A Work Project, presented as part of the requirements for the Award of a Masters degree in Finance from the NOVA School of Business and Economics.

What are the main obstacles for the (mass) adoption of the mobile wallet technology?

– A project carried out in cooperation with MasterCard Hungary under the supervision of Mr István Maklári, Managing Consultant –

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Abstract

This Business Project, conducted in coorporation with MasterCard during my CEMS semester at Corvinus University Budapest, tackles the question of "what are the main obstacles for the (mass) adoption of mobile wallets?" The object of this project was to define and analyse all arguments against a successful mass adoption – regardless of the technology behind it. As a final output, we defined three major threats to the mobile wallet – concerns about Big Data, apprehension to adopt as well as consumer connectivity – and developed a scoring model enabling the company to quickly assess the level of severity of a certain counterargument.

Keywords: mobile wallet, mass adoption, counterarguments, MasterPass.

1 Brief Context

1.1 The Client: MasterCard Inc.

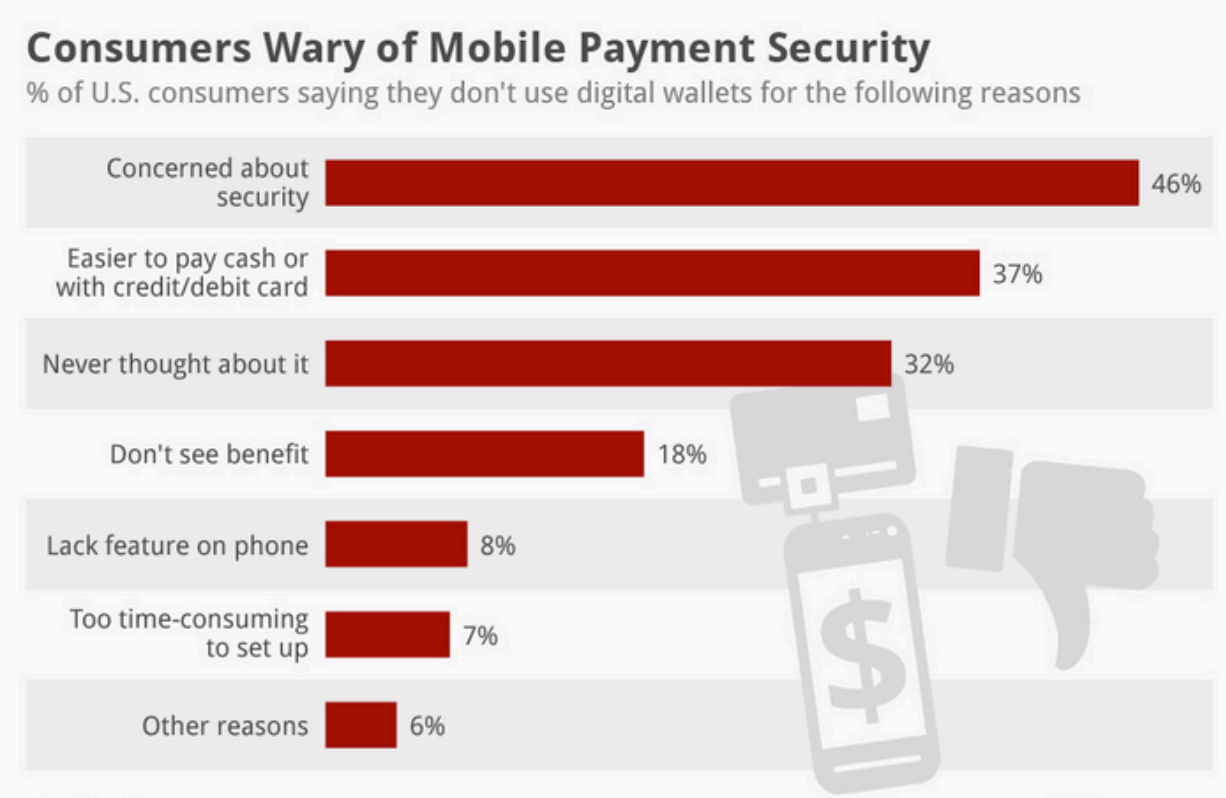
MasterCard Incorporated is one of the worldwide leading payment technology companies. It was founded in 1966 and is headquartered in New York, United States. According to the company (2015), there are more than 1.9bn MasterCards issued worldwide (even though MasterCard itself does not issue the cards; it rather is a technology company enabling secure transactions between merchants, banks and the card holders). MasterCard can be used at almost 36 million locations in over 210 countries and territories worldwide as well as in 150 different currencies. On average, MasterCard processes over 65,000 transactions every minute, totalling to an amount of $3.6 trillion in 2014. Furthermore, it is well represented in many major companies and institutions worldwide: for instance, WalMart – the world's biggest employer – uses MasterCard's payroll cards and the U.S. Treasury uses MasterCard's prepaid cards to distribute Social Security payments. According to the 2015 Nilson report, MasterCard holds the second biggest market share in purchase transactions worldwide (26%), behind its main competitor Visa (58%). In addition, the company had a significant growth rate of 13.6% from 2013 to 2014, whilst its Debit Card purchase volume skyrocketed by 1049% from 2000 to 2014 (by comparison, Visa Debit grew by only 679% over the same time period). In total, MasterCard has around 6,700 employees.

1.2 Market Overview and Current Client Situation

Over the last 10 years, the mobile communication and payment industries have seen a period of intense evolution. The emergence of the so-called mobile wallet appears to be the logical next step, considering the high and steady increase in smartphone and credit card penetrations worldwide: as of January 2015, almost 76% of the US population owned a smartphone (comScore, 2015) – worldwide, the penetration is predicted to reach almost 2bn customers by next year.

But what exactly is a mobile wallet? In short, it is the mobile equivalent of the physical wallet that most people carry with them on a daily basis. As such, it does not only enable the customer to make mobile payments (in-store and online) but can also contain a variety of other cards and services, such as loyalty cards, frequent flyer cards, and even cinema tickets. Hence, in theory, this technology has multiple advantages: it is convenient and simple (only requires one click or tap), integrated, secure and enables the customer to automatically redeem offers and coupons.

However, in practice, companies are still finding it difficult to formulate a single technology, business model and strategy to converge smartphone and credit card in one device and to develop a solution that could seamlessly replace the customer experience of a contactless card payment. Recent attempts included SIM, handset and cloud-based solutions; yet none of them managed to reach a critical mass of users over time. Over the course of 2013, out of the $15 trillion payment market, a mere $235bn was made in mobile payments, while the rest was still made by cash or credit cards, showing how small the market share of mobile wallets still is (Bertoni, 2013). Moreover, the mobile wallets available at the moment are still lagging behind PayPal by far – not to mention the old-fashioned cash and card payments. According to a recent survey (Thrive Analytics, 2014), while 79% of the 2,000 US respondents had used PayPal before, the most popular mobile wallet, Google Wallet, had only been used by 40%. MasterPass completely lagged behind its competitors with only 5%. At the MasterCard Hungary Office, our Business Project Team was told a story which perfectly reflected how much of a niche technology the MasterPass mobile wallet still is: once, the MasterPass technology was down worldwide – and it took a whole 2 hours until a customer complaint was made.



Graph 1: U.S. consumers aged 18+ who have not used digital wallets; n = 1,386
Taken from Thrive Analytics (June 2014)

There are multiple reasons why the mobile wallet market still has not gained a substantial foothold: first and foremost, the technology would need to be more simple and faster than the traditional payment methods. Swiping a credit card is incredibly easy and does not require any particular Internet connection or a full battery. The same goes with cash: it is universally acknowledged and everyone has it; no customer has to worry about whether or not the merchant will accept the coins and bills. The Thrive Analytics survey among 1,386 US consumers confirms these sentiments: many respondents express concerns about the technology's security (46%) and the easiness compared to cash and traditional card payments (37%), while many had never even considered using a mobile wallet. Other commonly named arguments included the question of potential benefits as well as the availability of the required technology on the phone.

Nonetheless, despite all of the above-mentioned counterarguments, all of this might be subject to a more radical change now that Apple has introduced its Apple Pay – it would not be the first time that the company would lay the foundations for a mass adoption of a new technology. This sentiment is, among others, also supported by a recent Deloitte publication (Lee and Stewart, 2015), in which the authors conclude that contactless mobile payments will most likely gain momentum in 2015: the report estimates that by the end of this year, 5% of the mobile phones equipped with NFC (near field communication) technology will be used at least on a monthly basis to make in-store payments. Hence, in conclusion, one could say that while mobile wallet payments are still only a niche segment regarded with skepticism, it is definitely within the realms of possibility that this technology will be the "next big thing" – and that MasterCard will be on the forefront of developing a world beyond cash.

1.3 The Business Project Challenge

The main goal of this Business Project was to collect, judge, structure and present all arguments *against* the mobile wallet as a customer solution. The final output was to be a comprehensive overview of all valid arguments against the mass adoption of mobile wallets, regardless of the particular technology or business model behind them. These arguments were to be prioritised and the focus of the final output was to be laid on the three most important ones. Moreover, the detailed analysis was to include a framework that would enable MasterCard to assess critical arguments quickly and to then score them according to their level of severity.

2 Reflection on the Work Done

2.1 Problem Definition

The poor results of the pilot projects mentioned before encouraged some critics of mobile proximity payment solutions to claim that the mobile wallet is an evolutionary dead-end and that companies like MasterCard would waste their time and resources on a lost battle. A key argument in this discussion is that, except for early adopters, mass users might not be willing to have their payment cards virtualised in a mobile phone and leave the plastic out of their leather wallets. Furthermore, some of these critics think that an unknown new technology might bypass the mobile wallets and provide a different solution that is more acceptable to the masses.

As a result, the central question of our Business Project was: "What are the main obstacles for the (mass) adoption of mobile wallets?" This question is of high relevance to MasterCard – and also is one of the main priorities to the company at the moment – since it will greatly influence the company's future actions and strategy. As the mobile wallet technology has the potential to become the "next big thing", MasterCard aims to be at the forefront of this new development. As such, potential threats are of utmost importance, which is why the focus of the Business Project was entirely on the counterarguments and a way to score these arguments.

2.2 Methodology

In the following chapter, the methodology of the project work will be outlined: firstly the hypothesis of the project, then the main elements of the analysis and lastly the work plan and schedule that the group set.

I Hypothesis

As mentioned before, the main topic of the project was the mass adoption of digital wallets. The goal of the project was to create a tool that could be universally used to analyse the situation and potential counterarguments. Moreover, MasterCard also expected an identification of areas which would be the most significant for the success of MasterPass.

For the first task the hypothesis was that a framework, which can analyse information in-depth from different aspects, could be a proper tool. Since MasterCard defined that the framework should involve a scoring mechanism, the main structure was basically given. The reason behind emphasising on the multiple perspectives approach derived from the research of the industry: it became clear very soon that there are many factors involved and that they could influence different aspects of the service. The detailed development process will be outlined in the chapter dedicated to the framework.

For the second task, the main hypothesis was that the digital wallet market inadequacy is an existing phenomenon, and that the fundamental reasons can be identified. Regarding this task, MasterCard looked for precise identification of the core issues with supporting facts. For this task, the framework provided a good start, although additional research was needed in order to be able to draw up a comprehensive picture on these factors.

By the end of the project, both hypotheses turned out to be true. The framework was able to measure both negative and positive impacts of the input counterarguments, and also to position them on an ordinal scale. As for the second hypothesis, based on the research and the project work, it was factually proven that there are underlying mechanisms and aspects which create barriers to mass adoption.

II Analysis

The research and the analysis were planned in advance. The team used a multiple phased-layered approach to gain the best understanding of the topic. With the articles, a bottom-up selection was used, starting from articles for mass media up to very specific professional and academic analyses.

First of all, the general articles found on the online media sites and blogs were gathered. These articles provided a quick overview on the digital wallet landscape; in addition, they were easy to process thanks to the customer-friendly language used in them. The next step included collecting articles from industry-specific magazines and other sources. These documents included more data about the operation of digital wallet services, and the key players and trends. As the final step, highly specific research papers and industry analyses were looked up and analysed.

The topics of the research and article collection covered every facet of the industry. The selection process of these topics can be described as top-down, as the initial focus was on MasterCard and MasterPass, which was then broadened to the mobile wallets, and later to the digital wallets. As it will be mentioned also in the chapter about the framework, the reason behind this approach was to understand whether this is only a company-specific problem, or if it affects the industry as a whole (eventually, it turned out to be the latter). The team also created a knowledge base with the articles used for the analysis. In the knowledge base, articles were categorised according to the topics they covered. A separate document was created as well, to provide short descriptions for each article. This knowledge database was also shared with MasterCard.

III Work plan

Due to the complexity of the project and the limited amount of time, scheduling the work was inevitable. The project's schedule can be seen on the chart below. There are only twelve weeks indicated on the chart, as the Business Project only started during the third week of the semester. The explanation of the subtasks can be found in the previous chapter (concerning the analysis) as well as in the chapter about the framework.

Work plan		Week											
		1	2	3	4	5	6	7	8	9	10	11	12
Research	Mass media article research												
	Industry-specific article research												
	Special analyses research												
	Knowledge base development												
Framework	Defining inputs and outputs												
	Collection of inputs												
	Creation of analysis categories												
	Scaling the categories												
Core issue identification	Identifying the top three issues												
	In-depth research												
Presentation	Preparing the presentation												
	Official presentation												

Graph 2: MasterCard Business Project work plan
Own illustration (May 2015)

Since there sometimes was an overlapping of tasks at some points (particularly with literature research and the development of the framework), proper work distribution was needed and done by allocating the tasks among the group members according to personal interests, previous knowledge and competencies. The idea behind this approach was to keep up

motivation and work efficiently during the semester. This system worked most of the time; minor setbacks were caused because of different working methods of the team members, including handling deadlines, and the quality of the work. Eventually this work plan was maintainable, although project work turned out to be more intense in some weeks due to ad-hoc queries from MasterCard.

The overall working method was based on weekly meetings, were the tasks were divided, and the results were discussed. During the early phases of the main tasks, brainstorming sessions were also carried out during the meetings. Apart from the group meetings, online platforms were the main tool of communication. Initially, coordination was done on a democratic basis, but as the project progressed, some members took higher responsibility for this task. Cooperation with MasterCard was done through ad-hoc personal meetings and weekly conference calls. To ensure the visibility of the work, and the easiness of getting the results, shared Google Drive folders and documents were set up.

2.3 Outcomes and Recommendations

2.3.1 Framework

Eventually, one of the main objectives of the project was the development of a framework, which would enable MasterCard to estimate the importance of any external critics or reviews. In practice, the framework had to be able to analyse any given issue by a broad set of aspects. The framework development process consisted of four phases:

1. The 1st phase involved the definition of inputs and outputs;
2. The 2nd phase involved collecting all the relevant articles which can be used as inputs;
3. In the 3rd phase the relevant categories of the analyses were created;
4. During the 4th and final phase the scale scoring for each category was carried out.

In the following, every phase will be presented in detail.

1st phase: defining inputs and outputs

As mentioned above, the main goal of the framework was to analyse critics, with the main focus on counterarguments against a mass adoption. Therefore, the input was defined as any kind of information that would have any relevance to the MasterPass service, and which was released publicly or privately by externals, or came from a reliable internal source.

Naturally, the relevance of the information to the MasterPass service was an obvious criterion. In addition, the source of the information was significant because of two reasons: firstly, external sources could influence the actors in the industry; in this situation, if the information is relevant, MasterCard would be forced to react to this kind of publication. In the meanwhile, any internal source, which is only available to MasterCard, can provide information and support proactive actions. Secondly, the reliability differs by the two sources. With regard to the external sources, any information available for the public can have an impact – regardless of whether it is true or not. In addition, since information coming from internal sources is only available internally, it would need to be filtered so that the company can focus only on those factors which could affect the service significantly.

In terms of the sources of information, due to the limited resources, our Business Project team put a focus on written academic or professional articles. This was in alignment with MasterCard's needs, although the complete framework could as well be used with other sources. As an output, MasterCard was aiming for any measurable product. To satisfy this need, the object was to generate numerical outputs. The idea behind choosing numbers as measurement was to gain the ability to create a priority list with the analysed inputs, where the position of each input is based on their output value. To calculate the output value, the framework had to provide a scale as measurement. The team decided to break down the framework into smaller parts, to be able to conduct the analysis from multiple aspects.

Using this approach, the framework would work in the following way: after 'entering' the framework, the information is firstly filtered according to relevance, after which it is analysed from different aspects. Finally, a score for each individual aspect is given, which eventually – taking all different groups together – are summed up as the output value.

2nd phase: collection of inputs

Before establishing the categories of the analysis, the current state of the industry had to be explored by conducting a literature review. Initially, our focus was on the lack of success of the MasterPass service. However, during the research, it became clear that not only MasterPass but also the competitors are experiencing a similar unfavourable situation. This indicated an industry-wide challenge, which influenced how the categories were chosen in the second phase. The research revealed many different relevant issues, which could be used as inputs. Most of these issues were related to either the use of the service or the customer needs.

Based on these 'topics', it became clear which elements of the service and the industry would be crucial for the analysis. Later on, MasterCard also asked to analyse the 3 most urgent issues in more detail, which was done separately without the framework; the findings are presented in the following chapters.

3rd phase: creation of the categories for the analysis

As stated above, the third phase involved selecting the categories for the framework. As a first step, the team defined four main categories. These categories were Service, Externals, Industry and Company. To increase the level of sophistication, and have a mutually exclusive and collectively exhaustive tool, sub-categories in each category were also defined. The final structure was the following:

Service	Externals	Industry	Company
• Customer support • Security • Speed • Simplicity • Technical	• Regulation • Economics • Demographics • Technical Environment • Other influences (media, etc.)	• Competitors • Substitutes • Partners	• Image • Organisation • Resources and capabilities • Business Model

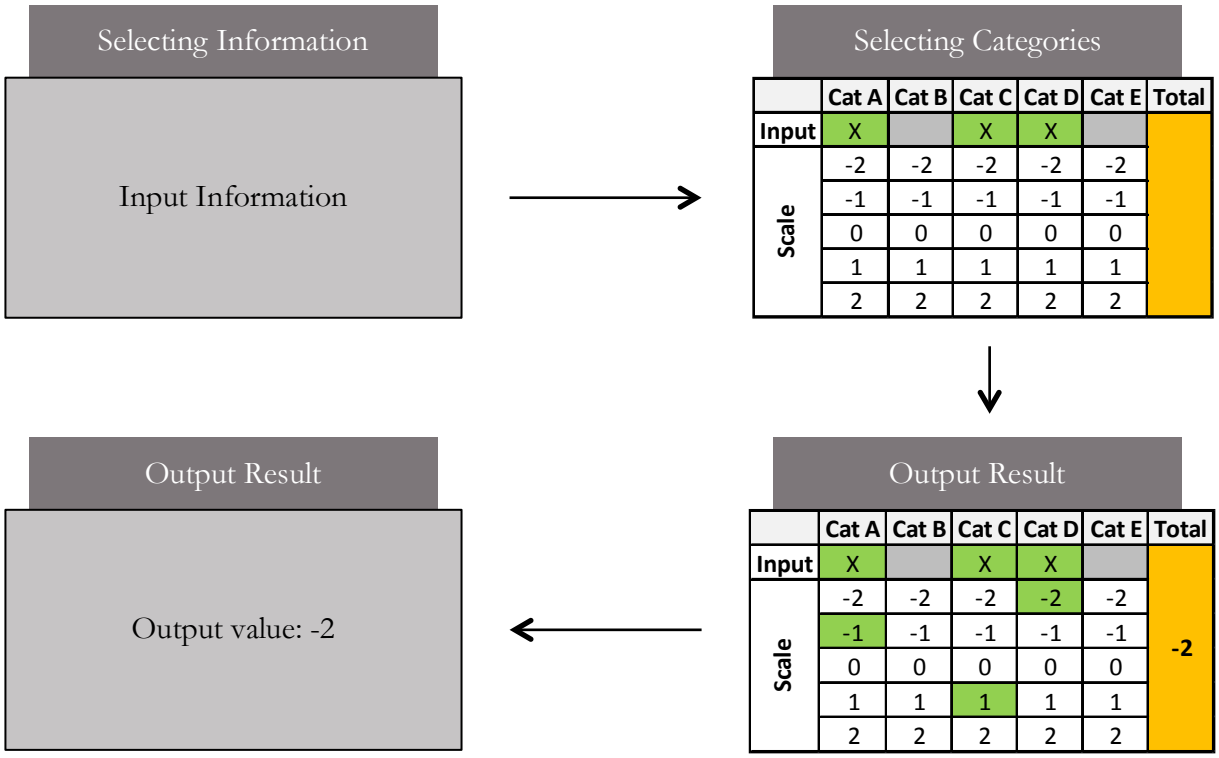
Graph 3: Four main categories of the framework
Own illustration (May 2015)

The Service category focuses on the operation of MasterPass, mainly from the point of view of the customer. The sub-categories cover each aspect that could potentially influence customer satisfaction. The Externals category was designed to gather those non-industrial aspects which pose either barriers (such as regulation or demographic backgrounds) or influence the customers, as the 'other influences' sub-group. The industry category analyses the MasterPass service in relation with other market actors. The last category includes all the remaining aspects of the MasterPass – MasterCard relationship.

Selecting the categories and sub-categories took several attempts in cooperation with MasterCard. For every category and sub-category, an individual definition was made, but due to the confidentiality, these and the individual scoring scales cannot be presented in detail.

4th phase: scaling the categories

In the last phase, an individual scale was created for every sub-category. Although each category represents different non-overlapping aspects, the basic scale was the same, ranging from -2 (worst) to +2 (best). The mean value represents the neutral state; anything below represents disadvantages, while anything above indicates advantages to MasterPass. If 'positive' and 'negative' categories would equal each other out to a neutral state, a further qualitative analysis would be of crucial importance. With this scaling approach it is possible to not only identify threats and weaknesses, but also the kind of information on which the mobile wallet service can capitalise. The exact description for each value step in the scales was customised based on the attributes of the sub-categories. This process again involved multiple iterations, in order to have a comparable measurement method in the framework. In the end, the framework can be summarised in the following flowchart:



Graph 4: Flowchart of the final framework
Own illustration (May 2015)

However, after designing the scales in every category, the weightings of the categories remained an open question. Equal weightings would not be able to catch the differences in the significance of the categories. Due to the limited time and resources, the Business Project was finished at this stage of the development and MasterCard decided to do this part in-house.

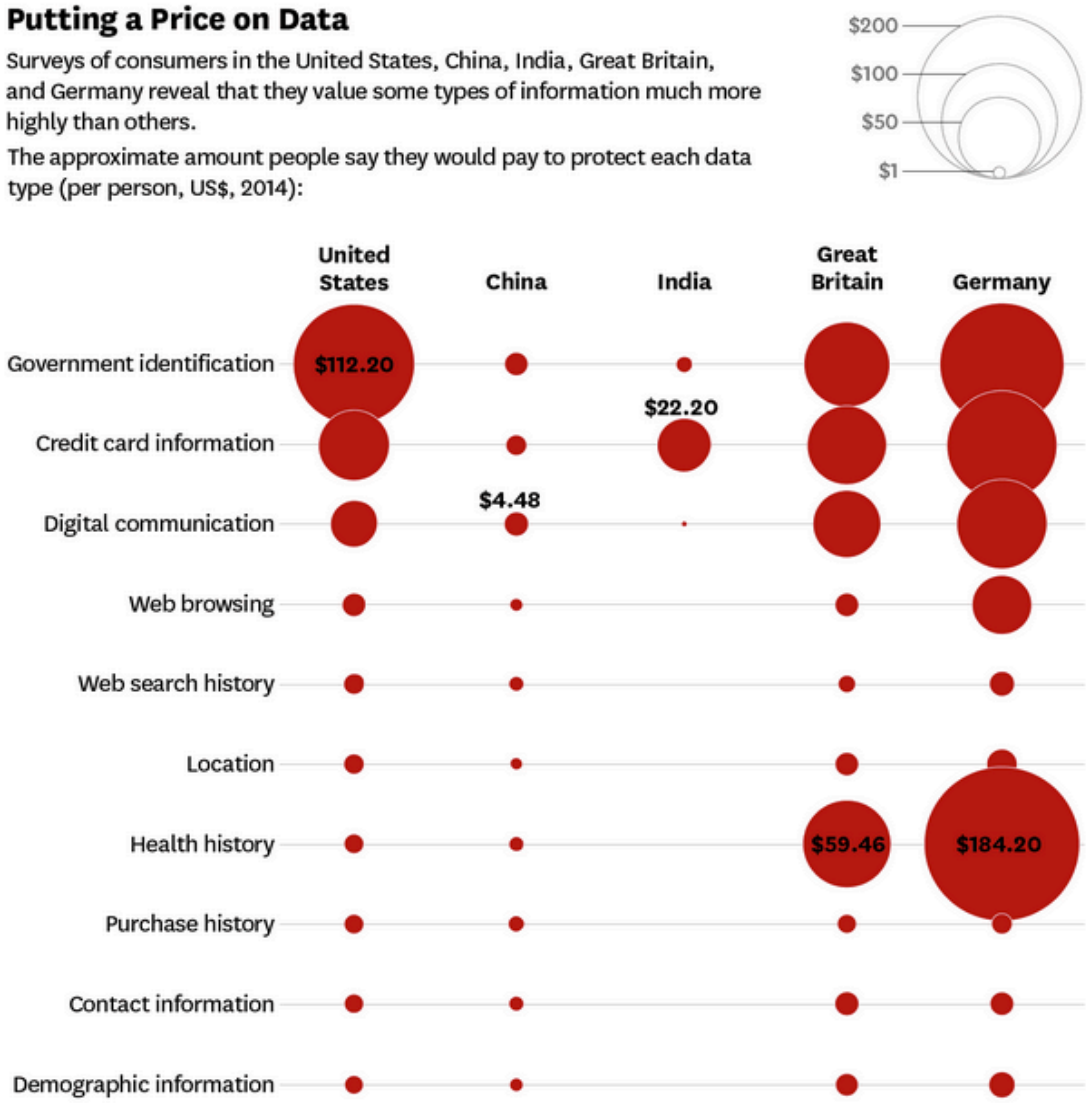
2.3.2 Big Data

As mentioned before, one of the most important outcomes of our Business Project – apart from the framework – was a prioritisation of factors potentially endangering a mass adoption of the mobile wallet. In collaboration with the MasterCard management team, we decided to focus on three main threats: Big Data, apprehension to adopt as well as connectivity.

Surprisingly, the first threat – Big Data – was one that the management of MasterCard was totally not aware of at the beginning but that was well represented in the recent literature. In general, there are two trends that can be observed: firstly, social media websites are growing globally, with WhatsApp and Instagram boasting the biggest success with growth rates of 60% and 71%, respectively (Duggan et al.). On the other hand, however, users show an increasingly high concern about their privacy and how their data might be (mis-) used in Big Data. Particularly in the more developed markets (such as the US), this apprehension has already begun affecting the demographics in social websites. For instance, one study compared the demographics of the most successful websites in 2011 and 2014 (Duggan et al., 2014). One striking outcome of this study was that demographics at Facebook had been shifting tremendously in the United States: while the age group above 55 years saw an increase of 80%, the younger users aged 13 to 17 and 18 to 24 dropped out of the social network by large numbers (-25% and -7.5%, respectively). When asked about their reason to leave Facebook, the most-cited reason was a concern about user privacy (48%), while other issues such as general dissatisfaction (13.5%) were of far less importance (Stieger et al., 2013). Another survey (PiperJaffray, 2014) among 7,500 teenagers confirmed this trend: Facebook only ranked 3rd as most popular social website with 23%, lagging behind Instagram (30%) and Twitter (27%).

But why exactly are these numbers important to MasterCard and its MasterPass project? To put it simply, consumers are concerned. Most importantly, those consumers that would be most likely to be early adopters of a mobile wallet: the younger generation as well as the tech-savvy users. In this regard, the Harvard Business Review recently published a highly interesting article (Morey, Forbath and Schoop, 2015) about transparency and trust with customer data. In this article, the authors conduct a survey among five different countries: United States, United Kingdom, Germany, India and China. This survey revealed some striking differences between the respective countries – but also one very common theme: 97%

of all interviewees expressed concerns about their data being potentially misused by governments and businesses. The other two top concerns included identity theft (ranging from 84% of Chinese and 49% of Indians interviewees) as well as privacy issues (80% of Germans and 72% of Americans). The following graph, also taken from the HBR article, shows how much respondents would be willing to pay in order to protect each data type:



Graph 5: "Customer Data: Designing For Transparency and Trust" (HBR, May 2015) Taken from Morey, Forbath and Schoop (2015)

As can be seen, Germans would be willing to spend the most money on protecting their data by far, while Indians and Chinese appear to be the least concerned. Naturally, the most interesting field for MasterCard is the willingness to pay for credit card information, which appears to be high in almost all nationalities but particularly so in the more developed countries – which also represent the primary target markets for a mobile wallet technology.

So what can MasterCard take away from these conclusions? First and foremost, the company will have to ensure their customers that their data will be safe and not be made available to any third party. As it is exactly the target markets, which appear to show the biggest concerns about privacy and data security, MasterCard will have to address these concerns in particular and put mechanisms in place so that the mobile wallet technology will be as safe as possible. However, there could also be a potential downside: if MasterCard would decide to not use the customer data, this would also mean that it would not be able to customise offers to the MasterPass user or to sell the data to third parties, which in turn could decrease the company's overall cashflow.

2.3.3 Apprehension to Adopt

Based on the article research, the second major issue was the apprehension to adopt the new technology. This phenomenon can be explained as the conscious or unconscious fear of using something new and unknown. MasterCard suggested examining this issue on three different levels, which will be analysed in the following:

1. Conscious barriers
2. Conscious perceptions, which are not influential
3. Characteristics embedded in sub-conscious mind

1. Conscious barriers

The conscious barriers are those beliefs that influence everyday life and decision-making actively. The customer might be interested in the service, but he or she might lack the motivation to try it out due to different reasons. These reasons can include a too wide range of services, which increases the difficulty of selection (Crosman, 2015); or substitute services with more options, e.g. prepaid cards (Tabakovic, 2014).

2. Non-influential conscious barriers

The main difference between influential and non-influential barriers is that the latter one is easier to overcome. In this group, the mental barriers are present, but with external help these can be eliminated. An example could include security concerns: the customers might believe that the service is not secure to use, although frauds are more likely to be caused by the customers behaviour, such as not using passwords on their phone (Korzeniowskiy, 2014).

3. Sub-conscious characteristics

The last group contains those characteristics which are almost impossible to change. These traits are rooted deep in the sub-conscious mind – in fact, too deeply to be able to affect them externally. In this group, fear of modern technology can be mentioned or fundamental customer behaviour, which drives the need of the customer. Although customer behaviour can be changed, other psychological elements, such as positive reinforcement from loyalty programmes (Shiliaski, 2013) would be very hard and probably also pointless to change.

According to the results of the research, knowing the customers and their needs should be a top priority to any firm, as missing important aspects can be the reason for lack of success. This is one of the areas in which the digital wallet market actors have to maintain a continuous and high focus.

2.3.4 Connectivity

The third big issue that was identified in the Business Project was that of connectivity. In this regard, the team pinned it down to two major drawbacks: firstly, the customer is totally dependent on carrying his smartphone with him all the time. Studies have shown that the worldwide smartphone penetration is at 28%, while most of the developed countries have penetration rates over 50%: according to the Google Consumer Barometer (n.d.), Singapore has the highest smartphone usage with 95%, while other developed nations such as Germany (50%), the US (57%) and the UK (68%) have more moderate rates. Moreover, a large survey among 170,000 respondents (Global Web Index, 2015) has shown that nowadays, 80% of Internet users own a smartphone – only ranking behind the PC or computer itself (91%). The same study concluded that mobile users spend an average 1.85 hours per day on their phones, up from only 40 minutes in 2012. In emerging markets (particularly the Middle East and Africa), this number is even considerable higher at over three hours per day.

So what is the takeaway point for MasterCard here? At the one hand side, smartphones are clearly on a global victory march. With a high-potential penetration rate, there is a good basis for the mobile wallet to take off. However, it also outlines the customer dependency on their smartphone: in order to use MasterPass, customers would absolutely need to have their phone with them – all the time. Even if they were just going for a run (and would, let's say, want to buy a bottle of water), they would need to have their phone with them – which is probably far less convenient than just having a light €5 bill in their pocket. What is more, the customer's

smartphone would also always need to be charged. In case that the battery would die and the customer would completely rely on his smartphone as the payment method (i.e. not have his physical wallet with him), a purchase at the convenient store could turn out to be a highly unpleasant experience.

This drawback leads us to the second big issue related to connectivity: the Internet connection. On the one hand side – just like with the smartphone penetration – the overall usage of the Internet has gone up tremendously over the past years: worldwide, almost 43% had access to the web as of June 2014 (Miniwatts Marketing Group, 2014). As expected, this number is considerably higher for the more developed regions, namely Northern America (87.7%) and Europe (70.5%). Hence, in theory, this is a good foundation for a successful implementation of the mobile wallet. However, in practical terms, the MasterPass technology would always rely on an Internet connection of the smartphone. Again, this could lead to some unpleasant (and sometimes even unexpected) experiences: what if the customer forgot to buy the next month's data plan? What if he relies on the store's WiFi but it does not work? What if he is traveling abroad and does not want to pay for roaming charges? What if he simply does not have Internet on his phone? All of these questions might become considerable issues for the success of the mobile wallet technology: it clearly depends on the customer's connectivity, both in terms of smartphone technology and availability as well as an existing Internet connection.

2.4 Limitations

It is most likely the biggest shortcoming of our Business Project that it merely included identifying the most prominent threats to the mobile wallet – and specifically excluded developing a strategy on how to handle these threats. While MasterCard has a clearer picture of all arguments against a breakthrough of the mobile wallet now, it is still groping in the dark about counteractive measures. Moreover, given that the mobile wallet is still a relatively young technology with only few users, it remains to be seen whether this technology will ever see the light of the day on a mass adoption basis. At this point in time, it is almost impossible to predict whether it will be successful or not – and which factors will eventually be the decisive ones. In our Business Project, we were limited to the available literature as well as certain studies that MasterCard had conducted beforehand in order to determine the seemingly most striking and important arguments against the mass adoption. Whether our decision on the respective factors was accurate or not remains to be seen in the future.

3 Reflection on the Learning

In the last chapter I will examine the learning process related to the Business Project. The project influenced and enhanced both my personal knowledge and competencies. In the following I will show how it affected my previous knowledge; what knowledge have I learned, and which skills have I developed; and also how it helped me to understand my strengths and weaknesses in greater detail. At the end, I will also summarise my personal thoughts on the project and the outcomes.

3.1 Previous Knowledge

Unfortunately, while the issue of mobile wallets can definitely be categorised within the wide field of Finance, there was not a real connection to any course I took for my Master in Finance at Nova. However, this Business Project did relate to my CEMS course of Management of E-Business, which I took in Budapest on my semester abroad. In this course, we spoke extensively about online payments and the mechanisms and technology behind it and also briefly mentioned the different mobile payment methods, including mobile wallets. While this was of course a good basis to build upon, the Business Project went into much more detail than my Masters content.

In my opinion, I had to make the biggest adjustment to my Masters content when balancing the ‘hard facts’ related to all technical aspects with the management challenges that MasterCard is facing with its mobile wallet. While I did hear about both mobile payments as well as the challenges of entering a new market before, I never dealt with the combination of both before. In this regard, it was a highly interesting and somewhat challenging situation: there was a lot of new input about the technology and mobile wallet market at once, which our team had to pick up in a short period of time in order to be capable of carrying out the Business Project tasks in a well-founded and high-quality manner.

3.2 New Knowledge

From the learning point of view, this project provided me knowledge about digital financial transactions and fostered my project-management and leadership skills. Learning was done both directly and indirectly. Working on the project I gained direct insights on digital wallets, and the challenges they face – a topic I knew next to nothing about before the CEMS

Business Project. Moreover, these insights covered other areas of financial transactions as well, which came up during the research. Because of this project I have gained knowledge on:

- What digital wallets are and how they work
- Who are the competitors on the digital wallets market
- What are the main electronic digital financial transaction services
- What are the customer needs, and how did they change in the recent years

My project-management skills were developed indirectly. Although it was not my first time working in an international team, it still remains a challenge every time – especially given that our team was the most mixed one among the CEMS Budapest Business Projects: 6 members from 4 countries with a gender ratio of 50%/50%. In terms of project management, I learned the most about structuring the workflow. The development of the framework relied heavily on how the phases were done; therefore, proper planning was crucial. The team had to plan how to divide the workload and the right pace of every task. Based on this experience, in the future, I am convinced that I will be able to handle similar situations more easily. Moreover, I was trying to motivate and help the other members of the team anytime I could, or when it was needed. These occasions fostered the development of my interpersonal skills as well as my leadership skills.

3.3 Personal Experience

My reason behind selecting this Business Project was two-folded. Firstly, I was eager to learn more about the financial transaction industry. Secondly, I thought that my skills would fit to this project the most. As I have presented my learning outcomes in the previous chapter, in this chapter I will focus on which of my strengths I could capitalise on, which new strengths I have found, and also in which areas I could make further developments.

In general, I am a very thorough person, and I also like to pay attention to the detail. This Business Project needed both, as we had to understand the big picture first, before being able to work on a detailed and comprehensive framework. In addition, thanks to my course in E-Business, I was able to be one of the major contributors to the project as it came in handy that I already had some previous knowledge on the financial transaction landscape. Thus I was also able to easily understand and process the new information.

From this project I learned that I could work precisely and well under pressure, which was useful due to the quires of MasterCard with tight deadlines. I think this strength will be of high use later in my professional life as well and I hope that I will be able to further develop it. Looking at my weaknesses, I think I should push my own ideas stronger. During teamwork, oftentimes it would be my group members who would come up with new ideas in each meeting. I also had ideas myself, but sometimes I would just easily accept the ideas of others so that I think that I should try to be more proactive in my future group works. I am convinced that, if I develop myself further in this area, this could be an important step towards becoming a successful leader one day.

3.4 Benefit of Hindsight

Looking back at the whole project I am satisfied with the outcome, although there were some areas where work could have been done better from the side of the team and the side of MasterCard. Based on the feedback, and how I see it, the framework is perfectly able to score any information relevant for the service, and indicate its importance. I think this tool can create value for the company, and it can help the firm to be able to faster react to the changes on the market and in the environment.

With regard to the negative aspects, I think that the cooperation within the team sometimes presented a difficulty. Every team member had his or her own work method, which in this case were not the same. The two main issues arising were handling deadlines, and the quality of work. Occasionally, additional work was needed from team members in these areas, other than the person originally dedicated to the task. Fortunately these situations rarely occurred, and could be handled with good communication, but without any of these issues, the teamwork could have been close to perfect.

From the side of MasterCard, I think the project could have involved doing the weightings of the framework, or looking not only at the problems, but also at possible solutions (as outlined in the chapter regarding limitations to the project). Considering that our time and other resources were limited, I think it is understandable why those areas were not included, but I would have walked the extra mile to get the experience – it would have definitely made the project even more interesting and challenging.

Bibliography

Bertoni, Steven. 2014. "Mobile Payment Experiment: Can An iPhone Replace Your Wallet?" Forbes Technology [Online], 28 March. Available from: <www.forbes.com> [Accessed 8 May 2015].

comScore, Inc. 2015. "*January 2015 U.S. Smartphone Subscriber Market Share*." [Online], 4 March. Available from: <https://www.comscore.com/Insights/Market-Rankings/comScore-Reports-January-2015-US-Smartphone-Subscriber-Market-Share> [Accessed 10 May 2015].

Crosman, Penny. 2015. „Citi Futurist Envisions the Part Wearables Will Play in Banking". *American Banker.* 1/20/2015, 180(9): 1-5.

Duggan, Maeve; Ellison, Nicole B.; Lampe, Cliff; Lenhart, Amanda and Madden, Mary. 2015. "Demographics of Key Social Networking Platforms" [Online], 9 January. *Pew Research Center*. Available from: <http://www.pewinternet.org/2015/01/09/demographics-of-key-social-networking-platforms-2/> [Accessed 10 May 2015].

Global Web Index. 2015. Device Ownership: *"Which of the following devices do you personally own?"* Survey Q3 2014.

Google Consumer Barometer. N.d. "Global Smartphone Usage." [Online] Available from: <https://www.consumerbarometer.com/en/insights/> [Accessed 10 May 2015].

Korzeniowskiy, Paul. 2014. „Mobile wallet building blocks slowly takes shape." *Customer Relationship Management October 2014*. 34-38.

Lee, Paul and Stewart, Duncan. 2015. *Contactless mobile payments (finally) gain momentum* – TMT Predictions 2015. Deloitte Publication.

MasterCard, Inc. 2015. "About Us: Learn More About MasterCard – By The Numbers" [Online]. Available from <http://www.mastercard.com/corporate/ourcompany/about-us.html> [Accessed 1 May 2015].

Miniwatts Marketing Group. 2014. *"World Internet Penetration Rates by Geographic Regions – 2014 Q2"* [Online]. Available from <http://www.internetworldstats.com/stats.htm> [Accessed 10 May 2015].

Morey, Timothy; Forbath, Theodore and Schoop, Allison. 2015. "Customer Data: Designing for Transparency and Trust". *Harvard Business Review*, May 2015: 96-105.

PiperJaffray. 2014. „*Piper Jaffray 27th Semi-Annual Taking Stock With Teens Survey*." Spring 2014.

Shiliaski, Mario. 2013. **„The untapped potential of digital loyalty programmes**." *Journal of Payments Strategy & Systems*, 7(2): 106-111.

Stieger, Stefan; Burger, Christoph; Bohn, Manuel and Voracek, Martin. 2013. "Who commits virtual identity suicide? Differences in privacy concerns, Internet addiction, and personality between Facebook users and quitters". *Cyberpsychology, Behavior, and Social Networking*, 16(9): 629-634.

Tabakovic, Amir. 2014. „The prepaid mobile wallet: a powerful product for an impatient ecosystem". *Journal of Payment Strategy & Systems,* 8(3): 254-263.

The Nilson Report 2015. "Purchase Transactions Worldwide", March 2015.

Thrive Analytics. 2014. *"PayPal Still Way Ahead Of The Digital Wallet Competition."* Survey June 2014.