assumptions that are considered for validation of the analysis. Next, the chapter explores how can Qwiki be a differentiating factor in a business model, justifying the approach of study of this dissertation in determining the value created for the holding firm and its clients, generate competitive advantage and ensuring that the value created is differentiating, and potentially increase profitability for the company through the said created value. Further in the chapter, it is verified if the platform holder company is able to benefit from the advantages of Qwiki, that is, if it is able to use Qwiki strategically by using the Resource-Based View. This framework allows this confirmation by checking if Qwiki is a source of sustained competitive advantage. Additionally it is explained in the chapter how to implement the Qwiki in three businesses areas: tourism, museums and restaurants and profit from the value created by gaining the competitive advantage, shown on the previous framework, by using the Qwiki technology. Thus, the question is the following:

- How can Qwiki's implementation contribute to the value creation for clients? Can Qwiki be a differentiating factor when used in the context of a business model?

Further in the chapter, an analysis explores the potential profitability of the platform and explains how the holding company can enable this condition by implementing new content into the platform. Thus, the following research question is explored:

- How can Qwiki potentially become a source of profitability?

Lastly, the final section of this chapter explores the future challenges and limitations of the Qwiki platform and how to deal with them, thus allowing answering the following research question:

- What are the main problems and limitations of the Qwiki platform?

By analyzing the answers obtained from the research questions, it is possible to formulate the answer for the main questions of this dissertation. This answer comes first from answering if there are conditions that make Qwiki a strategic value for business by using the RBV model, thus generating sustainable competitive advantage, second how Qwiki is implemented and what considerations are necessary to obtain the platform full potential and potentially increase profitability for the company holder through the value generated by the competitive advantage, and lastly the problems and limitations of this platform so it can be further improved in the future. With these questions answered, it is possible to answer the main question of this dissertation:

- Is Qwiki a potential commercial success for the holding company?

Following the discussion chapter, this dissertation ends with the conclusion chapter, which states the main conclusions from this chapter and provides answers to the previous research questions and main question. Moreover, it shows possible future research concerning the Qwiki platform and its impact on businesses, that is, the purpose of the study in this dissertation.

3.1. Dissertation Theory Statement and Assumptions

In accordance with the explanation of Qwiki and the technologies supporting it in the State of Art chapter with the current knowledge on these subjects, the theory is that the Qwiki platform has the capability to cause a strategic impact, that is, the potential to create and sustain value in the company's business model.

In order to apply this theory in this dissertation, the following assumptions are considered:

1. The first assumption is to state that in the near future the availability of smartphones and internet connection is accessible around the world and that people will use them in their daily routines. This assumption comes from the theory stating that smartphones are growing in the market with expectations of reaching 39 times the traffic of 2011 by 2014 (Minhyung, 2010) and the availability of the internet grows as it becomes part of people's and companies' operations. Additionally, both technologies are portable, in the sense that people can carry a smartphone anywhere and access the internet at any given time during their schedules.
2. The Qwiki platform creates a dynamic way to interact, inform and increase the relationship with users. By gathering information from Wikipedia, Qwiki displays this information in a customizable and searchable dynamic virtual environment thus

allowing for increased efficiency among employees and customer's feedback (Standing, Kiniti, 2011). Therefore, this platform enhances both regular and corporate user, rewarding both client and company.

3. Qwiki's algorithm is the base for the platform functionality and this knowledge is kept by Qwiki's programmers. This algorithm is able to synchronize data from different sites in the internet such as Wikipedia and Flickr and display them while a robotic voice reads the information. For these reasons, it is assumed that the knowledge involving the algorithm is complex and not easily replicable.
4. Wikipedia is continuously updated and maintained with the latest information available around the globe by their users. This guarantees that any user looking for specific information will find it accurate and updated with the latest knowledge on that subject and, in this way, Qwiki can display to its users the most current information. Additionally new Qwiki entries from corporate users have the same characteristics in terms of accurate and recent knowledge on the subject.
5. Companies have smartphones and internet available for their users to explore all the related content on display, for instance on museums. According to the first assumption, companies are no exception and thus have the capability of possessing both technologies in the near future.

In summary the theory is based on the advantages of wikis and smartphones and the potential of using them together with Qwiki in a business setting. This potential has the assumptions of probable increased interactivity with company's clients and users in general through smartphones and the possibility of gathering knowledge on any subject in wikis, likely being accessible in real time and anywhere to those that are given the access to the technology. Additionally it can reach and keep up with users' demands, thus making it possible to create and sustain value and new opportunities for the company not seen before.

In the next sections of this chapter, it is justified the approach of this dissertation by exploring the reasons of how Qwiki is a differentiating factor in a business model. Further in the chapter, the theory is analyzed through the Resource-Based View framework, the Qwiki's implementation in companies and benefits from this implementation for the holding company and the platform apparent challenges and limitations are also considered.

3.2. Qwiki as a differentiating factor in a business model: Dissertation approach justification

In order to justify the study approach of this dissertation and begin to explore the conditions necessary to Qwiki create value for the holding company and its users, have the capacity of competitive advantage and potentially increase the profitability of the holding company, the following question is explored:

- How can Qwiki's implementation contribute to the value creation for clients? Can Qwiki be a differentiating factor when used in the context of a business model?

The first question in assessing Qwiki's differentiating factor lies in its ability to generate value for both the holding company and its clients. The following chapter explores the conditions necessary to Qwiki create said value and sustained competitive advantage, since it is imperative that the platform can contribute to the holding company with value that can be differentiated from the competition. Furthermore, it is explored if this value can be potentially turned into profits for the holding company under the condition of Qwiki's implementation on other companies is successful and the platform's full potential is taken.

To further explore the conditions necessary to achieve these dissertation goals, the following chapters contribute to a better understanding in how the said conditions are evaluated and how they aid in answering the main question of this dissertation.

3.3. RBV Analysis: Theory Potential Value and Sustainability Evaluation

In order to verify the potential value and sustainability of Qwiki for the holding firm the Resource-Based View framework is applied. By verifying the conditions necessary of this framework, that is, the validation of resource's attributes, it possible to provide an explanation and answer the previous research question.

This analysis is essential for the purpose of this dissertation that is trying to assess the value contribution of Qwiki to the company that implements it. Additionally, the outcome of this analysis defines what attributes are or not favorable to Qwiki and if it is able to create sustainable competitive advantage and value to business models of the company.

3.3.1. The Resource-Based View Model and Qwiki

In the State of Art chapter the Resource-Based View framework explains the aspects necessary to form sustained competitive advantage and figure 3 summarizes the resources' attributes to determine if they offer this potential advantage. These attributes are value, rareness, imperfectly imitability and non-substitutability or VRIN. The resources must be valuable, meaning that a company can take advantage of all its opportunities and/or removing all of its weaknesses concerning the environment; not exist in great number and not in possession of present or future companies, that is, must be rare; companies that do not have these resources cannot obtain them in anyway, thus being imperfectly imitable; and there must be no strategically equivalent valuable resources that are either rare of imitable by themselves, in other words, it must be non-substitutable. Therefore, in order to create value and sustain it, it is necessary to find the resource conditions under which these conditions are true for Qwiki.

3.3.1.1. *Value*

The first of the four attributes that Qwiki has to satisfy is Value. One of the conditions that the Resource-Based View framework assumes is the definition of a resource being only able to be a potential sustained competitive advantage if it is valuable. In order for it to happen, a resource must exploit opportunities or neutralize threats within the competition of a business environment.

Looking on this attribute when it is applied to Qwiki, it is possible to perceive a potential value. This value comes from different opportunities that Qwiki explores:

First, it explores the opportunity of using smartphones which, as being shown previously in the state of art chapter, it is growing its user quota worldwide and is able to connect and transfer information in real time anywhere in the globe. The smartphone improves productivity to normal users or corporate and is able to continuously meet with the pressure of demand of information while striving for organization. Information can easily be reached and shared if needed, allowing for minimize the time spent searching and maximize the time finding and providing information solutions.

Furthermore, smartphones enhance the idea of collaboration and work efficiency, by allowing users to synchronize their information which improves their overall efficiency in the processes of information gathering. Moreover, it allows for corporate users from various parts of the world to work collectively independent of distance due to its real time responsiveness and

information sharing. Additionally, it is assumed in this dissertation that in a near future almost everyone will possess a smartphone, thus increasing this value even higher.

Second, it explores the Wiki concept such as the Wikipedia which has millions of users creating and updating content every day, generating knowledge to all who visit this platform. Since Qwiki benefits directly from this information, the better the content on wikis make better content for Qwikis. Furthermore, this contribution and sharing of knowledge is growing at each moment, as mentioned before in the wiki background, thus the possibility of value potential also increases. Wikis allow to link information via new created pages and build up knowledge bases. They avoid unnecessary traffic of information since all the relevant information is shared by the users on a specific page and the users can contribute in order to keep all the related information available while moderators can quickly oversee the entire content. Additionally they can see and address any contribution made by users.

Thus, it can provide a mean of organizing information, where users can manage the new and existing information by editing the content. Furthermore, wikis promotes feedback and consensus among users as they can discuss what actions should be taken. Additionally, the overall efficiency of the firm using a wiki in terms of knowledge sharing and employee collaboration is increased, with reduced development and technical costs and increased feedback from both customers and employees.

Finally there is the combination of the two technologies, linking the potential advantages of both into a single platform. Qwiki's ability to use both of these two opportunities allows for the value attribute condition required by Qwiki to be validated, thus making it a potentially valuable resource.

Moreover, Qwiki value in the context of business models is created for companies that implement this platform in their businesses because these companies do not pay to have this resource and the platform can contribute to improve the profits of the holding company and these companies. The examples presented on the next analysis show that Qwiki allows museums to sell merchandising through the use of the platform while users browse the museum's works, offer promotions from other companies when viewing places while on the tourism location through tourism Qwikis and other types of promotions and tips of the day for users of restaurant Qwikis. These examples require correct implementation but can contribute to improve the profits for both the company holder and the companies that implement the Qwiki platform.

3.3.1.2. Rareness

According to the theory, a resource is considered to be rare when it is not owned or controlled by a large number of firms. However, if other firms are able to possess the same resources then they can copy the strategies implemented using these resources thus preventing an existing sustained competitive advantage.

The Qwiki platform is based upon a unique algorithm created by the project's engineer that gathers the required information from Wikipedia and images from imaging sites like Flickr and shows them by creating a presentation of any subject. This method of information gathering and presentation is new in the market and no other companies to this point have similar ways of accomplishing the same purpose due to the algorithm complexity. Due to this fact, Qwiki also has the potential to be considered a rare resource in a business. The factor that enables this rareness lies in the fact that the algorithm is actually a strong tacit element.

Kenneth (2007) explains that tacit knowledge is a type of knowledge that is not transferable as tacit and at the same time it is not turn explicit, hence not easily copied. Since this knowledge is directly connected with the algorithm programming, complexity and effectiveness, competitors are very unlikely to reproduce the exact algorithm without expertise from the original creator. As time progresses, the company grows and evolves its business processes and so does the algorithm efficiency and complexity, thus increasing the difficulty to other firms that aim to imitate and implement similar strategies. Furthermore, the company increases its relationship with customers and users that take time to learn this new technology and as they learn more, the motivation to switch to alternatives is reduced. These conditions increase further the tacit component over time. Additionally, the possibility of becoming a standard in the industry increases this component as well.

By definition, small number of companies that hold this resource can generate competitive advantage and a unique holder is capable of creating sustainable competitive advantage (Barney, 1991). Nevertheless, if most of the companies have implemented Qwiki then the capability of generating said competitive advantage is potentially compromised but it establishes the platform as a standard of the industry that may leave companies that have not implemented Qwiki at the risk of survival for not having this resource. Consequently, the probability of survival in the market of these companies is improved solely by having these rare resources, which implemented or not, give an edge over the competition (Barney, 1991).

A company that has tacit knowledge over a resource and possesses it over its competitors generates not only value but also potentially grant its clients the knowledge and learning about that resource, which other companies cannot imitate in when trying to implement or establish similar strategies (Alwis et al., 2008). Therefore, if tacit knowledge is unique in a company and if Qwiki falls under this category, meaning that the knowledge generated from the algorithm efficiency and complexity, the learning process and experience from both users and implementing companies cannot be transferred to the competition to implement similar strategies, then Qwiki is a rare resource.

3.3.1.3. Imperfect Imitability

The third attribute that needs to be satisfied is imperfect imitability and it states that other competing companies cannot have identical or similar resources or have similar value creating strategies deployed. As shown previously in the rareness attribute, other companies do not have the required tacit knowledge in order to implement a Qwiki-like platform. As the algorithm cannot be obtained unless the company says so, other companies cannot imitate it. The reason is that other companies find the link between the firm's resources and its sustainable competitive advantage being casually ambiguous. This is defined by the difficulty of assessing which resources are responsible for the sustainable competitive advantage and also the impossibility of recreating successful strategies through imitation of its resources. Therefore, firms that face causal ambiguity cannot know what actions to take in order to duplicate the strategies of firms that have sustainable competitive advantage. Additionally, the amount of time to generate a similar algorithm and deploy a similar strategy by other companies would be unsuccessful due to the knowledge through the learning process acquired by all Qwiki users that would increase their switching costs.

In other words, the competition requires a vast amount of time to generate and implement a similar strategy that is being used by the companies that implemented Qwiki which is the same time that Qwiki users spend in learning and experiencing the platform. This difference is significant since the more time has passed between Qwiki users and the implementation of similar strategies by the competition, potentially harder it is to switch users to the competition as these users need to learn the new process involved with the similar platform. With high switching costs, the competitors have a strong barrier that could potentially compromise the feasibility of the project and its implementation.

Therefore, the tacit component also affects other companies in terms of imitability as these firms find that implementing the same strategy is potentially hard and, most probably,

impossible to imitate flawlessly. Thus Qwiki is considered an imperfectly imitable resource as long other companies are unable to provide an alternative and if the tacit component continues to increase.

3.3.1.4. Non-Substitutability

The last attribute that Qwiki needs to be in order to be considered a source of sustained competitive advantage is non-substitutability, that is, there must be no strategically equivalent valuable resources that are either rare of imitable by themselves. In other words, other companies cannot have the possibility of using identical or similar resources in the threat of producing similar strategies and removing the competitive advantage.

Qwiki is supported by two technologies, the wiki platform and smartphones, and combines them in order to create the platform and deliver its value to the users. It is a unique concept and similar substitutes that deliver the same type of content or value are difficult to find. The wiki platform is a very powerful tool and the most widely wiki used is the Wikipedia with its large database, as seen previously on the state of art chapter. Although there are similar sites to Wikipedia, the high changing costs that Wikipedia users have would difficult or even stop them from changing. These costs come from the amount of content written - over 18 million articles in 270 languages as of 2011 - all the learning involved from the most occasional contributors to the Wikipedia moderators and network effects regarding users' Wikipedia usage. Smartphones, on the other hand, are growing globally, slowly substituting regular mobile phones. The technical and modern characteristics, explained also previously on the state of art, contribute to this user adaptation and acceptance. The ability to browse the internet on a smartphone at any location, have innumerous applications for what the user demands and increased performance are some reasons that show that regular mobile phones are not ideal substitutes.

Although it is possible for companies to use these technologies separately, the combination of the two makes Qwiki able to potentially create value where other companies fail to achieve. This failure is once again explained by the tacit knowledge component. The experience and learning that a user gets from Qwiki cannot be transferable and this learning process cannot be substituted.

In summary, as long as both the changing costs and network grows and evolves, harder it becomes for other companies to offer a similar value proposition to Qwiki. This in turn creates the possibility of sustained competitive advantage on condition that the tacit component

grows and the competition cannot keep up to provide a similar service or experience, while Qwiki grows stronger each passing moment.

3.3.1.5. Resource-Based View Analysis Conclusions

After the analysis of the four attributes from the Resource-Based View framework - value, rareness, imperfectly imitability and non-substitutability - it is possible to state that Qwiki has the potential to create sustained competitive advantage on the business that holds it, since all attributes comply with the necessary requisites mentioned earlier.

If these requisites are met then both holding company and the businesses implementing Qwiki are able to gain its potential but also deliver more value to themselves and their clients. This strategic impact derives from the ability of Qwiki being a rare and not imitable resource due to the tacit knowledge component, by having users and the company in learning processes and network effect factors and scarce or possible none substitutes that generate similar value. Moreover, there is the changing costs factor that creates a barrier for users to switch from one company's products or services to the competition without them being able to creating similar or higher value proposals to their clients.

This happens with Qwiki since if companies switch then they have to learn new processes and potentially lose access to the Wikipedia database, which becomes larger ever passing day. It also applies to users since they learned how the platform and technology works, contributed to its improvement by providing feedback and contributing on the Wikipedia and created relationships with all the people involved in the community.

This framework analysis, the Resource-Based View, provides the ability to answer the research question mentioned earlier that inquiries what value Qwiki can deliver to companies' business models.

Qwiki is able to combine two different technologies, the wiki and smartphones. The first allows users to contribute and generate knowledge by improving and updating the more than 18 million articles available but most importantly affect directly the content displayed on Qwiki, increasing not only the amount of information the platform can show to its users but also the quality and accurateness of this information. The smartphone evolved into a more powerful tool that delivers more value to its users through applications, better interactivity and connectivity on the web. Users are able to access the Qwiki platform from any location and experience it contents and share with other people instantaneously or provide feedback to create even better content. Additionally they can interact with companies that wish to

promote on Qwikis, offering its users additional value for their exploration and learning experience.

Thus these characteristics have the potential to generate and sustain value for companies that implement Qwiki and the holder firm, as seen by the Resource-Based View analysis, and if the four attributes maintain their status, that is, if Qwiki is to become a valuable, rare, imperfectly imitable and non-substitutable resource then this value is sustained along with the creation of sustained competitive advantage.

If by any means a company is able to create a similar platform using the same or similar technologies it still finds difficult to implement similar strategies for two reasons. The first reason is due to the fact that Qwiki is already on the market and it may benefit from the first mover advantage effect, that is, most of the interested companies have already possibly implemented it. This in turn can be considered a market barrier if Qwiki is adopted widely by companies. The second reason comes with high switching costs for both regular users and those companies that implemented Qwiki since these firms need to learn the new processes, gather new knowledge and implement a new platform. These tacit components are not transferable, thus demoralizing companies and users to switch to competitors. Therefore, Qwiki must ensure that it does not lose its sustainability by keeping up with the latest technologies, increasing its knowledge through know-how and expertise, seeking new opportunities in the market and exploiting and implementing them with the platform and increasing the tacit components for both users and companies so competitors have increased difficulty to copy or implement similar strategies.

The following chapter explores how Qwiki's implementation in businesses can deliver value and potentially increase of profits through the platform's competitive advantage for the company that holds this platform and other businesses as well.

3.4. Qwiki implementation in businesses and value creation

In order for the Qwiki platform be used on smartphones in order to have a strategic impact on companies' business models, users and clients have to be willing to use it, corporate users to maintain and update it with the latest knowledge and companies must profit and get advantages also from using this platform.

This chapter addresses the importance of how businesses can implement Qwiki and generate value for both companies that implement this platform and the company that holds it and answers the first part of the following research question:

- How can Qwiki's implementation contribute to the value creation for clients? Can Qwiki be a differentiating factor when used in the context of a business model?

The section is divided in three subsections, each exploring the implementation of the Qwiki platform in different businesses. These businesses include the tourism agencies, museums and in restaurants described as following:

Tourism agencies are divided into two groups, the local tourism agencies and the travel tourism agencies, and they have different implementation methods thus treated differently. All kinds of museums are accepted for this implementation. Restaurants in question have specific gastronomy or a chef that makes them distinct from the competition.

3.4.1. Implementation in tourism agencies

People that visit new locations or a particular place in that location are generally looking for information regarding that area. This information can be supplied in various ways such as maps, guides, flyers or by simply giving directions regarding the history, the best places to eat and to sleep as well as interesting locations to visit. The information can be broader depending on the type of tourism in question, being local tourism more specific while travel tourism more general.

The first step to implement Qwiki is to create a database on a wiki platform including all the information necessary for the company to give to their clients. This information comprises both text and images regarding the subjects. Then a specific Qwiki is created to show this information to only the subscribed users that are willing to obtain this knowledge and view it on their smartphones.

In terms of local tourism the agency focuses, for instance, on a city guide. In order to create this guide the Qwiki has several topics at the users' disposal. The topics include subjects such as history, gastronomy, culture, tradition or leisure and can are divided in three groups: Culture, Gastronomy and Leisure. Each of these groups show all the related topics when selected and allow the user to explore according to his or hers desires.

Travel tourism Qwikis focus on the country rather than cities or particular places. Although the organization of these Qwikis is similar in terms of groups, the information gathered is broader and only covers the most important aspects of each topic.

Users can benefit from promotions displayed while viewing the information. These companies that wish to be promoted or promote a certain place can do so by contacting the agencies

responsible and ask for their content to be published alongside the rest of the information. This way users can use or not the promotions and provide feedback for the agency which in turn can use this information back to the promoting companies.

The purpose of this Qwiki is to replace all the means of information with a centralized, interactive and available everywhere platform without having to resort to maps, guides or flyers. This simplifies both user and companies for gathering and delivering information and eases the promoting companies with a centralized communication channel to reach their target audience.

3.4.2. Implementation in museums

Museums have at their disposal information regarding the objects that are exposed. This information can be very minimal as having only the title, a little more elaborated with a museum catalogue or the most elaborated with audio guides or televisions. The Qwiki platform is able to combine this information by turning it into audiovisual knowledge through a smartphone screen.

To implement the Qwiki platform, museums must gather all the information concerning the artist and the work and store it for the Qwiki access. This database includes biographical information, artistic context such as eras and artistic movements, work description, photographs, videos, catalogues and artwork. It is then possible to access this information through the Qwiki platform on a smartphone.

The user is able to browse all of the content by selecting it on screen and interact with it by performing queries of all available information. Furthermore, the smartphone screen displays information concerning the museum itself such as its contacts, a museum map for users know their location and ask for guidance and the one or two principal works or artists currently on display.

Additionally, if the museum has a gift shop available to clients, then the museum can also insert this content in the information database. When a user explores the museum's works that are in display on the smartphone, at the end of that information the user is notified of availability of merchandising that can be purchased. For instance, a user exploring the information regarding a certain painting will be notified in the end of that information by the Qwiki platform about the possibility of buying merchandising related to that painting, such as replicas and postcards. The user can then explore the Qwiki gift shop and visualize all the available purchases for later physical request at the shop.

The Qwiki platform grants the museum user the knowledge regarding their works and artists and the ability to access this knowledge at any given time and place during the visit. The more information a museum has the more value that is created for the user and consequently the museum itself. Therefore, Qwiki can potentially increase the quality of the museum and visitors will appreciate it and possibly increase the likelihood of buying merchandising.

3.4.3. Implementation in restaurants

Although regular restaurants have also the capability of implementing Qwiki, those who will benefit the most are the ones that are known for specific dishes or a distinctive chef. The reasons for this are that their reputation attracts the curiosity of clients and they can ask for information concerning the dish story or chef tips.

The first requirement is information collecting and storing on Qwiki. This information includes history of the restaurant and founder, the available dishes with information and story regarding these and the chef's biography. Restaurants can then use Qwiki to inform their customers about their menu, with a reference to their plate of the day and any other promotions as users reach the end of the menu visualization on the smartphone. Additionally, the restaurants can provide various tips ranging from cuisine tips to health and eating habits. These, along with the plate of the day information, are updated daily so customers have the incentive to explore the restaurant's Qwiki every day through their smartphone anywhere.

All of this information that a restaurant provides can be accessible anywhere in Qwiki through a smartphone. This is important for customers that are or will search for a restaurant that suits their needs while they are at home, work or with friends. Therefore, customers can decide beforehand by themselves or with friends what they would like to eat based on the menu and the promotion and plate of the day. It is also important for those who seek tips when trying a new dish and wish to improve their cuisine skills as these customers can view how the chef cooks, a step by step guide similar to a cuisine show or those who seek health tips and want caloric information for a certain dish or food.

Restaurants that implement Qwiki can use these features in order to increase customer loyalty through the continuous generation of new content for their customers explore. The ability to inform beforehand customers about the restaurants' meals, promotions and tips of the day give users more knowledge to make decisions such as where to eat and what to cook. This in turn can potentially generate word of mouth and increase the curiosity towards the restaurant, possibly resulting in a higher flow of clients.

In summary, these three examples show how businesses can, independent of their area, implement Qwiki and deliver information to their clients differently. This platform is organized and implemented differently depending on the company's intention with Qwiki, being that to inform, to promote or both as seen above in the tourism agencies, museums and restaurants examples. Qwiki's correct implementation is an important step for companies in order to gain the full advantages that the platform can deliver and, for that reason, each implementation strategy must be thoroughly thought according to the company's objective.

3.5. Qwiki's potential profitability for the holding company

The value created from the competitive advantage can be transformed into profits for both firms that hold and implement Qwiki. The holding firm benefits from selling this technology to other businesses and opens the opportunity to gain value from this implementation. This value can potentially come from advertisements, promotions and merchandising that other companies want to implement in their Qwikis and establish a fee for these services, either from its implementation or requests of new content to be implemented into the platform.

Qwiki potential profitability is delivered through the value that the platform creates for its clients. The availability of more resources being implemented on the platform, such as new presentation content like movies, teasers or flyers, enable new ways of firms to communicate to their clients. These resources are requested by the interested companies and the Qwiki company holder implements these features for a fee. This can be done through a premium subscription where companies would pay in order to access this special content.

The platform, however, is free to use but profits are generated from the additional content that is implemented on companies' Qwikis. Since the regular content comes from Wikipedia and image sites like Flickr, in order to promote a company, a product or a campaign and show these features on the platform, implementing companies need to pay to Qwiki in order to display these contents to their clients, hence creating value also for Qwiki and its clients.

The following chapter analyses the future challenges and limitations of the Qwiki platform, exploring the consequences of these issues if the company that holds this technology does not adapt itself.

3.6. Future Challenges and Limitations of Qwiki

Qwiki's implementation on businesses and its impact depend from the involving technologies, wikis and smartphones. These technologies have been tackled before and identified their

limitations and challenges for their users which do not alter when treating them combined, thus Qwiki's limitations and future challenges come from both technologies.

This section of the discussion chapter focus on the important issues that need to be tackled in order to Qwiki achieve success and state the future challenges that stand in Qwiki's way of competitiveness. Additionally, it allows answering the following research question from the three proposed:

- What are the main problems and limitations of the Qwiki platform?

Subsequently, four topics are analyzed that confront this issue: Vandalism, Connectivity, Security and Development.

3.6.1. Vandalism

The Qwiki platform relies on wikis to gather information and image sites to provide its visual content. Due to this lack of independence from these sources of content, Qwiki suffers directly from any attempt on the content by any form of vandalism. In Wikipedia, vandalism is considered deliberately destroying content by removing it, changing its context or adding unnecessary or irrelevant content to the actual one. If bogus content makes its way to users, the quality and credibility of Qwiki is put in question and probably trigger a wave of dissatisfaction among its users prompting them to leave. Although Wikipedia have moderators that watch over these events and try to prevent them, it is very hard to fully monitor more than 18 million of articles.

In order to tackle this issue Qwiki must only allow content from its sources that have not been changed in a specific timetable, for instance, only gather articles from Wikipedia that have not been changed for over one hour, unless it is an active topic but that implies that a moderator is vigilant and tracking changes; or photos from Flickr that have been marked by the community as safe and trustworthy. These measures contribute to lower the probability of vandalism being spread on Qwiki and thus preserve its quality on content.

3.6.2. Connectivity

It is assumed earlier in this dissertation that in the near future users have access to smartphones and the ability to connect to the internet anywhere on the globe. However, this does not imply that internet services will flawlessly deliver their services to its users or that smartphones will not have any software or hardware issues that prevent them connecting to the web. Qwiki is an online platform and by removing the ability to connect to it makes the

platform useless and meaningless for both companies and users, thus making it a major issue to be considered. Additionally, technical failure on Qwiki's part also triggers the question of its usability.

Although outside Qwiki's control power, since Qwiki cannot directly enforce internet providers for better services or smartphone producers to make them work perfectly, the companies that implement Qwiki must take these aspects into consideration. Therefore, the companies choose the most reliable internet provider in order to minimize downtimes with site availability and employ competent technical staff to ensure full compatibility with Qwiki and the company's website. For instance, a museum gives to its clients a reliable and fast smartphone available on the market and the user can access the Qwiki platform with a consistent and secure internet connection deployed as well by the museum.

3.6.3. Security

User safety while browsing the internet is an issue for the majority of people since users are susceptible of becoming targets of attacks that aim to steal or destroy sensitive data such as personal information or company records on databases. The Qwiki platform, as stated before, gathers its contents from other sources and if these are compromised then Qwiki will in turn be as well. Websites are always vulnerable to hackers, technological people with malicious intent that can exploit its security vulnerabilities and turn it inaccessible for users or the company. For instance, a hacker can control the stream of the content sent to Qwiki and promote different content such as scams or identify theft on its users or cancel any connection to Qwiki by performing a denial of service attack (DoS)[16] and render Qwiki powerless to display its content.

On the smartphone side, part of its security flaws comes also from the internet, where hackers can similarly to websites steal or destroy any data stored. Additionally they can install malware or virus with any malicious intention stipulated by the creator, leaving the smartphone user at risk and possibly unaware of what is happening. The other part of the issue is the reliability of the software and hardware. If smartphone manufacturers do not fix a security hole then a user carrying this smartphone is potentially at risk of having the smartphone compromised.

Accessing the internet openly allows these issues to occur but some measure can be taken to reduce this potential risk. First, the company implementing Qwiki must ensure that all of its users connect to its platform through a secure and encrypted connection. This boosts the

[16] See http://www.qwiki.com/q/#!/Denial-of-service_attack for more information about DoS.

defense mechanism against hackers or other malicious users since the barriers to bypass the security are higher. Next, if promotions from other companies are present in the content, the company that implemented Qwiki must check the promotions authenticity so it can protect the users that wish to make use of this promotion. As for smartphones, companies that implement Qwiki must review which smartphone manufacturers have better equipment in terms of reliability and performance but also the most secure ones when giving these out to its clients. These measures reduce the security risk and boost the confidence and quality of the service provided by companies that implement Qwiki.

3.6.4. Development

Qwiki is available to the public since the beginning of 2011 but its full potential is still unknown. The ability to deliver content to its users may now be audiovisual but further improvements could redefine how this content is delivered, for instance with the help of other technologies such as Augmented Reality[17] and with different purposes such as teaching method by professors or governmental announcements.

Secondly, although smartphones can access Qwiki through a browser, smartphone application developers will find new and different ways to connect to the platform and create a potentially different experience with its users. Additionally, the technology industry is always evolving and likewise with the progressively substitution of regular mobile phones with smartphones, these may not be defined similarly as today's standards.

These reasons give an insight of how development should occur on Qwiki but progress is only possible if companies that implemented the platform are able to generate even more value with these improvements. The sole reason to research new developments is to grant the company with higher efficiency and value with the implementation of these developments and ensure that these guide the company to a greater competitive advantage. If these developments prove meaningless, that is do not contribute in any significant way to the creation of value of the company or to its clients, then the company does not have the incentive to further fund these R&D projects.

[17] See http://www.qwiki.com/q/#!/Augmented_reality for information about Augmented Reality.

3.7. Summary of Discussion chapter conclusions

This chapter shows that in order to achieve a sustained competitive advantage and value creation by using Qwiki and its involving technologies there are certain assumptions that need to be in check to be able to accomplish success.

It is shown that Qwiki is a potential source of sustained competitive advantage to the holding firm, as demonstrated by the analysis of the Resource-Based View resource's attributes. These shown that Qwiki is valuable by taking advantages of the two wiki and smartphone technologies and combining them, rare due to tacit knowledge from the platform's algorithm efficiency and complexity and user learning and experience gained with Qwiki that is not transferable to the competition, imperfectly imitable also from the tacit component that increases over time and the lowers the probability of competitors in implement similar strategies, and non-substitutable from increasing switching costs for users and the value generation from network effects that make competitors less likely to offer similar value proposals.

In addition, a user that experiences Qwiki and has access to all of its content and community causes the network effect to increase in time due to new content and more people and companies that use the platform. Furthermore, after a company or user completes the learning process of the platform and gets the experience from it, it is difficult to transfer this knowledge due to it being tacit or switch to other companies that try to offer similar value due to the fact that these companies cannot cope with value creation, leaving the user at a disadvantage in terms of value, experience and knowledge.

Moreover, the implementation of Qwiki in businesses is different from one another, where priorities of how to deliver content and the purpose of it are necessary conditions for a successful implementation. These areas have different set of characteristics that companies must combine and put to its best use for value creation for both implementing and holding companies and the value created by Qwiki through the competitive advantage allows the holding company to be profitable by exploring this technology while implementing in other businesses. This value can potentially come from advertisements, promotions and merchandising that interested companies desire to implement in their Qwikis and set a fee for these services, either from its implementation or requests of new content to be applied into the platform.

Additionally, Qwiki has also challenges and limitations that need attention in the future. These concerns are stated in the form of vandalism of wiki and image content, lack of connectivity to the platform due to an attack or service technical difficulties, security holes and exploits from both the internet connection and smartphones software or hardware and research and development orientation that companies need to take in order to maintain their competitive advantage by implementing new technologies or improve the existing ones. The measures for companies that wish to implement Qwiki to deal with these issues are also described as they are necessary to ensure that the value creation is not threatened but maintained.

The subsequent chapter, the conclusion, answers the research questions having in account all of the information of this dissertation and the future research chapter explores further ways to improve this topic with different points of view and additional research questions.

IV. Conclusion

The purpose of this dissertation is to assess if the Qwiki platform is able to create value and potentially the profitability for the holding company, that is, if Qwiki can contribute with value creation and promote sustained competitive advantage to the company that holds it and companies that implement this platform and, if positive, explain how it can be potentially profitable.

In order to achieve this goal, the dissertation introduces and explores how the wiki and smartphone technologies, directly involved with Qwiki, can be used and what advantages and limitations they possess that should be taken into consideration. It is concluded that wikis contribute to better content and information organization and knowledge sharing and improves efficiency and user feedback within an organization. On the other hand, smartphones quotas on the world market are growing and have the potential to connect everyone in the globe, are portable and allow quick and interactive information sharing. Therefore, these technologies have a significant impact on the daily life of its users.

By being able to combine the two technologies, Qwiki is able to deliver new ways of showing content to its users and create new ways of interaction between companies and clients. This content is more interactive than that the wiki can offer since it delivers through an audiovisual form, is available to be browsed by a smartphone anywhere at any given time by browser or applications and allows companies a new way of communicate with their clients and deliver better content based on users' feedback, preferences and interests.

The discussion chapter offers an analysis on how Qwiki can have a strategic impact on the holding company that use smartphones as a way to access this platform, creating value for the company and its users from the platform's competitive advantage as well as allowing revenue streams for the holding company. However, this analysis requires the assumptions that these technologies are available for all of the users and companies, the consistent accurateness and quality of Wikipedia content and that the Qwiki platform increases company efficiency and user feedback, similar to corporate wikis. In order to justify the study approach of this dissertation and begin to explore the conditions necessary to Qwiki create value for the holding company and its users, have the capacity of competitive advantage and potentially increase the profitability of the holding company, the following question is proposed:

- How can Qwiki's implementation contribute to the value creation for clients? Can Qwiki be a differentiating factor when used in the context of a business model?

To aid the above question, the Resource-Based View analysis explores if Qwiki has the potential of creating value and deliver a sustainable competitive advantage based on the validation of the four resource attributes: value, rareness, imperfect imitability and non-substitutability.

By using the RBV framework, it is concluded that Qwiki has the possibility to generate the condition of sustained competitive advantage by becoming a resource that is able to satisfy the resource attributes necessary to achieve the previous condition. The strategic implementation is made possible due to tacit knowledge generated from the user experience and learning process that cannot be transferred to the competitors. Additionally, the network effect decreases the motivation of users to switch to competitors, that is, it makes the switching costs higher for Qwiki users. If competitors are able to copy the concept then these high switching costs have the effect of decreasing the transition of users to these companies and since the tacit component is not transferable, the less value is delivered to those users that switched to the competition.

Further in this chapter the answer for the first part of the previous research question is given through an analysis of implementing Qwiki in three business areas: tourism agencies, museums and restaurants and assessing how the value generated for the holding company can be potentially transformed into profitability for the firm that controls Qwiki.

It is concluded that the implementation of Qwiki varies with the business goal and purpose for its content. On tourism agencies it matters if they are local or global since the need for information can be more specific in the first case or broader on the last case. On museums the user values the most complete and accurate content concerning a work of art or an artist, thus becoming a priority focusing on delivering quality and the latest knowledge on these subjects. The implementation on restaurants exemplifies other possible content such as other company promotions or user interactivity through cuisine tips of the day, which also apply for most of the business areas. In terms of potential profitability of the platform, the following research question is answered:

- How can Qwiki potentially become a source of profitability?

A correct and successful implementation can grab all potential that Qwiki generates for the companies so they can deliver it to its clients. This value generation benefits both the holding firm and the companies that implement Qwiki. This is due to the fact that the holding firm benefits from companies that implement this technology by selling it to them and allows

implementing companies to generate value through the use of promotions, merchandising and advertisements as well as additional content requested from the implementing companies. The ability to charge companies for implementation of content can potentially increase the profitability of Qwiki for the holding company.

The last part of the chapter addresses the limitations and future challenges that Qwiki faces and aids in comprehending the final research question:

- What are the main problems and limitations of the Qwiki platform?

These issues consist of vandalism, connectivity, security and development problems and the conclusion is that these issues need to be taken care seriously in order to Qwiki achieve all of its potential value and success or it will face serious consequences such as the failure of the whole concept and approval of its users.

Qwiki takes advantage of the two technologies that it combines, as this combination can potentially be strategic on businesses by creating a new way of generating and delivering value for these companies and its clients. This effect is made possible due to the tacit knowledge component that this platform creates through learning experience with its users and as time progresses so do the network effects attached to Qwiki. These in turn reduce the willingness to switch from users, that is, it increases their switching costs to other firms that failed to duplicate Qwiki or its strategy thus delivering less value and demanding a new learning experience from users.

The tacit component is essential in this dissertation analysis since it ensures that the competitive advantage maintains sustainable for two reasons. First, it increases the value for the company and users by creating knowledge that is not transferable, thus creating sustained value; and second, it prevents competition from implementing similar value strategies should competitors manage to copy Qwiki. Accordingly, applying the Resource-Based View framework on Qwiki shows that the platform has the potential of having sustained competitive advantage.

However, Qwiki needs to be carefully implemented according to the business area in question, as it too defines different characteristics that need to be taken into account as well the future challenges and limitations of wiki vandalism, internet connectivity, security and company research and development, which if disregarded compromise Qwiki potential and its ability in creating value and sustained competitive advantage.

From the conclusions above, it is possible to answer the main question of the dissertation concerning Qwiki's potential profitability:

- Is Qwiki a potential commercial success for the holding company?

For the reasons stated above, Qwiki is able to provide a possible way to potentially increase profitability due to its competitive advantage since the platform is able to generate value for both the company that holds it and for the implementing companies and, thus, allowing that this technology be available to be sold and revenue streams to be explored. Additionally, it cannot be copied so the competition is not able to replicate similar strategies and the holding company is able to maintain its competitive advantage. Therefore, this dissertation shows a possible way to determine that Qwiki can be a differencing factor when used in the context of a business model, being a strategic capability that generates value and sustained competitive advantage as part of a core competence for the holding company.

Consequently, in order to Qwiki be a potential commercial success for the holding company it first needs to be profitable. This potential profitability comes from the value creation generated by the platform's competitive advantage for the holding company through the creation of new content for the platform implementing companies and it is sustained as long as Qwiki is not copied by the platform's competitors. If these conditions are met then Qwiki can potentially be a commercial success for the holding company.

4.1. Future Research

This dissertation aims to study if Qwiki has the capability of being a strategic capability of a company's business model by utilizing two separate technologies, the wiki and smartphones, and the possibility of value and competitive advantage generation and sustainability. However, other directions of study become possible in exploring this subject with the possibility of new research questions.

In regards of the technology used, the wikis are slowly gathering the available information on the internet into a single and organized database. With the creation of Qwiki it is possible to view this information differently but the platform still lacks the independence from its sources. Exploring the possibility of creating a single channel of content storage database from both Wikipedia and image sites and allow its moderation from users, companies and promoters and its feasibility for them is a possible way to expand this research.

Smartphones are evolving at a fast pace and new hardware and software updates keep changing the current definition of these electronics. This research could be further explored by assessing the potential for smartphone applications that would directly interact with Qwiki's content, for instance linking it with Social Networks or other technologies such as Augmented Reality. The opportunities behind these two concepts are still yet to be uncovered and their integration into Qwiki's platform can prove an invaluable asset in value creation.

Future research is also required to address the challenges and limitations encountered on this dissertation. The set of issues found – vandalism, connectivity, security and development – are demonstrated in this work with possible solutions but further research may uncover other challenges and other ways of dealing with these or new issues that will arise with natural technology and society evolution.

Another perspective for this dissertation is to propose to future research if users are willing to accept and use Qwiki in their daily lives, thus becoming an important aspect of their routines and also a question worth exploring.

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