Improving Millennium Bank’s Personal Finance Manager

How to cater a more useful, usable and tech-advanced tool to gain competitive advantage in the Polish banking competitive arena

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A Project carried out in the ambit of the Management course, under the supervision of Professor Carlos Marques

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TITLE

Millennium Bank’s Personal Finance Manager and how to build competitive advantage by “digitalizing” clients through an improvement of this product placed on the bank’s online platform.

ABSTRACT

This dissertation reviews and analyzes the best practices in the Online banking business, namely in those which concern the Personal Finance Manager (PFM) tools for clients. Poland is currently a European leading market in Online banking, ranking amongst the most technologically advanced platforms in the Continent and being considered very reliable when it comes to security of payments. Considering that the Polish banking sector reached saturation and further growth should not be expected\(^1\), industry-experts predict that profitability will be gained mostly through cost-savings deriving from less face-to-face contact in customer support which will gradually be replaced by online contact channels. This paper focuses on improving the Personal Finance Manager’s (PFM for short) functions of Millenium Bank’s online platform (which directly or indirectly correspond to money transactions) and aims at analyzing how to develop competitive advantage through a more feature-rich easy-to-use and intuitive online platform (hence the execution of a study on international best practices concerning PFM).

A study on the top 5 Polish retail banks is conducted to understand how advanced Millennium’s PFM is in relation with competition (whose results are compared with the aforementioned analysis on the best practices applied by internationally leading PFMs). Next, and on the basis of both these elements, specific suggestions were reached to improve the

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actual PFM tool. All in all, the objective of the report is to condense all the gathered information into a set of recommendations for Millennium to use in the development of their new PFM platform. The task was of special importance for two reasons: it is estimated that banks’ profitability in the future will be mostly driven by the “digitalization of clients” (resulting in cost savings for the institutions) rather than by the acquisition of new ones (which means that online banking platforms ought to be appeasing for customers); Millennium’s homebanking platform is already very advanced for Polish and even European standards, thus being hard to improve, even marginally.

The findings of this review are described in the Conclusions section of this Work Project.

**Keywords:** Personal Finance Manager, Online-driven profitability, Online Banking

**ACKNOWLEDGEMENTS**

This project was only possible due to the ongoing coordination and support of Prof. Carlos Marques and my director supervisor at Millennium Bank’s Electronic Banking Department, Ms. Halina Karpinska. To both I hereby express my deepest gratitude.

**INTRODUCTION**

The Polish economy has been a case of success for many years after its accession to the European Union (E.U.), with an annual economic growth rate before the 2008 global crisis of 6%\(^2\). In the peak of the crisis the Polish economy still sustained itself by growing 1,6% while the E.U. as an economic block dropped 4,5%. The aftermath of the crisis for Poland has been positive and now the economy is growing at an-above 3% rate. This growth has been displayed in the banking sector, which has been experiencing steady growth over the years and decades after the communist era (which ended in 1989). Indeed, during the 1990s, Poland was the subject of Foreign Direct Investment more than any other former socialist country in Europe, from an yearly amount of $89 Million in 1990 to $10,6 Billion in 2000.\(^3\) The main reasons for

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this significant jump in FDI was the legal reforms introduced by the Government, privatization of banks and recapitalization of others which switched the economy to a more market-orientated system. Also, the prospect of entering the European Union (which materialized in 2004) drove the necessary reforms and a bigger tendency to trade with Western European countries. These led to a steady and healthy growth of the Polish economy, which reciprocated in the rise of people’s standard of living: since 2004, the GDP per capita (based on purchasing power parity) rose from 15.258,28 US$ to 22.513,32 US$ in 2013 (which represents a growth of 47,55%).

Indeed, as the economy’s growth anchors the rising Polish standard-of-living, more people will need to be banked, and more of these will search for sophisticated products. Homebanking and Mobile Banking represent the most sophisticated user interface in banking and go right along the necessities of Polish customers. The convenience of having a wide variety of operations (transactions, budgeting, etc.) available at any time through any digital platform with internet-access by itself makes the service very appealing for the customer. For the actual bank the very same service is very appealing because of the cost-savings it produces: less people employed to service customers face-to-face, replaced by tech-fueled operations and processes.

The fact that 77% of adult Poles have an account at a commercial or cooperative bank, whereas only 51% of these own an online-bank account and even less (45,99%) are active online banking users means there is still room for shifting traditional clients into digitalized ones.

Therefore, and considering the constant-innovative nature of the domestic banking sector, Polish banks should carry on investing on innovation in their online platforms to gain

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4 Data on GDP p/capita was gathered from the World Bank (http://www.tradingeconomics.com/poland/gdp-per-capita-ppp/). Growth rate of 47,55% computed as follows: \( \frac{(22.513,32 \text{ } \$ - 15.258,28 \text{ } \$)}{15.258,28 \text{ } \$} \)


6 The percentage data mentioned is taken from a Polish Ministry of the Treasury report entitled Online Banking in Poland – European leader in Technology and Safety. The value 45,99% (11,377,000/24,739,000) was gotten dividing the nr. of active users by the total people in working age (18-65 yr.). By active online banking users we assume those who access their homebanking or mobile banking platforms at least once a month.
competitive advantage and raise profits by driving customer-service costs down. Millennium Bank is no exception to this rule.

Today, Millennium’s advanced online platform Millenet enables a wide roll of operations: personal budgeting (consult one’s account record of expenses, revenues and project these for the future); transaction-based functionalities (transfer to another account through whether inside or out of the country, easy-transfer through email or mobile, tax payments, etc.); plan savings according to one’s expected revenues and objectives; check and adhere to Millennium’s offer of financial products. Still, the layout and processes that these operations entail can always be improved and made more intuitive, and the range of operations one can do online can also be widened. Plus, the platforms in which the service is provided should broaden with the rise of the Wearables tech-business.7

What will determine customer profitability in the short-term is how quickly will Millennium implement smart changes that will not just improve the customer experience and satisfaction but concentrate more customer-centric services in its online platform. A successful strategy on this front would bring more traditional clients to the online sphere - reducing cost of serving these in physical outlets or through the phone, naturally expensive channels of service when compared with online - while growing Customer Retention.

This Work-project studies holistically the topic of PFM, concentrating its analysis in Millenet’s PFM, suggesting steps to improve it by proposing a new way of drawing it, thus turning such in a more useful appliance for digital customers. Eventually, the goal is provide profit-enhancement suggestions driven by cost-savings.

THEORETICAL FRAMEWORK

Online Banking comprises all banking activities that a client can execute via Internet.8 This is a dominant trend in today’s banking industry due to the commodity it caters the client (who can

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access an ever-growing paraphernalia of services from his various tech-devices) and the cost-efficiency it brings the bank institution by reducing the costs of serving clients directly.

Nowadays, an online-potential-conscious bank will provide the majority of services a client can enjoy in a branch. This would include opening a debit or credit card account, transfer money to another account, create a Savings Plan, consult an account’s history of transactions, invest the available money in Financial Products and so forth.

Under this umbrella of various services, one can find the Personal Finance Manager. A Personal Finance Manager tool is a “software, website, widget or app used to help track financial activities across multiple financial institutions or multiple accounts in the same institution”. Its role is to rationally manage clients’ expenses and savings by providing detailed information on the client’s account and financial behavior and then budgeting on the basis of this information. In today’s day and age, a Personal Finance Manager tool can be presented in a website accessible by any browser, as a mobile smartphone application and as a smartwatch application. A generally-accepted-as-complete PFM would, today, present the following characteristics: Current Balance, Spends and Income categorization, Graphical illustration of the account’s balance, Transaction history, Bill Split, Budget generation, Savings Plan generation, Calendarization of future transactions & cash availability, Organized graphical representation of incomes, spendings and direct comparison on a given time period.

These are just the basics of a PFM, as more features are being implemented by banks (big, established ones and start-ups as well) on the vanguard of technology, which are quickly becoming vastly-adopted trends in the business: Safe-to-spend notion (=Available balance – Goals – Scheduled Activities in an upcoming time horizon), User “Tagging” transactions,
Create a Saving Goal and automatically put money aside each day to achieve it in the established time, Near-Field Communication (NFC) payments, Qualitative feedback on spending habits vs. Income (on real-time) and Computation of a monthly spending average to compare the current month’s spending with the average.

**METHODOLOGY**

This work project followed a research methodology heavily anchored on a benchmarking analysis, instrumental in identifying how Millennium stands in comparison with its domestic competition, namely the 5 biggest banks in Poland by asset-size (Millennium stands as the 6th biggest one). The benchmark focuses on bigger banks because these are considered to be, historically, the most successful in the market and Millennium wants to consolidate its position amongst that group. Also, Millennium displays a long-term vision of growing its share in the domestic market without the use of Mergers or Acquisitions, which most likely requires a growth in the bank’s assets. But Millennium’s vision concerning the PFM goes beyond being the most technologically advanced homebanking platform in the domestic market; it aims at providing a world-class top-notch personal finance tool which provides customers in Poland the most updated trends in PFM. That is why the benchmarking exercise was then followed by research on internationally-placed innovative banks (North-american start-ups, New Zealander banks, etc.). Indeed, for a successful completion of this study, there should not only be a notion about where Millennium stands today but also the specific direction of its PFM improvements, which can be in large scale inspired by what is happening at a worldwide level the sources of innovation in the worldwide PFM market. What is being done by the most advanced banks and other financial institutions is what will shape the (ever-evolving) trends for the future. Gathering knowledge on this front is what will sparkle ideas on how to improve the PFM according to what the customers around the globe are valuing.

These suggestions were then studied from a financial standpoint, being the Return-on-Investment the measure of choice to confirm the financial validity of the improvements.

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Last but not least, a survey analysis was conducted for reasons of diligence. Indeed, because the service is ultimately destined for clients, it’s only right to have clients and potential clients surveyed on their online banking user experience and consider their opinion on what should be changed for the better in what regards the online bank’s role in management of personal finance. After this exercise, the ideas aforementioned should be compared with the surveyed customer preferences to assess if there is an alignment between the two. The stronger and wider the alignment, the better chance those ideas will turn into successful suggestions of ways to improve the PFM tool.

**THE COMPANY MILLENNIUM BANK**

Millennium Bank S.A. is a Polish commercial bank with its registered headquarters in the country’s capital city, Warsaw. It currently is the country’s sixth largest bank in terms of asset volume and is expected that it will continue to be so in the next couple of years (see table 1 and table 2 in Annex -1 for detailed information on the Polish’s 6 biggest banks’ assets). Millennium was originally called Bank Inicjatyw Gospodarczych BIG SA, and emerged in 1989 (just as the Polish economy was transitioning from a Government-controlled economy to a market economy) as a bank for corporate clients. As the years went by, Millennium widened the focus of its activities to accommodate private customers’ needs. Today, it works with 1,3 Million active private customers and 13 Thousand corporate clients who use the nationwide network of 423 branches as well as online, phone and mobile banking.

As of today, Millennium Bank holds 423 physical outlets spread through Poland and 5 770 employees.

Millennium’s major shareholder (with 50,1% of the bank’s equity) is the Portuguese commercial bank Banco Comercial Portugues (BCP). Until very recently, the latter bank

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15 The results of this survey analysis, which is available in Annex 8 are favorable to the PFM-improvement suggestions here-presented. Because the sample is fairly small (36 answers gotten), this thesis’ author suggests the sample is widened in the future, to achieve more statistically-relevant results.

16 Information concerning history of the bank and current number of clients and branches were taken from Millennium’s Management Board Report of 31 December 2014, assessable here: http://www.bankmillennium.pl/en/about-the-bank/investor-relations/financial-reports/annual-reports

17 These numbers are according to Millennium Bank’s Management Board Report, dated 31st December 2014, last consulted by this thesis’ author in 22 May 2015.
retained a share of 65.5% on the Polish subsidiary, part of which was sold to “boost BCP’s capital”, after failing Europe-wide health checks. Despite the selling of this significant stake of capital the strategic interest in Bank Millennium wasn’t jeopardized and the majority control of equity was indeed kept.

In what concerns Market Capitalization, the total value of shares outstanding to 8,61 Billion PLN in 23 of February of 2015.\(^{19}\)

Millennium’s product and service line includes “personal accounts, debit and credit cards, overdraft limits, cash and mortgage loans, saving accounts, term deposits, investment funds, brokerage services, structured products and insurance products”\(^{20}\). Its areas of business are: Retail Banking – destined for individual consumers and small firms; Corporate Banking – destined to corporate customers; and Treasury and Investment operations, which cater financial instruments to any type of customer.

The bank’s brand relies on the traditionally conservative Polish banking values (mostly to ensure trust, the most pivotal value on which every successful bank bases itself on). But as much as Millennium wants to stay true to those values, it also wants to showcase an image of modernity and of being a customer-centric organization.

As of today, Millennium Bank holds 423 physical outlets spread through Poland and 5 770 employees.\(^{21}\)

**PRODUCT DESCRIPTION**

Millennium’s PFM is a behavioral data-anchored platform which ensures a detailed view of one’s financial operations and how to better allocate money in order to accomplish the user’s stated objectives. The tool is built-in Millenet (the Marketing name of the bank’s online platform), an internet platform destined for every individual client or corporation that has an...
account at the Millennium Bank. One can access the PFM by clicking on the My Finances tab right next to the Home Page tab (My Finances > Finance Manager).\(^\text{22}\)

The service aims at catering the user a seamless and intuitive way of consulting his/her Millennium’s bank accounts, managing his money (through the Personal Finance Manager tool) carrying out money transfers, open a new account, ask for a loan, invest in funds and pay bills. The service is considered one of the most advanced (if not the most advanced) homebanking systems in Poland, having been awarded the 1\(^{st}\) place in the 2013 annual Newsweek magazine ranking of most customer-friendly banks in Poland.

Millenet’s PFM is divided in 4 sections:

1. **Main Dashboard**
2. **Transactions**
3. **Budget**
4. **Reports**

1. The Main Dashboard displays a series of options: a balance of the total income and spendings in a given time period defined by the client, a pie chart of automatically categorized spending, a calendarization of transactions (with the possibility of adding notes to these) and, if savings plans or budgets were created, details about these. On the top of all this, on the page, there is a calendar wherein the user can change the time period for which the just-described information that follows is refered. (see Annex 1 for screenshots)

2. The Transactions tab lists every expense and income in the accounts associated with the user, dated and categorized, up to 12 months back in time. Although the system automatically categorizes the expenses, the user can re-arrange these categories as he pleases in the Settings tab (changing categories of one transactions or adding new sub-categories). (see Annex 2 for screenshots)

3. The Budget tab allows the user to define his expenses and define the amount of money he wants to allocate to each category of expenses. The platform includes a graphical

\(^{22}\) Available screenshot in Annex 2
representation of the money spent and the percentage of the limit defined that was already spent. This graphic is available at the Your Budget sub-tab. The other sub-tabs are the Savings Plan and Planner, an interactive calendar to consult upcoming scheduled transactions. (see Annex 3 for screenshots)

4. The Reports tab is divided into 3 tabs: Spendings, Income and Cash-Flow. Spendings either shows a pie chart of categorized expenses or a bar chart to see expenses overtime. Income displays the same graphics, this time precisely for income. The Cash-Flow tab shows every cash-flow in a given time period in bars. (see Annex 4 for screenshots)

As it was described previously, the Personal Finance Manager is a software aiming at helping users manage their money in a rational way. However, the specifics of each bank’s PFM may differ greatly, as some are more technologically-oriented than others. Millennium Bank places amongst the European leading PFM providers, thus its Value Proposition is quite ambitious: to cater a service that makes the user aware of money spent, money available and how to allocate it in the best way possible to fulfill his/her needs with an accuracy and intuitiveness of use no competitor can match. Driven by this desideratum, Millenet’s PFM, as the upcoming Benchmarking analysis will show, is the best tool available in Poland to consult one’s financial record on real-time and the best tool for personal budgeting and saving plans. The service formulates these plans by processing information on expenses and savings of the user and using this data to forecast future behavior. It targets every person or corporation with a bank account. By providing such a service to the customer, Millenet aims at providing not only a detailed overview of the account’s balance and previous outgoing and ingoing money-flows in an organized way; it also informs the client about what money should he spend at which times according to his budgeting and savings’ objectives. Overall, Millennium’s PFM helps users make more economically rational decisions when buying and saving.

**INTERNAL ANALYSIS**

**Resources and Capabilities:** Millennium Bank has a department of Electronic Banking headed by Mr. Ricardo Campos which has over 70 people. The department is concentrated on
Millennium’s headquarters in Warsaw. This team is entirely responsible for the development of features for Millennium’s homebanking and mobile-banking platforms.

EXTERNAL ANALYSIS

Market competitiveness

To study the market competitiveness in what regards the Personal Finance Manager it is paramount that we compare the features of each and every domestic competitor of Millennium Bank to Millenets’s PFM. This way, one can draw conclusions on the positioning of each bank in what comes to their online platforms and how well prepared are these banks for the upcoming inflow of “digital clients”. The analysis will be done considering the 5 biggest banks in Poland in terms of asset volume (see Annex 1).

The most widely accepted framework to carry out a company’s Internal and External Analysis is SWOT, precisely the one presented below:

BENCHMARKING

The Benchmarking analysis concerning the features of PFM was done against the 5 biggest banks in Poland asset-volume-wise: PKO, PEKAO, BZ WBK, mBank and ING. The purpose of this exercise of comparison was to understand how Millennium positions itself in the
competitive landscape and most importantly identify what are the processes that can and should be improved to match the highest-performing banking institutions in PFM. The results are presented in the table below:

<table>
<thead>
<tr>
<th>Feature</th>
<th>Millen</th>
<th>IPKO</th>
<th>Pekao</th>
<th>mBank</th>
<th>ING</th>
<th>WBK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summary of the accounts</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Automatic categorization of expenses, revenues (transactions)</td>
<td>✔</td>
<td>❌</td>
<td>❌</td>
<td>✔</td>
<td>✔</td>
<td>❌</td>
</tr>
<tr>
<td>Show the Balance value</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Calendarization of upcoming transactions</td>
<td>✔</td>
<td>❌</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>❌</td>
</tr>
<tr>
<td>Savings Plan (based on past behavior)</td>
<td>✔</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
<td>✔</td>
<td>❌</td>
</tr>
<tr>
<td>Savings Plan (based on established Goals)</td>
<td>✔</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
<td>✔</td>
<td>❌</td>
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<tr>
<td>Transactions' history</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
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<tr>
<td>Budgeting options</td>
<td>✔</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
<td>✔</td>
<td>❌</td>
</tr>
<tr>
<td>Spends/income/Cash-flows by categories (graphical rep.)</td>
<td>✔</td>
<td>❌</td>
<td>❌</td>
<td>✔</td>
<td>✔</td>
<td>❌</td>
</tr>
<tr>
<td>Spends/income/Cash-flows by categories (list)</td>
<td>✔</td>
<td>❌</td>
<td>❌</td>
<td>✔</td>
<td>✔</td>
<td>❌</td>
</tr>
<tr>
<td>Select in which accounts/products to consult transactions</td>
<td>✔</td>
<td>❌</td>
<td>❌</td>
<td>✔</td>
<td>✔</td>
<td>❌</td>
</tr>
</tbody>
</table>

**Domestic Competition**

Indeed, the table above displays how Millennium’s PFM performs in relation with the aforementioned 5 biggest banks in Poland. At first sight, we can immediately see that Millennium is the only bank in this study which enables all features considered. ING stands as the closest competitor of this bunch by offering 10 out of the 11 features chosen to study about. In 3rd place comes mBank, which has all features but three23 these few couldn’t be found to be determinately correct. Thus, for study purposes, it’s assumed the bank doesn’t have them available). The other 3 are then fairly at the same level in terms of offer.

This simple comparison mirrors Millennium’s positioning in the Polish banking market: a standout in terms of technological services. One can fondly wonder why such an innovative service represents only the 6th biggest bank in Poland, and the fact of the matter is that what attract new customers, in the words of Ms. Halina Karpinska, is much more the attractiveness and quality of the actual banking products than the usability and diversity of the Online

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23 The features couldn’t be found after a careful analysis of mBank’s platform (based in a previous study carried out by Millennium Bank’s Department of Electronic Banking in September 2014). Therefore, it is assumed that these the bank doesn’t have these features available.
platform, much less the Personal Finance Manager itself. Instead, an advanced PFM plays a much more significant role in retaining customers, familiarized as they are with Millenet and its superior features.

**STRATEGIC INTENT BASED PLANNING**

**Environmental Analysis**

The environmental analysis identifies the external forces and contingencies which can influence a firm’s performance in the future and studies their effects on this actual firm. The objective of this investigation is to build a strategy to mitigate those impacts when they’re negative and take advantage of them if they’re positive. This analysis, if well applied, is a pivotal source of competitive advantage in the sense that, generally speaking, only a few companies have the ability to adjust to the drivers of change, and those will be the ones most likely to succeed in the market. This is especially true in services inserted in the “Internet economy”, where the *status quo* is constantly being defied by constant change and, often times, turmoil. Indeed, competition in the market the Millenet service competes is close to the Schumpeterian notion of competition, defined by a “perennial gale of creative destruction”, where market-leaders are often overthrown by innovation from more agile and smaller companies.

This uncertainty means firms should develop plausible future scenarios considering the key variables of change in order to better cope with upcoming adversities. The bigger the scope of scenarios the analysis comprehends, the better chance the company has of being prepared for the future. The scenario-creation approach is the one chosen to project the future for the reason that it is not an exact forecast (which is usually wrong precisely due to the narrow scope of its prediction), it rather is a list of possibilities, all of which the firm has to be prepared for to face the future. On the other hand, the analysis’ scope shouldn’t be too broad that it includes extremely unlikely situations. In fact, the goal here is to prepare the company to uncertain but still plausible future contingencies.

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Since this thesis focuses on an internet service - inhered in an ever-changing and unpredictable sector - this analysis has extra-importance to develop the strategy of Millennium concerning the Personal Finance Manager tool.

**Focal Question**

This type of analysis typically starts with identifying a Focal Question, a precise question but also one with a wide scope, which is answered by the strategy itself. Since this thesis looks to develop a Personal Finance Manager that is not only up-to-date but is on the forefront of innovation and usability, the question is: “Which trends of innovation should the electronic banking industry focus in the next 5 years?” The answer to this question will direct the operations of Millennium concerning the improvement of its PFM for the time-frame considered.

**MacroTrends Identification**

Given that we have the Focal Question, we should now proceed to identify which Macro-Trends are relevant to the matter at hands.

**Economical Macro-Trends**

- Size of the Polish GDP and GDP/capita will grow significantly
- EU funding dropping after 2020 while FDI already dropping

**Demographical Macro-Trends**

- Labor supply will soon be shrinking instead of expanding
- The birthrate will drop and life expectancy will increase

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25 Poland 2025: Europe’s new growth engine (McKinsey Report from January 2015). This report predicts that the Polish GDP will grow from 517 Billion USD to 700 Billion USD (business-as-usual scenario, growth of 35,4%) or 850 Billion USD (aspirational scenario, growth of 64,6%). As for the GDP/capita, today it is at 23,000 USD and it will grow to either 32,000 USD (business-as-usual scenario, growth of 39,1%, reaching the levels of Cyprus or Portugal) or 40,000 USD (aspirational scenario, growth of 73,9%, reaching the levels of Spain or Italy).

26 This data has great importance, since 20% of all investment in Poland in the last decade came from these two sources combined. The drop in FDI occurred in the aftermath of the 2008 subprime crisis.

27 Especially important since demographic expansion (including the 1980s baby boom) was a big contributor for the growth of Polish economy over the last 25 years.
Prime working-age population (from 15 y.o. to 59 y.o.) will dwindle by 2.7 Million by 2025

Old-age dependency ratio (Population over 59 y.o. / Working-age population)

Industry Macro-Trends

- The services industry (including not only banking but other business services like outsourcing, offshoring, law and business consultancy) is growing at a fast pace (6% compound annual average growth).  
- **Core revenues shrinking.** Many financial institutions (namely banks) around the world have seen their revenues shrink in the last few years due to falling interest rates which motivates cost reduction to help keep profits at least stable. One should note that, with failing interest rates, the pressure on revenues will make the affected banks increase the volume of products they sell (loans conceded) and/or urge those to cut on core expenses.

Companies Macro-Trends

- An increasing number of banks will make mobile payments available
- Enhancement of the Customer experience in dealing with the online banking platforms; this means more intuitive menus and options of actions and also a bigger commitment to visuals (as Simple.com and Moven do)
- Expand the online homebanking business to the newly-commercialized/upcoming Wearable devices (e.g.: smartwatches, Google Glass).
- Shift the current paradigm of “self-service” (having the customers doing the hated tasks themselves) to selfless service (having the customers deciding how they want to interact).

Scenarios

---

28 This reported growth is strongly anchored by the rise of the outsourcing/offshoring sector in Poland, growing at a rate 3 times as big as in India.
29 Derived from a blog post excerpt of Michael Nuciforo, a former Head of Mobile Banking of the Royal Bank of Scotland.
The scenarios are created under the blueprint of 2 chosen Macro-Trends. These 2 will be the ones which not only display maximum impact in the firm but also are quite uncertain in direction and speed of evolution. Needless to say, the chosen uncertainties should be independent from each other, so that the scenarios created have a scope as wide as possible. These will be the critical uncertainties the firm has to tackle with the most caution. The chosen ones are afore-highlighted: the significant rise in the GDP and GDP/capita in Poland in the next few years and the shrinking of Revenues derived from falling interest rates.

All scenarios point in the direction of Millennium pursuing the development of their Online Platform (Millenet), either to achieve cost-savings at a time when Revenues are shrinking or to differentiate from competitors much-dependant on the traditional channels of customer-service or just for the reason of retention of customers through an improved customer-service. Thus, the positioning of Millennium to handle future contingencies should always have has a central matrix the improvement of the Personal Finance Manager tool. After reaching this conclusion and after several conversations with Ms. Halina Karpinska, Millennium’s Head of the Website
Management Board\textsuperscript{30}, this thesis’ author was advised to look into other banks known for their innovative approach to online banking, namely the biggest Turkish banks (like GARANTI BANK), the Neo Zealander banks KIWIBANK and WESTPAC NZ BANK, the Australian Commonwealth Bank, the North-American startups Simple.com and Moven and also the Polish bank Meritum Bank. This benchmark covers both the laptop versions of the services (through an internet browser) and the mobile versions of the same (through an app).

**CONCLUSIONS OF THE RESEARCH PERFORMED**\textsuperscript{31}

Considering the benchmarking analysis done and the best practices searched for, some conclusions were reached. These conclusions took 2 ways: which direction of improvement the Personal Finance Manager should prosecute and which steps should Millennium’s team take to implement the PFM in accordance with its objectives.

The summary of those conclusions is as follows:

**Qualitative Review:** All in all, it’s easy to note that Millenet stands out in the Polish domestic market as the best online platform in the market, outweighing the big 5’s in quality. Millenet is also well positioned in comparison with other foreign PFM providers but lacks a few features that will prepare the platform to be amongst the best in the near future.

These are:

- **1. Adapt Simple’s Safe-to-Spend notion to Millenet**, with a new table in the PFM’s Main Dashboard displaying this different kind of balance. The feature shouldn’t be exactly like Simple’s (because of the problem explained on slide 21) but rather a ”What can I spend today?” tool.

**EXAMPLE:** A client has 10 000 PLN in his account, a saving goal worth 300 PLN in 30 days and an upcoming expense worth 500 PLN in 10 days. What would be the ”What can I spend today?” value?

**SOLUTION:** \[
\frac{10000 - (300 + 500)}{30 \text{ days}} = 306, \ (7)PLN
\]
The trick here is to pick wisely the time frame for the calculation. One should go for the number of days until the last expense/saving goal is payed/accomplished. Here, is 30. Then, we take the Current Balance and subtract all the expenses the time frame encompasses. Finally, we divide the aforecited subtraction for the number of days and get the Average amount of expenditure p/day so that the upcoming spendings/goals aren’t jeopardized.

- In alternative to this, there could be a Money Vault like GoBank has, wherein the user can storage his money at any given time.

2. Provide alerts for Spendings, Balance (in real-time), if a Bill Payment is due and if a certain category of expenditure in the current month exceeds the average monthly amount spent on that same category (this last feature is notably used by Moven and Mint.com). While the first 3 suggested alerts are rather simple, the last one implies some qualitative feedback (e.g.: the alert sentence describes how much higher the current expenditures are in relation with the typical, per month, using the words HIGH or VERY HIGH to label those actual spendings). The aforementioned cases would be the default cases for the occurrence of alerts. In addition to this, In addition, the PFM must let the user edit which movements he wants to be notified of, according to his personal preference and the bank’s criteria, much like KiwiBank does.

3. Timeline representation of what Saving Goals are left to achieve and display of those which were achieved already (as SIMPLE.com)

4. Adapt iGaranti’s iWallet solution for online payments and those in physical stores (using the QR codes).

5. Adapt iGaranti’s SmartShopping solution also in conjunction with the social network FourSquare.

6. Have less categories for expenses — SIMPLE.com has just 9, whilst Millenet has 16, which then are sub-categorized into 96 (!)

7. Base the SmartWatch approach on Instant feedback on Income & Expenses and on the Real-Time current balance display everytime there’s a movement in the account.
8. Have a **Sweep feature** (based on Kiwibank’s) to **swap money from one account to another** (of the same user) in case the limits (of minimum and maximum money to have in each account) are crossed.

9. Adapt **ING’s Smart Saver** to Millenet: have a tab which enables the user to allocate a certain selected percentage of a transfer to a savings account.

10. There could be a bar **comparing Income and Expenses in percentage**, like PocketSmith has. This way, the user would have a clearer vision of how bigger one category is in comparison with the other.

11. Have a feature like **Kiwibank’s PayStream**, which takes some part of the user’s income automatically to a Saving spot before he even sees it. The user, with this feature, could determine which percentage or amount of income would be destined to this Savings spot.

12. Have a bill-payment feature which lists upcoming bill payments according to how soon they are due. The feature would illustrate the bills as red, yellow or green weather they are, respectively, due in 7 days, 2 weeks or more than 2 weeks. The bills would be represented in a circular colored bar as displayed in ANNEX X+4. This idea is inspired in the already-available feature provided by the app Mint Bills.

13. Expand the scope and detail of reports the PFM offers the user. Currently, Millennium caters graphical Reports on Spendings, Income and Cash-Flows (direct visual comparison between inflows and outflows) displayed either by category or period (see Annex X+5 for screenshots). On the Cash-Flows tab, there could be added a line of text mentioning the difference in Net Worth from one year (or a month or a week) ago until the current time.\(^\text{32}\) Another addition could be a report only concerning Investments made by the user through his Millennium accounts.

**FINANCIAL ANALYSIS OF THE SUGGESTIONS PRESENTED**

For the suggestions here-presented to be worth the Investment, they have to deliver results which justify it. In fact, the benefits attained from it have to outweigh the costs of improving

\(^{32}\) An example of a suitable sentence would have been: Your net worth has decreased from 94,746.24 PLN (on Jan 1, 2014) to -51,447.28 PLN over 12 months (decrease of 154.3%). This example is inspired in iBank 5’s Net Worth report.
the PFM tool. This section of this Work Project explains the steps taken to reach Return on Investment (ROI) of this thesis’ conclusions.

Traditionally, companies’ IT departments constitute Cost Centers, rather than Profit Centers\(^{33}\), meaning improvement on operations from these divisions may generate Cost Savings plus increased Productivity, but not likely will result in Revenue generation. Since it is believed that banks’ profits will be mostly driven by Cost-Savings (as low interest rates shrink revenues), IT is gaining more preeminence in the core business of banking. To financially translate the impact of the IT-based solutions here-presented, the ROI was chosen as the appropriate measure.

ROI is a measure which combines the former two benefits and appropriately translates the financial reasoning behind the decision of going forward with the improvement on Millennium’s Personal Finance Manager tool.

Before addressing the Millennium’s PFM issue specifically, one should clarify the concepts of **Cost Savings** and **Increased Productivity** in the context of software advancement\(^{34}\). The latter occurs when the amount of time taken to carry out an activity is reduced. The paramount driver of this uplift is applying best practices to a Process or Processes so that the staff member in charge of these takes, indeed, less time completing the tasks to him assigned. This will free time for the employee to do additional work, which by itself will keep the company from contracting another person to perform this additional task. This chain of events will save money for the company in paid wages.

Narrowing the ambit of this analysis to the final suggestions concerning PFM, the improvement of this service delivery to end-users will have direct impact, according to the outline mentioned on the previous paragraph, on the following:


\(^{34}\) The suggested improvements in the Personal Finance Manager tool are a type of software advancement, thus the financial benefits of the latter can be theoretically applied to the former.
• Less number of complaints received by phone call, email or on-the-branch. This means less employees will be needed in each and every one of these client-corporation communication channels.

• Less people accessing the afore-cited channels of communication (namely the branch) to ask for advice from a consultant on how to save money better.\

In order to actually compute the value of cost savings produced by the introduction of the suggestions here-presented, one has to make assumptions concerning the number of Millennium employees dealing with customers’ complaints and the employees on branches who can possibly present customers with Savings solutions (e.g.: opening a new Savings account).\

Moving to the assumptions, Bank Millennium S.A. employs 5,770 people who cost the bank 547 Million PLN. Out of these, 3,909 people work in the branches or in direct sales. For the purposes of this thesis, one assumes all these attend end-customer services. Now having the exact number of employees in charge of providing clients with support, we should estimate the time those spend dealing with complaints and clients asking for advice on branch or by phone on what to do to save better and/or spend more rationally. This thesis’ author assumes that, on average, all in-branch and direct sales employees spend 10% of their time dealing with both activities describes just-above.

After successfully implementing the 13 suggested incremental solutions to improve the bank’s PFM platform, the change in this actual tool could be considered radical in comparison with its state today. Regarding this factor, the assumption is that the afore-cited employees will instead spend 8% of their time attending complaints and advising on Savings solutions (instead of 10%).

\[35\] With the new PFM saving features, less customers would go to the branches asking for solutions to save their money better because they’d have online-based smart solutions on how to optimize their money allocation considering their Saving Goals, introduced in the system.

\[36\] The author of this thesis considers opening a new Savings account as a direct substitute of having a more intuitive PFM which enables the user to more efficiently fulfill his Saving goals. This way, if in fact the latter hypothesis materializes, the former will be less necessary, leaving employees with less work in the dominium of opening new bank accounts.

As already suggested, the benefits from the PFM improvement will result in cost savings. As employees will spend less time in some customer service activities, less staff people will be necessary to cater the same level of service, will mean cost savings would be achieved by layoffs.\textsuperscript{38}

To formulate these cost savings one can start by calculating how much Millennium spends today in wages for those 3,909 employees allocated to “branches or direct sales”. This fraction of workers represent approximately 67.7\% of the total work-force supported by Millennium, meaning only 32.35\% work in the head offices.\textsuperscript{39} Assuming that, on average, a “branch or direct sales” employee whose function is customer service earns 4,000PLN\textsuperscript{40} the total annual cost of Wages for Millennium with such employees will be:

\[
4000\text{ PLN} \times 12\text{ months} \times 3909\text{ employees} = 187,623,000\text{ PLN}\textsuperscript{41}
\]

We add this new information to the already-stated assumption of, if the PFM solutions are implemented, each employee will spend less 2\% attending complaints and advising on Savings solutions. This implies Millennium will achieve the same level of customer support with 2\% less employees, which means that layoffs in such proportion should be prosecuted. In numerical terms, 2\% of 3,909 employees is precisely 78,18\textsuperscript{42}. At this stage, the number of layoffs has been identified. The cost savings achieved by this operation \textit{per se} are the following:

\[
4000\text{ PLN} \times 12\text{ months} \times 78\text{ employees} = 3,744,000\text{ PLN}
\]

Recalling that the goal of this reasoning is figuring the total cost-savings from this operation, for this to be achieved, one has to still discover 2 pieces of information: the cost of layoff

\textsuperscript{38} Layoff means suspension or termination of an employee’s or employees’ job contract for business-related reasons.

\textsuperscript{39} The 2014 Consolidated Annual Report of Millennium Bank identifies these two categories of employees.

\textsuperscript{40} This value is within the range of salaries available on Glassdoor.com for Customer Service in a variety of companies operating in Poland. The search includes all cities in Poland, as Millennium’s 423 outlets are well-spread throughout the country (e.g.: Customer Specialist in Bank Pekao earns 3,987PLN/month, a Customer Service specialist in HCL Technologies earns 4,000PLN/month, a Customer Service agent at Xerox earns 4500 PLN/month and a Corporate Customer Service specialist in BZ WBK earns 3,000PLN/month).

\textsuperscript{41} This value represents 34.302\% of the total personnel costs incurred by Bank Millennium Group (including Bank Millennium S.A. and subsidiaries). Computation: 187,623,000/547,000,000=34.302\%

\textsuperscript{42} 0.02 \times 3909 = 78,18. We assume this value would be translated in the layoff of 78 employees.
(compensations are typical in these cases) and the cost of the actual implementation of the improvements.

Concerning the cost of firing employees, the author of this thesis will assume the average cost of layoff in Poland as studied by the World Bank in Jan 2009\textsuperscript{43}. According to this source, the firing cost per person is equivalent to 13 weeks of the person’s wage. Since it was assumed the monthly wage for the specific type of employee in question is 4,000 PLN and one month corresponds to 4,3(3) weeks (13/3), the cost of layoff per employee will be:

\[
\frac{4000 \text{ PLN}}{4,3(3) \text{ weeks}} \times 13 \text{ weeks} = 12000 \text{ PLN}
\]

To achieve the total cost of layoff, one has to multiply this last-achieved value by the actual number of employees dismissed. That being, the entirety of the layoff will cost Millennium:

\[
12000 \text{ PLN} \times 78 = 936000 \text{ PLN}
\]

The other issue still missing to complete the reasoning is the cost of implementing these solutions. From this thesis’ author’s experience as Intern in Millennium Bank, the team to carry out these changes would be constituted by:

- The actual intern who carried out the market research\textsuperscript{44}, with a monthly salary of 1000 PLN. The research lasted 3 months. Thus, the total cost of the research for the improvement is 3000 PLN.
- The team of webpage designers, which are assumed to spend 6 months\textsuperscript{45} on the development of the new features and their implementation on the current layout of the


\textsuperscript{44} Referent to the actual author of this thesis

\textsuperscript{45} This thesis’ author believe the time for this team to carry out their activities will be 6 months (a fairly short period of time) because of the fast-pace work in the department and the direct words of the CEO, who reckoned electronic banking is “where everything is happening and will happen for the near future”
webpage. This team is composed by 20 members, each assumed to earn 6000 PLN/month\textsuperscript{46}. This will mean the total cost of developing and implementing the changes proposed is:

\[ 6000 \text{ PLN} \times 20 \text{ members} \times 6 \text{ months} = 720 \text{ 000 PLN} \]

- The team which handles the Control of the features developed. This team will test the actual developments from a user perspective and give notice of possible bugs or inconsistencies to the development team. This process can take up to 1 month, if there are no inconsistencies of major significance. Assuming a team of 5 people who earn 5000 PLN/month\textsuperscript{47} would be necessary to complete this task, the overall cost of this operation would be:

\[ 5000 \text{ PLN} \times 5 \text{ members} = 25 \text{ 000 PLN} \]

All in all, the cost of these solutions will be the sum of the layoff costs with the research/development/implementation/testing costs. Thus, they are:

\[ 936 \text{ 000} + 3 \text{ 000} + 720 \text{ 000} + 25 \text{ 000} = 1 \text{ 684 000 PLN} \]

Assuming the benefits of the PFM improvements will stand for 2 years\textsuperscript{48} the Return on Investment of the project will be:

\[
ROI = \frac{(\text{Investment gains} - \text{Investment cost})}{\text{Investment cost}} = \frac{(7 \text{ 488 000 PLN} - 1 \text{ 684 000 PLN})}{1 \text{ 684 000 PLN}} = 3.4465
\]

The value achieved means that the profit the investment brings Millennium more than triples the capital invested, which corroborates the validity and worth of the project.

\textsuperscript{46} The average web designer salary in Poland is 4 333 PLN according to the website Salaryexplorer.com (consulted on May 20\textsuperscript{th} 2015). Being that Millennium is a large corporation (and it is proven that big companies pay more than rather small/medium ones) the author rounded the salary assumption to 6 000 PLN.

\textsuperscript{47} I assumed a controller at Millennium would earn 5 000 PLN by deducting 1000 PLN to the Web designer’s salary. Although the webpage controller has a paramount role in making sure the features are well implemented, he’s not the core specialist in the process. This is why it is assumed he has a smaller salary than the actual developer.

\textsuperscript{48} Benefits of 2 years meaning the diminished number of hours employees will spend dealing with complaints and advisory on how to save money better, during two years from the date of the PFM improvement project completion. This can be measured through the formula \[3744\text{ 000} \times 2 = 7488\text{ 000 PLN} .\]
ESSAY CONCLUSION

This very essay concludes, from both theoretical and financial standpoints, that Millennium can adopt brand-new ideas on the forefront of PFM innovation to enhance its digital platform and obtain financial benefits out of it. If well-implemented, the suggestions here-presented can serve as example for other banks on how to achieve not only an improved level of customer satisfaction with the propitiated online services, but also a tangible benefit due to a better cost efficiency in dealing with clients. At a time when banks’ revenues worldwide are being pressured by falling Net Interest Incomes\(^49\), it is clear that the fundamental driver of larger Profits in the future will foremost be cost-savings. Such can be achieved through evermore concentrating client services in online-based platforms, reducing banks’ dependency on physical outlets and/or personal customer contact. This very paper demonstrated a step-by-step approach to carry that out.

\(^{49}\) The Net Interest Income is the core revenue driver of most banks and is constituted by the difference between Interest Received in banks’ loans conceded and Interest Paid in the loans the banks incur in. This value (hence, bank’s revenues) can increase either by the volume of loans or more favorable interest rates. Since today’s interest rates, generally, are at (or close to) historical lows, revenues are hurt.
### ANNEX 1: TOTAL ASSET VALUE (and ASSET GROWTH) OF POLAND'S BIGGEST BANKS

#### TOTAL ASSETS' VALUES OF THE BIGGEST BANKS IN POLAND

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PKO BP</td>
<td>169,661</td>
<td>190,442</td>
<td>193,151</td>
<td>199,231</td>
<td>249,169</td>
<td>266,705</td>
<td>283,06</td>
</tr>
<tr>
<td>PEKAO</td>
<td>134,091</td>
<td>146,406</td>
<td>150,755</td>
<td>158,522</td>
<td>165,414</td>
<td>174,392</td>
<td>184,478</td>
</tr>
<tr>
<td>BZ WBK</td>
<td>53,154</td>
<td>59,797</td>
<td>60,019</td>
<td>106,089</td>
<td>129,115</td>
<td>138,441</td>
<td>149,179</td>
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<tr>
<td>mBank</td>
<td>90,039</td>
<td>98,79</td>
<td>102,145</td>
<td>104,283</td>
<td>110,26</td>
<td>113,509</td>
<td>116,974</td>
</tr>
<tr>
<td>ING BSK</td>
<td>64,518</td>
<td>69,723</td>
<td>78,267</td>
<td>86,752</td>
<td>96,551</td>
<td>104,814</td>
<td>111,01</td>
</tr>
<tr>
<td>Bank Millennium</td>
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<td>50,838</td>
<td>52,742</td>
<td>57,017</td>
<td>60,529</td>
<td>64,108</td>
<td>67,806</td>
</tr>
<tr>
<td>Bank Handlowy</td>
<td>37,518</td>
<td>42,278</td>
<td>43,509</td>
<td>45,398</td>
<td>48,822</td>
<td>50,968</td>
<td>53,597</td>
</tr>
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</table>

(Values in Millions of PLN)

#### ASSETS' GROWTH OF THE BIGGEST BANKS IN POLAND

<table>
<thead>
<tr>
<th></th>
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</thead>
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<tr>
<td>PKO BP</td>
<td>8.4%</td>
<td>12.2%</td>
<td>1.4%</td>
<td>3.1%</td>
<td>25.1%</td>
<td>7.0%</td>
<td>6.1%</td>
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<td>PEKAO</td>
<td>2.7%</td>
<td>9.2%</td>
<td>3.0%</td>
<td>5.2%</td>
<td>4.3%</td>
<td>5.4%</td>
<td>5.8%</td>
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<tr>
<td>BZ WBK</td>
<td>18.3%</td>
<td>12.5%</td>
<td>0.4%</td>
<td>76.8%</td>
<td>21.7%</td>
<td>7.2%</td>
<td>7.8%</td>
</tr>
<tr>
<td>mBank</td>
<td>11.1%</td>
<td>9.7%</td>
<td>3.4%</td>
<td>2.1%</td>
<td>5.7%</td>
<td>2.9%</td>
<td>3.1%</td>
</tr>
<tr>
<td>ING BSK</td>
<td>7.7%</td>
<td>8.1%</td>
<td>12.3%</td>
<td>10.8%</td>
<td>11.3%</td>
<td>8.6%</td>
<td>5.9%</td>
</tr>
<tr>
<td>Bank Millennium</td>
<td>4.6%</td>
<td>8.2%</td>
<td>3.7%</td>
<td>8.1%</td>
<td>6.2%</td>
<td>5.9%</td>
<td>5.8%</td>
</tr>
<tr>
<td>Bank Handlowy</td>
<td>(0.3%)</td>
<td>12.7%</td>
<td>2.9%</td>
<td>4.3%</td>
<td>7.5%</td>
<td>4.4%</td>
<td>5.2%</td>
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</tbody>
</table>

### ANNEX 2: HOME PAGE TAB OF MILLENET

Annex 2: Home page tab of Millenet
ANNEX 3: MAIN DASHBOARD SCREENSHOTS

Finance Manager - Personal Finance Management tool

- Finance Manager allows you to automatically categorise account and card transactions, based on commercial codes, assigned to merchants, descriptions of transactions, names and accounts of the transactions.
- However, we draw attention to the fact that structure of expenses may not fully correspond to the actual structure of your expenses, because the commercial codes assigned to merchants sometimes do not correspond to the products you bought.
- Please verify the assigned expense/income categories; make the appropriate changes to have a full and true picture of your expense structure. See more.

Main dashboard

Your defined period for calculations

<table>
<thead>
<tr>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 September</td>
<td>31 October - 29 November</td>
</tr>
<tr>
<td>30 October</td>
<td>31 December 2014</td>
</tr>
<tr>
<td>30 November</td>
<td>31 December 2014</td>
</tr>
<tr>
<td>31 January</td>
<td>31 January - 31 March 2015</td>
</tr>
<tr>
<td>31 January</td>
<td>31 March - 30 April 2015</td>
</tr>
<tr>
<td>30 April</td>
<td>30 May - 29 June 2015</td>
</tr>
<tr>
<td>31 May</td>
<td>30 June - 29 July 2015</td>
</tr>
</tbody>
</table>

Your income and spending in current month - day of start on 34 of the month (current period: from 2015-01-31 to 2015-02-27)
Adjust month settings

Your total income and spendings in specified period

Income: 3,000.00
Spending: 2,300.00
Difference: 700.00

Sun
Congratulations! You spent less than you earned

Check how it works on Transactions list tab to see all transactions

See all transactions

Your spendings by category

See reports

Your calendar with transactions and comments

<table>
<thead>
<tr>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
<th>Sunday</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
</tr>
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<tbody>
<tr>
<td>19</td>
<td>20</td>
<td>21</td>
<td>22</td>
<td>23</td>
<td>24</td>
<td>25</td>
</tr>
</tbody>
</table>

Available funds

Transaction added automatically by system
Cyclic transaction

See calendar details
Annex 4: Transactions Screenshots

The list of transactions in Finance Manager presents most of current account and card transactions:

- For the sake of showing the full picture of expenses and income the system does not show certain transactions, e.g. early payment of credit cards. To view the actual list of transactions please use the account or card Transactions history in the Accounts or Cards bookmark.
- The system automatically assigns transactions to appropriate categories, however you can change the category of a transaction. You can also add your own subcategories and categorisation rules in the Settings bookmark. The ‘human’ icon beside the transaction means that your own transactions assignment rule has been registered with the transaction.

The history of transactions is shown up to 12 months back. FX transactions are shown converted to zloty at the average NBP rate from the Transaction day.

Transaction history from 2013-01-31 till 2013-02-27

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
<th>Category</th>
<th>Subcategory</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012-03-28</td>
<td>DEBIT POSTED Zasięg kredytu 111510486</td>
<td>Savings, insurance</td>
<td>Term deposits, saving z</td>
<td>-32.00</td>
</tr>
<tr>
<td>2012-03-28</td>
<td>CREDIT RECEIVED ZERWINE LKJ 111517475</td>
<td>Return from investment</td>
<td>Term deposits, saving z</td>
<td>500.00</td>
</tr>
<tr>
<td>2012-03-28</td>
<td>DEBIT POSTED Zasięg kredytu 111510433</td>
<td>Savings, insurance</td>
<td>Term deposits, saving z</td>
<td>-500.00</td>
</tr>
<tr>
<td>2012-03-28</td>
<td>TRANSFER ORDER test zmiany opasu To: Telekomunikacja Prosta Warszawa</td>
<td>Bills</td>
<td>TV, home phone, Intern</td>
<td>-1.00</td>
</tr>
<tr>
<td>2012-03-28</td>
<td>TRANSFER ORDER test zmiany opasu</td>
<td>Return from investment</td>
<td>Term deposits, saving z</td>
<td>0.04</td>
</tr>
<tr>
<td>2012-03-27</td>
<td>TRANSFER ORDER test zmiany opasu To: Telekomunikacja Prosta Warszawa</td>
<td>Bills</td>
<td>TV, home phone, Intern</td>
<td>-1.00</td>
</tr>
<tr>
<td>2012-03-27</td>
<td>TRANSFER ORDER test zmiany opasu</td>
<td>Return from investment</td>
<td>Term deposits, saving z</td>
<td>0.04</td>
</tr>
<tr>
<td>2012-03-26</td>
<td>TRANSFER OUT test zmiany opasu To: Basia</td>
<td>Shopping, services</td>
<td>Clothing, shoes, access</td>
<td>-100.00</td>
</tr>
<tr>
<td>2012-03-26</td>
<td>TRANSFER ORDER test zmiany opasu</td>
<td>Return from investment</td>
<td>Term deposits, saving z</td>
<td>500.00</td>
</tr>
<tr>
<td>2012-03-26</td>
<td>TRANSFER ORDER test zmiany opasu</td>
<td>Return from investment</td>
<td>Term deposits, saving z</td>
<td>0.41</td>
</tr>
</tbody>
</table>
ANNEX 5: BUDGET SCREENSHOTS

Budget

Under the 'Budget' bookmark you can define your expenses, specifying the amounts you want to allocate per month to individual spending categories and subcategories. You will be kept posted about the budget balance by the budget deviation graph. The online tool helps you understand your budget situation in the particular category. Green means that you have deviated less than 20% of the budget; orange means more than 20%, while red, that you are over 50%.

You can also get alerts with your budget balance.

Add new budget

Your budgets for categories and subcategories in the selected period

<table>
<thead>
<tr>
<th>Categories and subcategories</th>
<th>Used budget</th>
<th>Budgeted</th>
<th>Spent</th>
<th>Remaining</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>400.00</td>
<td>200.00</td>
<td>200.00</td>
<td>200.00</td>
</tr>
</tbody>
</table>

Suggested new budgets

Here you can see all categories and subcategories for which you can add new budget.

<table>
<thead>
<tr>
<th>Categories and subcategories</th>
<th>Average spendings in last 3 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bills</td>
<td>20.83</td>
</tr>
<tr>
<td>Consumer loans, fees, taxes</td>
<td>2.32</td>
</tr>
<tr>
<td>Consumer loans, fees, taxes (other)</td>
<td>2.32</td>
</tr>
<tr>
<td>Food, dining</td>
<td>122.87</td>
</tr>
<tr>
<td>Fast food</td>
<td>15.00</td>
</tr>
<tr>
<td>Groceries</td>
<td>57.43</td>
</tr>
<tr>
<td>Restaurants, dates</td>
<td>50.44</td>
</tr>
<tr>
<td>Health care</td>
<td>89.80</td>
</tr>
<tr>
<td>Eyewear</td>
<td>59.50</td>
</tr>
<tr>
<td>Other spendings, ATMs</td>
<td>602.89</td>
</tr>
<tr>
<td>ATMs</td>
<td>827.88</td>
</tr>
<tr>
<td>Disbursements in branches</td>
<td>75.00</td>
</tr>
<tr>
<td>Personal care</td>
<td>20.00</td>
</tr>
<tr>
<td>Spa, beauty</td>
<td>20.00</td>
</tr>
<tr>
<td>Shopping, services</td>
<td>93.78</td>
</tr>
</tbody>
</table>
Savings plan will help you keep more money in your pocket.

Savings Plan is a tool you can use to plan and control your spendings. It is dedicated to provide you with the best possible way to reduce your spendings.

Create savings plan

Analysis of your income and spending

This will give you an overview of your finance and help you define your future spendings. Also, based on this analysis we will be able to tailor a savings plan that will best suit your profile.

<table>
<thead>
<tr>
<th>Last 6m cycles</th>
<th>Income</th>
<th>Spending</th>
<th>Difference</th>
<th>Remove</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015-04-11 - 2015-05-10</td>
<td>1,001.04</td>
<td>1,522.65</td>
<td>-521.61</td>
<td></td>
</tr>
<tr>
<td>2015-03-11 - 2015-04-10</td>
<td>1,004.04</td>
<td>591.05</td>
<td>409.99</td>
<td></td>
</tr>
<tr>
<td>2015-02-11 - 2015-03-10</td>
<td>1,001.04</td>
<td>959.19</td>
<td>41.85</td>
<td></td>
</tr>
<tr>
<td>2015-01-11 - 2015-02-10</td>
<td>1,001.04</td>
<td>1,003.08</td>
<td>-2.50</td>
<td></td>
</tr>
<tr>
<td>2014-12-11 - 2015-01-10</td>
<td>1,001.04</td>
<td>1,364.35</td>
<td>-362.87</td>
<td></td>
</tr>
<tr>
<td>2014-11-11 - 2014-12-10</td>
<td>440.20</td>
<td>0.00</td>
<td>440.20</td>
<td></td>
</tr>
</tbody>
</table>

Avg 907.72 906.85 0.87

Define savings amount and duration

Start saving from:
- June, 11
- Today

What type of amount do you want to set?
- monthly savings
- total savings, for an event or purchase

Your planned monthly savings

Contact
### February 2015

**Your calendar with transactions and comments**

Calendar presents all upcoming expenditure and income registered by the system. You can also add your transactions and assign them to categories and subcategories, add description and comment. You can also add notes to Calendar. You can change your transactions and notes later. Click on selected day number or button "Add new transaction" to add new transaction or note. Transaction planned in Calendar will not be made automatically.

**Available funds on selected account**

<table>
<thead>
<tr>
<th>Available funds on selected account</th>
<th>Planned income</th>
<th>Planned spending</th>
<th>Available funds for the end of the month</th>
</tr>
</thead>
<tbody>
<tr>
<td>40,584,220.64 +</td>
<td>1,505.91</td>
<td>- 164,573.94</td>
<td>= 40,421,152.61</td>
</tr>
</tbody>
</table>

**Monthly Calendar**

<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
<th>Sunday</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
<td>15</td>
</tr>
<tr>
<td>16</td>
<td>17</td>
<td>18</td>
<td>19</td>
<td>20</td>
<td>21</td>
<td>22</td>
</tr>
<tr>
<td>23</td>
<td>24</td>
<td>25</td>
<td>26</td>
<td>27</td>
<td>28</td>
<td></td>
</tr>
</tbody>
</table>
ANNEX 6: REPORTS SCREENSHOTS

The Reports bookmark permits viewing total transaction amounts: expenses, income and cash flows. In the Spendings bookmark, you will see a chart concerning expenses divided into categories (pie chart) or over time (bar chart). Clicking on a slice in the pie chart, representing a specific category, or clicking on its name will show you only this category divided into sub-categories. In the Income bookmark, you will see similar information and charts concerning your income. The Cash Flow bookmark shows a chart of cash flows over time.

![Image of a pie chart showing spending categories]

### Your spendings by categories from 2014-05-01 till 2015-04-29

<table>
<thead>
<tr>
<th>Category</th>
<th>Percent</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other expenditures, ATMs</td>
<td>62.5%</td>
<td>2,067.35</td>
</tr>
<tr>
<td>Food, dining</td>
<td>14.6%</td>
<td>704.23</td>
</tr>
<tr>
<td>Shopping, services</td>
<td>8.0%</td>
<td>382.68</td>
</tr>
<tr>
<td>Healthcare</td>
<td>7.6%</td>
<td>357.00</td>
</tr>
<tr>
<td>Bills</td>
<td>2.3%</td>
<td>125.00</td>
</tr>
<tr>
<td>Personal care</td>
<td>2.5%</td>
<td>120.00</td>
</tr>
<tr>
<td>Vacation, travel</td>
<td>1.8%</td>
<td>88.00</td>
</tr>
<tr>
<td>Consumer loans, fees, taxes</td>
<td>0.2%</td>
<td>11.96</td>
</tr>
</tbody>
</table>

All categories total spendings: 4,256.22

Click on a slice or category name to see the data for subcategories.
## Yearly Spending Analysis

### By Month

<table>
<thead>
<tr>
<th>Month</th>
<th>Data</th>
<th>Consumer loans, fees, taxes</th>
<th>Food, dining</th>
<th>Healthcare</th>
<th>Other spendings, ATM fees</th>
<th>Persons</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 15</td>
<td>50.00</td>
<td>2.00</td>
<td>135.70</td>
<td>357.00</td>
<td>192.65</td>
<td></td>
</tr>
<tr>
<td>March 15</td>
<td>0.00</td>
<td>2.00</td>
<td>54.62</td>
<td>0.00</td>
<td>1068.00</td>
<td></td>
</tr>
<tr>
<td>February 15</td>
<td>0.00</td>
<td>2.00</td>
<td>219.51</td>
<td>0.00</td>
<td>620.80</td>
<td></td>
</tr>
<tr>
<td>January 15</td>
<td>75.00</td>
<td>2.00</td>
<td>98.86</td>
<td>0.00</td>
<td>1004.70</td>
<td></td>
</tr>
<tr>
<td>December 14</td>
<td>0.00</td>
<td>2.99</td>
<td>134.64</td>
<td>0.00</td>
<td>100.00</td>
<td></td>
</tr>
<tr>
<td>November 14</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>October 14</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>September 14</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>August 14</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>July 14</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>June 14</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>May 14</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>125.00</td>
<td>11.56</td>
<td>794.23</td>
<td>357.00</td>
<td>2567.35</td>
<td></td>
</tr>
</tbody>
</table>

### By Category

#### Return from Investment
- **Percent:** 48.42%
- **Amount:** 5,518.10
- **Type:** Stew transactions

#### Other Income
- **Percent:** 41.32%
- **Amount:** 4,768.50
- **Type:** Stew transactions

#### Income
- **Percent:** 10.26%
- **Amount:** 1,160.20
- **Type:** Stew transactions

### Total
- **Amount:** 11,555.80
1. Personal Finance Manager

What is the Personal Finance Manager?

Adapt PFM's best practices to gain Competitive Advantage
1. Personal Finance Manager

A Personal Finance Manager (PFM) is a website, software, widget or app which tracks one’s financial activities across various financial institutions or multiple accounts within the same institution.

Role

- Provides detailed information on the client’s account and “financial behavior”
- Budgeting on the basis of this information

A complete and up-to-date PFM is an absolute primary need in today’s technologically advanced Polish banking sector.

Established Features of a competent PFM:
- Current Balance
- Spending categorization
- Graphical illustration of the account’s balance
- Transaction history
- Bill split
- Budget generation
- Savings plan generation
- Calendarization of future transactions & cash availability
- Organized graphical representation of incomes, spendings and direct comparision on a given time period

Interesting new trends in PFM:
- Safe-to-spend notion (~Available balance – Goals/ Scheduled Activities in the next 30 days)
- User “tagging” transactions
- Create a saving goal and automatically put money aside each day to achieve it in the established time
- Qualitative feedback on spending habits vs. Income (on real-time)
- Compute a monthly spending average and compare the current month’s spendings with the average
- These will be extended in the Conclusions...

The Personal Finance Manager is usually catered in 3 possible formats:

MOBILE APP

BROWSER

SMART WATCH APP

This presentation’s main focus will be show the best practices in the industry & compare Millennium to those on each and every one of these platforms to:

Understand how Millennium ranks in the domestic competitive environment

Improve Millennium’s PFM platform

A Personal Finance Manager is an invaluable tool for a bank customer because it is proven to be the most effective way of organizing oneself’s revenues and expenses in Personal Finance just as in business, planning thoughtfully is a necessary skill to success.

“Most people who create a financial plan for themselves – with goals and benchmarks – are by and large the most successful at reaching those goals” – Alexa Von Tobel, Founder and CEO of Learnvest

PFM’s importance is being boosted by the rise of the homebanking platforms across the years. In fact, online banking is now (and has been for a good while) a central part of a bank’s operations. Following, we’ll look at some data which corroborates just that.
1. Personal Finance Manager

What makes the Personal Finance Manager so crucial?

The rise of the e-banking platforms and their growth potential

2. Market Indicators in Online Banking and PFM

In Europe

- In 2012, all but one of the Top 10 European banks (by Unique Visitors) experienced growth in this indicator.

Source: “2013 Europe Digital Future in Focus”, by ComScore, Inc.

Top 10 European Banking Websites by Unique Visitors (000) in Dec. 2012

Banking – UniCredit Shows the Fastest Growth Amongst Top 10 Banking Sites

Note: Unique Visitors are the number of distinct users requesting pages from the website (including those who don’t log in to the home banking platforms).

Deutsche Bank predicts migration to e-banking will hit 60% of the EU population by 2020.
2. Market Indicators in Online Banking and PFM

In the UNITED STATES OF AMERICA

- An April 2013 report produced the following graphic concerning ways in which U.S. internet users access their banking information. 

Source: "Harris Interactive April 2013, August 2013 The Financial Brand"

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2. Market Indicators in Online Banking and PFM

In the UNITED STATES OF AMERICA

- Another graphic in that same report analyzes the activities mobile users conduct on these exact devices.

Source: "Harris Interactive April 2013, August 2013 The Financial Brand"
2. Market Indicators in Online Banking and PFM

In the UNITED STATES OF AMERICA

- One of the major benefits for companies of having transactions concentrated in their home banking platform is to reduce cost per transaction (especially in comparison with in-branch transactions).
- Given that in-branch transaction costs are largely fixed costs and physical overhead and that many banks are hesitant to reduce these two, this reduction in costs is often not completely materialized.

Source: “Hank’s Interactive April 2013, August 2013 The Financial Brand

| Estimated cost per transaction by channel |
|-----------------|------------------|-----------------|------------------|------------------|
| $4.25           | $1.30            | $1.25           | $0.19            | $0.10            |
| In person at a physical branch             | By phoning a call center | ATM              | Online banking using a bank or credit union | Mobile banking |

2. Market Indicators in Online Banking and PFM

In POLAND

- 6th highest market penetration rate of Internet Banking in the European Union (52.3% of Polish Internet users visit banking webpages vs. EU average of 39.9%)

Source: “2013 Europe Digital Future in Focus”, by ComScore, Inc

Banking – Penetration Across Europe
Netherlands Leads with 66% of Internet Users Visiting Online Banking Sites

Reach (%) of Online Banking

Note: Number of visits include those who don’t log in to the home banking platforms.
2. Market Indicators in Online Banking and PFM

In POLAND
- 20.5 Million individual clients with an Online bank account
- 11,377 Million active individual users (logging-in at least once a month)

More than 3/4 of the Polish population is an active user of an Online bank account.

Working-age (18-64) Polish population
- 77% of Polish people own a bank account at a commercial or cooperative bank
- 51% of Polish people have access to an Online bank account
- 45.99% of Polish people are Active Online Banking Users (access ≥ 1X/month)

Big Opportunity to increase the number of online users by migration

2. Market Indicators in Online Banking and PFM

"Polish online banking services are amongst the most technologically advanced in Europe and rank very high in terms of security of payments. Although the wider banking sector reaches saturation, Polish e-banking still has a very rosy outlook for further growth as the younger generation will dominate the market in the future."


- Rating Agency Fitch has a Stable Outlook on the Polish Banking sector for 2015:
  - Solid Returns and Double-Digit Return on Equity
  - STABLE Asset Quality
  - Adequate Sector Capitalization

I deduce from both the quote above-displayed and Fitch’s outlook for 2015 that the Polish banking sector will go through growth this year, a growth anchored by digitalization of customers rather than acquisition of new ones.
2. Market Indicators in Online Banking and PFM

Given the assumption that profitability will strongly derive from “digitalization of clients”, we’ll now enunciate some today accepted best-practices on homebanking.

In the day and age of the “Entitled Customer”, there are 4 PRINCIPLES homebanking services have to absolutely respect:

- Real time and 24/7 banking services
- Client access to their financial information when and where needed
- Real time, secure and convenient transactions
- Simple, intuitive and seamless user experiences

The issue of transactions’ safety is especially important for Polish banks, according to EY’s 2014 Global Consumer Banking Survey, for Eastern Europe, which states safety of procedures is a reason for complete trust in one’s primary financial services provider in 32% of the cases (above global average).

The aforementioned qualities are rather basic characteristics all e-banking platforms should display at this time. They represent necessary but not sufficient features to form good e-banking and PFM tools.

FUTURE TRENDS

Thus, we should also look at those trends which will dictate the future of those platforms. PKO Bank Polski identified a few:

- Consumers more prone to quickly adopt tech-advanced solutions
- High growth potential for Electronic Payments
- More demand for Investment and Savings goods

All of these trends concern PFM and give indications of direction to follow in improving that tool.

PFM Mobile Platforms

Best Practices
3. Simple.com

Simple.com platform (for browser & application)
Online bank which is said to be revolutionizing the way people save money

**BRIEF OVERVIEW**

Simple provides the user a bank account through U.S. Bancorp, a financial services company. The service includes:

- VISA Debit Card
- Access to an online banking system, through:
  - ICs or Android App
  - simple.com (both at the user's disposal)

- Simple has no physical branches; only online access
- Simple doesn't admit aggregation of bank accounts to be used in the Simple platform
- Founded in 2009 in Brooklyn, NY.
- In July 2013, it reached 40,000 clients and total transactions value of over $1 billion.
- By the end of 2013, it processed 11 debit transactions/minute with an overall customer balance of $64 Million.
- Since 2014, it is a subsidiary of the Spanish bank BBVA.

---

2 Major Features (deeply interconnected)

**Safe-to-Spend**
Feature which takes the balance value and subtracts upcoming bills payments, pending transactions, and any Goals the user is saving for (within an horizon of 30 days).

**Goals**
The user sets the value of the Goal and the time-span necessary to reach it. Simple automatically takes aside a certain amount of money each day.

“Running all my savings via goals has changed my whole attitude toward saving. On a certain level, saving has always felt to me like denying myself fun spending opportunities. In the Simple Game, the opposite has proven true. Because every goal has a name and a committed plan, and because the transactions are presented in small increments, saving has become an anticipatory pleasure. In fact it’s getting to the point where I don’t have savings built up, major purchases just aren’t fun.”

Andre Behrens, The New York Times
3. Simple.com

Simple.com platform (for browser & application)

What the previously mentioned New York Times columnist refers to is visually represented in the picture below.

**Savings in progress**

**Goals already accomplished**

Simple.com platform (for browser & application)

This is Simple.com’s (browser) main dashboard, which displays the balance overtime and the categorization of expenses.

Every transaction made with the Simple Card (Income or Expense) goes directly into the Simple platform, already categorized (without the need for the user to manually insert it).

Simple, as far as I can deduce, has 5 possible categories of expenses.
3. Simple.com

Simple.com platform (for browser & application)

This is Simple's screen after the 1st login, in which one can go through the Demo account (especially useful for new users). By clicking on the demo, the user will access the actual homepage of Simple (represented next slide).

3. Simple.com

Simple.com platform (for browser & application)

This is Simple’s homepage screen with a Demo-only explanation on the lower part of the display.
3. Simple.com - Mobile

Simple.com platform (for browser & application)

In the mobile Application, this is Simple’s main menu.

Activity shows the record of transactions as shown on the left.
By clicking on each Activity, the user will have access to a display as represented in the next slide.

3. Simple.com - Mobile

Simple.com platform (for browser & application)

Details of the Activities

The screenshot shows the details of an activity, namely:

- Name for the spending (given by the user)
- Amount of money spent
- Categorization
- Whether or not the money was spent from a goal (taking money out of the savings for a goal)
- Location where the spending occurred
3. Simple.com - Mobile

There is, however, a fundamental problem about Simple's Safe-to-spend feature.

Practical Example

The user has 2000 PLN in his Simple account and is trying to save 1000 PLN over 10 days.

It's only logical that Simple puts apart 100 PLN/day from the Safe-to-Spend bucket towards the Goal.

Thus, on the 1st day of Savings for this goal, the Safe-to-Spend value would indicate a value of 1900 PLN

But if the user indeed spends those 1900 PLN, he won't be able to reach his goal.

CONCLUSION: Safe-to-Spend is just an indication of what amount of money to spend, rather than a dogmatic value that shouldn't be interpreted and put into context.

SOLUTION: Subtract from the Current Balance the whole Goals, Upcoming bills, payments and Pending Transactions amount (which gives a monthly Spendables amount, as Level Money has) and divide this outcome by the number of days left to reach the goal to get the Average daily safe-amount to spend. (more accurate measure). In this case, this would be:

(2000-1900) / 10 = 100 PLN
4. LevelMoney - Mobile

LevelMoney proposes a Spendable notion (approximate to the Safe-to-Spend notion) which tells the user how much can he has left to spend today, this week and this month. This Spendable concept automatically adapts after each purchase the user does.

These circles could be a good addition to the Safe-to-Spend notion → the circles representing this Safe-to-Spend number.

5. Moven - Mobile

Moven platform (mobile application for iOS and Android)

Online Bank. Includes app + card. Divides expenses on Wants and Needs depending on whether they’re necessary or not.

Because Moven has only 4 engineers (in comparison with 40 engineers from Simple.com): their vision for the app is achieved at a slower pace. This is why Moven is announcing the Coming Soon feature (solidified but not yet completed). Here will be shown the current ones and the others still to come.

Current Major Features

Instant Mobile Receipt: instant feedback on every purchase, so that customers can make adjustments in real-time to meet their personal finance goals (how much did the user spend? & shape of the user budget-wise).

MoneyPulse: calculates an average expenditure per period and identifies if the user is spending above that average (screenshot below).

Online Data Aggregation: link checking, savings, debt and credit accounts to get feedback on the entire spectrum of expenditures.

Pay a Friend: send money to a Facebook friend, mobile number contact or email contact.

Move Money: move money in and out of the Moven account with a few simple “clicks on the mouse.”

“Moven focuses on providing instant feedback so a customer can make adjustments to their behaviors in real-time to meet their personal finance goals. This is similar to the experience of many wearable health apps because just like physical wellness, financial wellness is an ongoing effort that can’t be confined to neat buckets in a budget and little impact is made when reviewing days or weeks after the fact.”

Alex Sion, President of Moven
5. Moven - Mobile

Moven platform (mobile application for iOS and Android)

Online bank which is said to be revolutionizing the way people save money. Includes app + card

Moven Balance

Moven Balance: This is a key aspect of Moven, a balance which shows up on the smartphone screen whenever there's a new expense.

In Development Features

In Development Features: Suspends your card, one can immediately block spending from the card using the app, useful in case of theft or robbery.

The graphic below compares the average spending on each month with that of the current month.

5. Moven - On Android SmartWatches

Moven platform (mobile application for iOS and Android)

Online bank which is said to be revolutionizing the way people save money. Includes app + card

Moven's most recent breakthrough move was to extend its service to the fast-growing “Wearables” business. In the words of the President: “Financial wellness is a critical experience currently missing in wearable technology right now, but it’s a necessary one. (...) Wearables are poised to help users adjust their spending habits as fast and simple as glancing down at your watch.”

Statistics show that in 2014 the wearables market already accounted for $14 Billion and is estimated to grow to $70 Billion in 2024 (a 500% growth). While the dominant trend amongst this sector still is healthcare (marginal fitness, medical and wellness), the finance sector has a promising potential. Indeed, it is expected that by the end of the decade that advanced electronics (in which financial services play a bigger role) will match the healthcare market in wearables.

Moven currently provides: spending notifications and a current balance view.
5. Moven - On Android SmartWatches

Moven was a 1st mover in applying Personal Budgeting and “Easy-saving” tools to smartwatches, having its app currently available at the Samsung Galaxy Gear and Motorola Moto 360 watches (only Android devices up until now since Apple Watch is still awaiting a release, scheduled for April 2015).

50/50
Moven has a 50/50 split between iOS and Android users which suggests the company will develop an app for the Apple Watch when it comes out (Samsung and Apple watches can only be fully used with recent smartphones from those same brands).

AppleWatch vs. Android Watches
NFC technology for payments is incorporated in the Apple Watch (to work in consonance with Apple Pay terminals) but not on the currently available Android watches.

"Google and Apple are pursuing different philosophies in terms of wearables" – Moven’s COO, Ramy Sarafeldin
There is indeed a difference in approach from Apple to Android’s developer Google on the smartwatch business.

Apple ➔ More interactivity
Google ➔ “Glance or Go” or “Thumbs-up, Thumbs-down” approach

Bearing this into consideration, Moven developed its Android smartwatch platform, basing it on the Instant Feedback on spendings concept, which Moven expects that will induce behavioral changes (essence of PFM).

Main Aim
- Let clients review Balance and the Green, Yellow or Red bar that compares the current month’s spending with the other months (Money Pulse)
- Provide real-time feedback on spendings as they’re being made (in both the Balance and the bar)

Moven’s Founder & CEO Brett King personally believes that the smartwatch’s competitive advantage over other devices is on delivering alerts. On this regard, he says: “Notification becomes the key mechanism for engagement”.

6. GoBank - Mobile

GoBank platform (mobile application for iOS and Android)
It has a very informal and anti-big banks communication strategy. Includes app + card.

I believe GoBank is a bit less advanced in its PFM features than SIMPLE and MOVEN and so I’ll skip an extensive explanation of all its features and will go straight to the ones which I find more applicable to an improvement of Millennium’s PFM.

Money Vault – A mechanism that stashes cash to save it in a vault. At any given time, the user can withdraw his money from the vault and transfer it back to his normal account. The main screen of the app shows the balances of both accounts.

Balance Bar – This info is accessible to the user even if he doesn’t log in the account. You can do any operations apart from peeking at the balance, which saves the account in cases of robbery or theft, while introducing a useful feature.
6. GoBank - Mobile

GoBank platform (mobile application for iOS and Android)

It has a very informal and anti-big banks communication strategy.

GoBank lets the user choose which notifications/alerts of expenses he will receive. Instead of being notified on every spending made in whichever channel of communication (mobile or email).

This is a feature GoBank's competitors don't have and can be extremely useful for the user, who might loose interest in notifications if they're too frequent. (In the same way a person gets tired of receiving too many emails by the same company).

7. Personal Finance Manager - Mobile

Simple.com has a feature which allows the instant transfer of money to contacts with Simple accounts. The step to fulfill the transactions are simply select the desired contact, identify the value of the transfer and then click 'Send'.

Moven and GoBank have a similar feature called Pay a Friend, either by inserting the recipient's mobile phone number or email address.

The Simple.com user can add a contact through the other person's phone number or email address, which represents a 'more user-friendly approach' to a service similar to Moven's and GoBank's.
8. The iBank App

- iBank5
  - This app has a very favorable consensus concerning its quality and usefulness when taking into account top app reviews and rankings on the Mac App Store, as well as buzz and word-of-mouth reviews.
  - This screen shows a graphical and numerical comparison between expected money spent after a budget is made, and actual expenses, can be interesting to be considered as a suggestion for PFM improvement.

8. The iBank App

- iBank5
  - This screen displays all recent transactions, not only categorizing them but also indicating the type of transaction they were (Charge, Withdrawal, Deposit). Another feature worthy of the new PFM...
8. The iBank App

- **iBank 5**
- **iBank 5**'s biggest quality is the diversity and detail of the Reports they produce.
  - Overall, the platform offers 10 different types of reports:
    - Income & Expense
    - Net Worth
    - Expense Timeline
    - Category Detail
    - Portfolio Summary
    - Investment Summary
    - Payee Summary
    - U.S. Tax
    - Debt/Asset Liability
    - Forecast

---

8. The iBank App

- **iBank 5's Tax Report**

```
<table>
<thead>
<tr>
<th>Category</th>
<th>Total</th>
<th>Taxable Categories</th>
<th>Activity</th>
<th>Capital Gains</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income</td>
<td>$13,129.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paycheck/Wages</td>
<td>$13,129.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income Total</td>
<td>$13,129.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expenses</td>
<td>$0.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expenses/Total</td>
<td>$13,129.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capital Gains</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Short Term</td>
<td>$437.94</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long Term</td>
<td>$0.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unrealized Gains</td>
<td>$1,624.25</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Short Term</td>
<td>$1,624.25</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long Term</td>
<td>$71,517.43</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dividend</td>
<td>$1,513.74</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest</td>
<td>$0.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```

- **Revised Gains**
  - Short Term
  - Long Term

- **Unrealized Gains**
  - Short Term
  - Long Term
8. The iBank App

- **iBank 5's Net Worth Report**
  
  This report shows a chart of the user's net worth and balance sheet for the previous year.
  
  The net worth chart allows the user to see trends in the accumulation or loss of wealth. The balance sheet shows the user's assets and liabilities, subdivided into cash and security values.

- **iBank 5's Expense Timeline**
  
  This report organizes income and expenses by categories and months of the year. It spans the whole year.
8. The iBank App

- iBank 5’s Forecast

- iBank 5’s Payee Summary

This report shows the recipients of recent payments made by the user and the recent sources of income.
8. The iBank App

- iBank 5’s Investment Summary

- This report shows an organized overview of the investments of the user.

9. FlexScore

- This app gives each user a score depending on his Assets, Debt, Investments, Income, and every other aspect of his financial health. A score of 1,000 is the goal, which means Financial Independence.

The app suggests some Actions Steps to improve his score, depending on the “health status” of his finances. These are described as little steps towards financial independence.
10. BUDGT

- The app is designed for students and other users with small incomes. The focus of the app is to keep operations within the app (enter expenses, track the budget, and log out of the app) as simple as possible.

<table>
<thead>
<tr>
<th>Personal Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>User sets up his individual monthly budget with income and expenses, all presented in the following format.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Daily Tracking</th>
</tr>
</thead>
<tbody>
<tr>
<td>This feature tells the user how much he can spend each day, a value which is updated each day based on previous expense habits. With the help of the calendar bar displayed below the user can open pass days and enter forgotten expenses there.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Big Picture</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUDGT provides a Left amount of money, which is what the user can still spend until the end of the month without compromising the value allocated for savings.</td>
</tr>
</tbody>
</table>

11. The Case of Turkish Banks

Turkish Banks are amongst the most advanced in the whole world when it comes to technology, and that reflects on how many people use the internet-powered banking services. Turkey’s second-largest bank, Garanti, is often given as the blueprint for innovation in banking. Furthermore, we’ll look at some of this bank’s apps’ most interesting features.

![Graph showing mobile banking usage](http://www.imm.com/Newsroom/All-news/1NW/Cash-no-longer-king-Mobile-banking-still-rising.htm)
11. The Case of Turkish Banks

Turkish Banks are amongst the most advanced in the whole world when it comes to technology, and that reflects on how many people use the internet-powered banking services. This is partially due to demographics (half of the Turkish people are under 30 and roughly 60% age between 15-34 y.o.)

A survey from ING Bank clearly shows how Turkey ranks as the top European market in mobile banking usage and how generally, these have brought a number of benefits for the users; namely him "being more in control of his finances"


In the ING report, it is written: "Turkey has the largest share of internet users who use mobile banking, making it the top mobile banking "hotspot" again in 2014. Turkey has the eighth highest use in the developed, internet adjusted measure but as internet penetration increases, mobile banking is set to rise. Uptake rose in nine of 13 countries surveyed, although increases and decreases of 3% or less may be due only to sampling variability and could be considered as representing no change."


Turkey also has the greatest acceptance (amongst countries surveyed) of people towards the possibility of general utilization of digital currencies. Plus, Turkey had the most percentage of people whom use less physical cash today than 12 months ago (survey conducted in late 2013/early 2014 and results published on May 2014). Finally, Turkey is also one of the very few early-adopters of contactless payments (not shown in the graphics below).
11. The Case of Turkish Banks

Of all the Turkish banks, Garanti is the most technologically advanced, notoriously at-all-times developing services for the newest software, platforms, etc.

Garanti offers the iGaranti platform. Some of its most notable features are:

Bump to Transfer feature: Consists of the possibility of Garanti users sending money for free to others by keeping two smartphones in close proximity. The service is also available if the recipient is not a Garanti customer, in which case he can withdraw the money at any Garanti ATM. This feature can be accessed for free.

Live: live updates and financial offers in real-time

Social: send payments to friends via Facebook.

More than touch: voice control to support hands-free money transfers

iWallet: Perform almost every purchase through the smartphone

SmartShopping: According to the users’ consumption habits and location, the app suggests favorite stores with products at discount

A real mobile wallet: To access physical cash, iGaranti allows users to securely pre-alert an ATM at the arrival of the actual user, with no need for a physical card

Check your spending in a given month with your peers: iGaranti lets the user compare what he has spent in a certain category with what friends spent in the same category (see screenshot on the right)

11. The Case of Turkish Banks

As previously mentioned, Garanti offers the critically acclaimed iGaranti mobile platform. The platform is based on the below-mentioned pillars, according to Nuance’s Cloud’s report named Digital Banking at Garanti Bank. From those, the one which can be of better use for this presentation is the Proactive Financial Status.
11. The Case of Turkish Banks

This is Garanti’s Dashboard layout:

More features of Garanti’s PFMI:
Consult one’s financial account in a detailed and graphical fashion

Online Personal Finance Management
- Customers are able to see their asset/debt and spending/earnings in a consolidated way
- Spending by category and showing them over time are the key PFM features
11. The Case of Turkish Banks

In the smartphone app iGaranti has the following aspect:

iGaranti Dashboard

Not Logged-in stage

Logged-in stage

iGaranti Money Bar/Forecast
11. The Case of Turkish Banks

In the smartphone app, iGaranti has the following aspect:

**iGaranti Special Network/ Nearby Deals**

Integration with Foursquare, Facebook and Twitter!

iGaranti connects Facebook, Twitter and FourSquare to help users send money to friends and family.

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**iGaranti Smart Shopping, iWallet**
11. The Case of Turkish Banks

In the smartphone app, Garanti has the following aspect:

- **iGaranti’s iWallet**: has the goal of performing almost all transactions traditionally done with a wallet with a smartphone. iWallet is designed to be used in both online and offline shopping. For this to happen, QR Codes are often used.

- **Online Shopping**: User selects the option “pay with QR code” on participating websites, which then direct the user to the iGaranti QR Payment site. After, the user scans the code and selects a previously-saved card to carry out the payment. To confirm the purchase, a code is generated, which the user enters on the website.

- **Offline Shopping (Physical Stores)**: QR code is printed on a receipt which the user scans (by taking a photo). The user then selects the saved card to pay and, once again, a code is generated to confirm the purchase. This code has then to be entered into the point-of-sale (POS) device in-store. At this point, the transaction is complete.

11. The Case of Turkish Banks

In the smartphone app, Garanti has the following aspect:

- **iGaranti’s iShopping**: if the user is registered in the social network Foursquare, by linking his account on this platform to the account in Garanti, the bank can track the user’s location and identify which of the user’s “Favorite Stores” are nearby. The “Favorite Stores” are identified according to the user’s shopping & spending habits. The user then receives notifications on which of these stores are having coupons/discounts at that moment.
11. The Case of Turkish Banks

Apart from being a worldwide leader in innovation for the mobile platform, Garanti was also the 1st bank in the world to have Google-approval for an application soon-available on Google Glass. With this, the user will have access to the following (as in Glass.google.com):

Garanti Bank customers who use iGaranti application on their phones can see their iGaranti push notifications, limit indicator, smart shopping offers, coupons and market information through iGaranti Glassware. So, the customers can check their credit card limit, account balance, market information, smart shopping offers and coupons with iGaranti Glassware without using their phones.

PFM in web browsers

Domestic Comparison & Best Practices
12. Benchmarking Analysis with Domestic Competition

- This analysis will focus on the Top 5 banks in Poland, in terms of Assets. (See table in Annex 1 – slide 110 – to consult the list). These are: Bank Polski, Bank Pekao, BZ WBK, mBank and ING BSK.

- Out of these 5 banks, only mBank and ING have PFM platforms. Therefore, the upcoming benchmarking analysis will focus more on these 2 than the other 3.

12. Benchmarking Analysis with Domestic Competition

- On this section, there will be shown examples of PFM platforms of several banks (some Polish, some from elsewhere in the world) with the intention of comparing those with Millennium’s platform and draw conclusions on how to improve the latter.

- We’ll start by analyzing the 5 biggest banks in Poland (considering the volume of assets). We’ll show screenshots of their PFM tools (in case they have it), then proceed to analyze other banks and finally carrying out a board-comparison of those with Millennium’s features.

- We’ll commence by the biggest bank in Poland, the publicly-owned PKO Bank Polski.

PKO doesn’t have a PFM platform per se (no Savings Plan, Calendarization nor Categorization, Calendarization or Benchmarking of expenses, no graphical representation of account status), so I’ve decided to show their whole website, which resembles bits and pieces of a real PFM.

Bank Polski’s PKO platform is divided into 8 major categories:

- Accounts → summary of all accounts, deposits and loans available
- Transactions → status of every transaction on the bank, allows making transfers
- Cards → list of Credit Cards issued, check credit limit, amount of funds available and credit card status
- Funds → information about the client’s Investment Funds
- Insurance → allows to buy insurance
- Top-Up → change the phone
- Access → allows to edit the extent of one’s access to the account, to both the account owner and the representatives of it
- Contact → Customer Service

Bank Polski
12. Benchmarking Analysis with Domestic Competition

Summary of the Accounts

<table>
<thead>
<tr>
<th>Account Name</th>
<th>Account number</th>
<th>The resources available</th>
<th>Accounting Balance</th>
<th>Currency</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOLD ACCOUNT CURRENT ACCOUNT</td>
<td>00 1020 1055 0000 0000 0000</td>
<td>1,000,00</td>
<td>1,500,00</td>
<td>PLN</td>
</tr>
<tr>
<td>Summary under contract</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CURRENT ACCOUNT SUPERNIGHTO revolving credit facility</td>
<td>00 1020 1068 0000 0000 0000</td>
<td>14,456.75</td>
<td>14,456.75</td>
<td>PLN</td>
</tr>
<tr>
<td>Summary under contract</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12. Benchmarking Analysis with Domestic Competition

Balance of the Account

<table>
<thead>
<tr>
<th>Name deposits</th>
<th>Date of next settlement</th>
<th>Duration of</th>
<th>The resources available</th>
<th>Accounting Balance</th>
<th>Currency</th>
</tr>
</thead>
<tbody>
<tr>
<td>CASH DEPOSITS TIMELY INDIVIDUAL CLIENT</td>
<td>2008-11-01</td>
<td>1 month</td>
<td>4,500.00</td>
<td>4,500.00</td>
<td>PLN</td>
</tr>
<tr>
<td>Summary under contract</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
12. Benchmarking Analysis with Domestic Competition

Account History

Sophisticated transactions
12. Benchmarking Analysis with Domestic Competition
12. Benchmarking Analysis with Domestic Competition
12. Benchmarking Analysis with Domestic Competition
12. Benchmarking Analysis with Domestic Competition

The 2nd biggest bank in Poland is Bank Pekao. As PKO, Pekao doesn’t have a PFM per se (only a Transaction History feature with no categorization of expenses but no Savings Plan, Budgeting features, etc.). The following are screenshots of the Main Page.

Bank Pekao’s Pekao24 platform is divided into 8 major categories:

- **Money Transfers** → the client can comprehensively manage money transfers, both in PLN and foreign currencies, giving information on current payment status, future payments list, and the list of operations to be authorized.
- **Deposits** → possibility to set up a now standard fixed-term deposit or E-LOK@TA (pesquisar o que e) deposit-gives access to deposit account history.
- **Investments** → buy investment fund units, giving access to the history of operations and orders related to the investment funds.
- **Cards** → a list of credit card and debit card accounts, access to details of a card, operations history, etc.
- **Loans** → a list of the loans incurred in, when the next payment is due, and the amount left to pay.
- **Services** → a list of miscellaneous bills, from energy to phone expenses.
- **Applications**
- **Offer for you**

### HOME PAGE 1

![Bank Pekao Home Page Screenshot]

**KATARZYNA.NET**

Customer number: 98901234561 | Last successful login: 24/10/2010 10:35

**MY HOME PAGE**

**Assets and liabilities balance**

- **ASSETS SUM PLN:** 17,365.30 PLN
- **LIABILITIES SUM PLN:** 12,893.11 PLN
- **BALANCE PLN:** 4,472.19 PLN
- **ASSETS SUM USD:** 7,841.96 USD
- **LIABILITIES SUM USD:** 7,841.98 USD
- **BALANCE USD:** 1,999.02 USD
- **BALANCE EUR:** 1,999.02 EUR
12. Benchmarking Analysis with Domestic Competition

HOME PAGE 2

12. Benchmarking Analysis with Domestic Competition

HOME PAGE 3
12. Benchmarking Analysis with Domestic Competition

**HOME PAGE 4**

**TRANSACTIONS’ HISTORY – Money Transfers tab**
12. Benchmarking Analysis with Domestic Competition

The 3rd largest bank is BRE Bank, soon to be rebranded and transformed into mBank. mBank is a more advanced platform that the two previously presented ones.

On the history of transactions you may see transactions type (card, ATM transfer) and category. Also in case of some transaction you are requested to confirm if applied category is correct (OK button).

You may search by description, category, tag or amount.

Also you may see list of all transactions for which category was not applied.

For every other subsequent tab the Operations History list follows the same pattern as shown for the list two tabs of the website.
12. Benchmarking Analysis with Domestic Competition

You may select many products, accounts, and cards.

Also, you may select period.

Promoting categorization of transactions.

Possibility to edit transaction and change category on the list (one transaction or many at the same time).
12. Benchmarking Analysis with Domestic Competition

On the history of transactions in History analysis tab you may see:
- Spending
- Inflows
- Cash flow

Spending and inflows may be seen by:
- categories, descriptions, tags, history of spendings

Also you may select period

12. Benchmarking Analysis with Domestic Competition
12. Benchmarking Analysis with Domestic Competition

Cash flow
You may see:
- Inflows, spendings
- Savings, investments

12. Benchmarking Analysis with Domestic Competition

In option Payments
there is option for
Budget

You can create budget
per separate category
12. Benchmarking Analysis with Domestic Competition

Interesting option of promoting mOłaję:
In case of some transactions on list appears an icon which after clicking on it displays mOłaję connected with this operation.
12. Benchmarking Analysis with Domestic Competition

The 4th biggest in the domestic market is ING. ING stands as the 2nd most advanced homebanking platform in Poland (after Millenet), according to the hereby presented analysis. The homebanking page is divided in the following categories:

- **Accounts** – overview of the accounts (name, number & balance), option to open a new account, order a card for an existing account.
- **Finansometr** – Displays Last Transactions (and all Transactions overtime) and Revenues & Expenses, as per category (or tag) in a list of graphic. Interesting feature.
- **Transfers** – Enables the user to make online transfers of various kinds.
- **Savings** – Enables user to open a new savings account with the possibility of attaching a Savings Goal or a selected transfer percentage to savings. Alongside Finansometr, this is ING’s most interesting feature.
- **History** – History of Operations.
- **Cards** – Enables user to assign to the ING Digital Wallet, cancel, order activate or insure cards.
- **Products on Click** – Enables the user to subscribe to a variety of different products.
- **Investments** – Enables the user to engage in Investment Funds provided by ING.
- **Loans and Credits** – Apply for Loans & Credits; possibility of scheduling a meeting with a consultant.
- **Portfolio** – Displays the portfolio of accounts the user has.
- **Bankujesz-Zyskujesz**
- **My Invoices**

---

12. Benchmarking Analysis with Domestic Competition

The just before-shown list is represented in ING’s home page.
12. Benchmarking Analysis with Domestic Competition

This time around, we have ING’s Accounts tab.

![ING BankOnLine Accounts Tab](image)

**PLN Accounts**

<table>
<thead>
<tr>
<th>Name</th>
<th>Account</th>
<th>Available balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Konto Direct</td>
<td></td>
<td>0.00 PLN</td>
</tr>
</tbody>
</table>

**Currency accounts**
No accounts of this type.

**Accounts for prepaid cards**
No accounts of this type.

![ING BankOnLine Open New Account](image)

12. Benchmarking Analysis with Domestic Competition

This time around, we have ING’s Accounts tab.

![ING BankOnLine Choose Account Type](image)
12. Benchmarking Analysis with Domestic Competition

This time around, we have ING’s Accounts tab.

12. Benchmarking Analysis with Domestic Competition

Still in the Accounts tab, there is the option to Insure the card referent to an account against unauthorized use and cash taken from the ATM.

Declarations and information

I state that before signing up for insurance I have acquainted with contents of Terms and Conditions, Notification statement, Table of Fees and Communications received by internet banking system.

Send Cancel
12. Benchmarking Analysis with Domestic Competition

And now, ING’s Finansomiet: Finansomiet’s function is to display a quick overview of the last movements in the user’s accounts, thus giving an updated idea of the accounts’ financial health at the moment.

The 1st tab is named Summary.

Still in ING’s Finansomiet, the 2nd tab is named Transactions.
12. Benchmarking Analysis with Domestic Competition

The **Transfers** tab. This page lets the user carry out transfers of many capacities and of many types.

The **Savings** tab gives the user the opportunity to open a new deposit or a new savings account. Plus, the user can use the total Smart Saver or Dream Saver to actually save money overtime.
12. Benchmarking Analysis with Domestic Competition

The Smart Saver tool enables the user to save money every time there’s a payment by credit card or bank transfer. Indeed, the user sets a certain percentage of every payment by credit card or bank transfer that should be allocated to a personal savings account that has the money growing at 1.50% per month for amount deposited in excess of 5,000 zł and at 3.00% per month for amount deposited in excess of roughly 20,000 zł.

Another ING’s Saving tools is Dream Saver. This function enables the user to define a Saving Goal (categorizing it and defining a Target, Amount and Saving Time). On this basis, ING will calculate the monthly deposit needed to achieve the goal in hand.
12. Benchmarking Analysis with Domestic Competition

This last section of the Savings tab lets the user create an Individual Retirement Account Security.

12. Benchmarking Analysis with Domestic Competition

History of Operations.

No transactions that meet the criteria.
12. Benchmarking Analysis with Domestic Competition

The following is the Moje Finanse section, a simple dashboard which resumes the user's cards, accounts, and programs.

Next we have Bank Zachodni WBK, divided into the following tabs:

- Dashboard — A display of Current Balance and Transactions
- Portfolio
- Transfers and Payments
- Savings
- Cards
- Loans
- Top-ups
- Insurances
- E-FX
- Order Products
12. Benchmarking Analysis with Domestic Competition
12. Benchmarking Analysis with Domestic Competition
12. Benchmarking Analysis with Domestic Competition
12. Benchmarking Analysis with Domestic Competition
13. Comparison Table of the Big 5 against Millenet

<table>
<thead>
<tr>
<th></th>
<th>Millenet</th>
<th>iPKO</th>
<th>Pekao</th>
<th>mBank</th>
<th>ING</th>
<th>WBK</th>
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<tbody>
<tr>
<td>Summary of the accounts</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td>Automatic categorization</td>
<td>V</td>
<td>/</td>
<td>X</td>
<td>X</td>
<td>V</td>
<td>X</td>
</tr>
<tr>
<td>(expenses, revenues)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(transactions)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Show the Balance value</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
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<tr>
<td>Calendarization of upcoming</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
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<td>transactions</td>
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<td></td>
<td></td>
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<td></td>
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<tr>
<td>(Only the type of transaction)</td>
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<tr>
<td>(Future payment list)</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Savings Plan (based on past</td>
<td>V</td>
<td>X</td>
<td>X</td>
<td>?</td>
<td>V</td>
<td>X</td>
</tr>
<tr>
<td>behavioral)</td>
<td></td>
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<tr>
<td>Savings Plan (based on</td>
<td>V</td>
<td>X</td>
<td>X</td>
<td>?</td>
<td>V</td>
<td>X</td>
</tr>
<tr>
<td>established Goals)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transactions’ history</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td>Budgeting options</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td>Spentings/Incomes/Cash-flows</td>
<td>V</td>
<td>X</td>
<td>X</td>
<td>V</td>
<td>V</td>
<td>X</td>
</tr>
<tr>
<td>by categories (graphical rep.)</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Spentings/Incomes/Cash-flows</td>
<td>V</td>
<td>X</td>
<td>X</td>
<td>V</td>
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<td>by categories (list)</td>
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<tr>
<td>Select in which</td>
<td>V</td>
<td>X</td>
<td>X</td>
<td>V</td>
<td>V</td>
<td>X</td>
</tr>
<tr>
<td>accounts/products to consult</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>transactions</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

14. Meritum Bank case - Personal Finance Manager

An example of an advanced PFM platform is MeritumBank, a Polish bank specialized in serving small and medium-sized businesses.

Well start the analysis by looking through the History of Transactions.

Search option by Type of Transaction, Title of the Operation, Time period and Amount interval.
14. Meritum Bank case - Personal Finance Manager

Once the user clicks on one transaction in the history of transactions, he is directed into a window with the details of the operation.

But the real essence of Meritum Bank's PFM doesn't rely on the merits of the Transactions tab but rather on the features of Meritum Planner.
14. Meritum Bank case - Personal Finance Manager

I couldn't find more screenshots of the browser version of Meritum Bank's platform but, according to their website, their PFM has the following features:

- Checking current Balance and Transaction history of all accounts associated with the user
- Possibility of exporting the History of Operations or generate a Certificate of Completion of Transfer
- Meritum Planner carries out a detailed analysis of spending in order to effectively manage it for the future (much like Millennium’s Saving Plan)
- It automatically groups Expenses
- It caters Saving possibilities for both short-term and long-term
- Possibility of specifying a Budget for each group of expenses (much like the Add New Budget function at the Budget tab of Millennium’s PFM)
- Purchasing Goals – The system tells the user what he needs to set aside each month to accomplish established further-spending objectives (one-time expense)

We can safely conclude from this info that Meritum Bank is one of the most advanced banks in Poland concerning its PFM. In comparison with the Big 5, it stands as a very competitive and advanced tool (at the level of ING and mBank probably).

15. KIWIBANK

- KIWIBANK is a state-owned New Zealander bank. Their online service, generally, is not groundbreaking in terms of innovation on the online platform (in comparison with Millennium already has to offer) but has a few features that could be of big interest for any bank to adopt.
- Although KIWIBank in itself doesn’t provide a Budgeting tool, it indicates some tips to keep finances on track and stick to the budget (taken from their website directly).

Stick to your budget

- Now that you’ve got your budget sorted, it’s time for the hard part – sticking to it! If you can, set up payments to come out of your account the day after payday – that way you know you’ll always have the funds, so you avoid the risk of fees for failed payments.
- Make use of services on offer from your bank to help you manage your money. At KIWIbank, some of the options you may find useful include:
  - VISA DEBIT CARD – works just like your ATM/EFTPOS card, but you can also use it online, over the phone and overseas. It uses money straight from your everyday account, so you can’t spend more than you have.
  - PAYSTREAM – splits your pay into different accounts (e.g., transaction account, bills account) before you even see it.
  - ALERTS – get an email or TXT from us to let you know when key things happen on your account, like a failed automatic payment. This gives you time to make a deposit before we try the payment again the next day, so you can avoid penalty fees.
  - SWEEP & DYNAMIC SWEEP – set up your accounts to automatically sweep money between them so your money is exactly where you want it to be.
  - AUTOMATIC PAYMENTS, BILL PAYMENTS, DIRECT DEBITS – set up payments to go out, or be automatically taken out of your accounts on specified dates.
- Remember that if you’ve got an automatic or future payment set up and it falls on a public holiday, the payment won’t be put through until the next business day.

From these suggestions, I’d say the Client Alert (via email or SMS) is the one with the most potential to work. This suggestion goes along what Simple and Moven already do notify the customer on every transaction he makes and show the balance after the transaction fact.
15. KIWIBANK

- The PayStream feature

"With PayStream, your pay can be split to go wherever you need it — before you even see it."

- The objective is to allocate the user's income automatically, to whatever account the user decides, according to his objectives (Savings account, everyday account, etc.). By setting aside money before the client even sees it, as available in his current balance, it will be easier for him to achieve his Saving Goals.

- The user can choose to split a certain percentage of the pay/income, or a dollar amount.

- Kiwibank doesn't cater this service for free; it's only free for 30 days after the user opens his account and then there's a $3 set up or change fee.

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15. KIWIBANK

- The Sweep feature

"Make sure you always have money where you need it. You can choose to automatically sweep money to or from different accounts when they reach your chosen minimum or maximum amount."

- The user selects a minimum and maximum amount to keep in his everyday account. Everything over the maximum is automatically transferred (swept) into another nominated account. This helps the user save and earn maximum interest, or keep money aside for bills.

- If the balance falls below the selected minimum, money is swept back from another account, so there's always enough for everyday expenses.

- Sweeps occur at the end of each day.

- Again, this service isn't Free, although Free for the first 30 days after opening an account, after that period there's a $3 "set-up or change fee".
15. KIWIBANK

- The Goal Tracker feature
  “Make sure you always have money where you need it. You can choose to automatically sweep money to or from different accounts when they reach your chosen minimum or maximum amount.”

- The feature is equal to every other Goal Saving feature (the user selects the amount to save and the timeframe and the service allocates money for that, each day). What may be interesting about this feature is the visual representation of the outcome:

  ![Goal Tracker Image]

15. KIWIBANK

- The Automatic Payment feature

  “Automatic payments are perfect for paying fixed amounts regularly, like your rent or savings.”

- The user can set these payments to happen as often as he wishes: weekly, fortnightly, monthly, six monthly, annually or on a certain date of a certain month.

- The user can also set an end date to these automatic payments.

- The user can align this feature with others that Kiwibank provides: Sweep & TXT or email alerts. With these, the user can receive alerts when there’s less than a certain amount of money in a given account and sweep money from one account to another in order to have the money ready at the right place at the right time when the Automatic Payment occurs.

  ![Automatic Payment Image]
15. KIWIBANK

- The Alerts feature

"Get a free text or email when key things happen on your accounts."

- The user can choose to be sent a notification by email or text message when certain things happen in his account. These are:

  - The account balance falls under a set limit
  - The user receives deposits over a certain amount
  - A regular automatic payment can’t be paid - usually because there isn’t enough money in the account. Kiwibank will try the payment again the next business night, so this alert gives the user a chance to transfer some money and avoid a dishonour fee. The user will also get this alert if a scheduled one-off payment fails.
  - A regular automatic payment or a scheduled one-off payment dishonours after failing for the second consecutive time
  - A direct debit fails because there’s not enough money in the account.

16. The PocketSmith Income vs. Expenses bar

PocketSmith developed a bar of Income vs. Expense for a given time period which displays a percentage of how bigger one item is in relation to the other.

The formula to get to the percentage is:

\[ \frac{Income - Expense}{Income} \]

This slightly different display in comparing Income to Expense might be useful for some users, as some prefer to see a number as an indication of their financial health instead of a mere bar.

The competitive advantage of PocketSmith, however, is not this simple bar but rather its flexible budgeting options.

PocketSmith analyses current spending and on this basis it creates a "projection of future balances". This budget can be done for every time span (day, week, month, etc.) and starting at any day the user wishes.
17. CONCLUSIONS

- All in all, it’s easy to note that Millenet stands out in the Polish domestic market as the best online platform in the market, outweighing the big 5’s in quality. Millenet is also well positioned in comparison with other foreign PFM providers but lacks a few features that will prepare the platform to be amongst the best in the near future. These are:

- 1. Adapt Simple’s Safe-to-Spend notion to Millenet, with a new table in the PFM’s Main Dashboard displaying this different kind of balance. The feature shouldn’t be exactly like Simple’s (because of the problem explained on slide 21) but rather a “What can I spend today?” tool.

**EXAMPLE:** A client has 10,000 PLN in his account, a saving goal worth 300 PLN in 30 days and an upcoming expense worth 500 PLN in 10 days. What would be the “What can I spend today?” value?

**SOLUTION:**

\[
\frac{10,000 - (300 + 500)}{30 \text{ days}} = 306.7 \text{ PLN}
\]

The trick here is to pick wisely the time frame for the calculation. We should go for the number of days until the last expense/saving goal is paid/achieved. Here, is 30. Then, we take the Current Balance and subtract all the expenses the time frame encompasses. Finally, we divide the aforesaid subtraction for the number of days and get the Average amount of expenditure/day so that the upcoming spendings/goals aren’t jeopardized.

- In alternative to this, there could be a Money Vault like GoBank has, wherein the user can storage his money at any given time.

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17. CONCLUSIONS

- 2. Real-Time Notification of Spendings and Balance Status (+ Qualitative Feedback) a la MOVIEI’S MONEYPULSE – compare the current month’s spending to the average monthly spending.

- 3. Timeline representation of what Saving Goals are left to achieve and display of those which were achieved already (a la SIMPLE.com).

- 4. Adapt iGaranti’s iWallet solution for online payments and those in physical stores (using the QR codes).

- 5. Adapt iGaranti’s SmartShopping solution also in conjunction with the social network FourSquare.

- 6. Have less categories for expenses – SIMPLE.com has just 9, whilst Millenet has 16, which then are sub-categorized into 96 (!)

- 7. Base the SmartWatch approach on Instant feedback on Income & Expenses and on the Real-Time current balance display, everyday there’s a movement in the account.

- 8. By default, notify customer on every movement in the Account (or in Limit-situations, like having the balance approaching 0). In addition, let the user edit which movements he wants to be notified of, according to his personal preference and the bank’s criteria (like iKioskBank does with its alerts)

- 9. Have a Sweep feature (based on iKioskBank’s) to swap money from one account to another (of the same user) in case the limits (of minimum and maximum money to have in each account) are crossed.
17. CONCLUSIONS

- Adapt ING's Smart Saver to Millennium have a tab which enables the user to allocate a certain selected percentage of a transfer to a savings account.

- There could be a bar comparing Income and Expenses in percentage, like PocketSmith has. This way, the user would have a clearer vision of how bigger one category is in comparison with the other.

- Have a feature like Kiwibank's PayStream, which takes some part of the user's income automatically to a Savings spot before he even sees it. The user, with this feature, could determine which percentage or amount of income would be destined to this Savings spot.

Some other conclusions can be drawn from a Commonwealth Bank of Australia report. This report is based on an initiative called IdeaBank, whereupon the bank's employees contribute with ideas to develop the bank itself in exchange for potential rewards (if the idea is well-accepted).

The report highlights some ideas for Online Banking as standout for the next few years:

- View Receipts online automatically
- Have a Family Personal Finance Manager; a same tool of this sort for Saving Goals common to all the family (Joint Goals and/or Joint Accounts)

Miscellaneous Suggestions:

- (Based on Garanti's iGaranti service) iGaranti connects Facebook, Twitter and FourSquare to help users send money to friends and family. Millennium could do something similar.

- The iGaranti feature is described by the website BankingTech.com in the following: "users will send payments to friends via Facebook, tweet relevant offers on Twitter and redeem location-based shopping offers while on the move. The service includes hands-free voice control for money transfers, a mobile wallet to make in-store payments from multiple credit cards, use of QR codes at point of sale, and mobile cash withdrawal. An avatar is attached to the top of every page, which can give advice based on what the users doing."

(a bit redundant) Millennium should improve its online PFM tool by advancing their Near-Field Communication payment policy, turn their saving tools into more intuitive and helpful mechanisms for the customer and improve the way of notify customers on their account movements (all in an effort to help the client best control his finances).
ANNEX 8: SURVEY USED TO GATHER ANSWERS AND ITS RESULTS

Q1
The quick following survey - lasts 5 minutes to fill - aims at accessing Polish people's interest in possible improvements of Millennium Bank’s Homebanking platform. The goal here is to check if there is demand for these improvements.

What is your favorite channel to perform banking-related tasks?

- Online
- Branch
- Phone

Q2
Have you ever used a homebanking platform?

- Yes
- No

Q3
If yes, how many times a week do you access your account's homebanking platform?

- 4x a week
- 3x a week
- 2x a week
- 1x a week
- Less than 1x a week
- I never accessed a homebanking platform

Q4
How would you rate your experience as a user of an Online Homebanking platform?

- Excellent
- Very Good
- Good
- Fair
- Poor
- Very Poor
- I never accessed a homebanking platform

Q5
Bank Millennium is considering introducing a new Safe-to-Spend tool to be used as part of their Personal Finance Manager tool. This innovative feature would indicate a daily Safe-to-Spend balance value: the amount of money in the account the user can spend daily without jeopardizing upcoming expenses and Saving Goals chosen by himself.

How interested would you be in this feature?

- Very interested
- Somewhat interested
- Not much interested
- Not interested at all
Bank Millennium is also considering introducing a new Alerts feature which gives instant notice to the user, when a current monthly expense is about to reach the average monthly expense in that same category. This would hopefully help the user manage his expenses in a more rational way. The alert would be accompanied by a circular bar similar to the one shown below.

How interested would you be in the before-mentioned feature?

- Very Interested
- Somewhat Interested
- Not much Interested
- Not Interested at all

Plus, Bank Millennium is taking into consideration a new Savings Goals feature wherein the user can define a certain amount to save and the time to achieve it. The platform would then present a daily-updated progress on the Savings through colored timelines, each indicating what amount of money is necessary to reach the goal identified. The layout of this feature would be somewhat similar to the following:

How interested would you be in this feature?

- Very Interested
- Somewhat Interested
- Not much Interested
- Not Interested at all
Answers to the Questions:

1. How interested would you be in this feature?
   - Very Interested
   - Somewhat Interested
   - Not much Interested
   - Not Interested at all

2. Do you think these suggestions, if all implemented, would significantly improve your home banking experience?
   - Yes
   - No

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<th>Answer</th>
<th>Response</th>
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</tr>
</thead>
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<tr>
<td>1</td>
<td>Online</td>
<td>31</td>
<td>86%</td>
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<tr>
<td>2</td>
<td>Branch</td>
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<td>3</td>
<td>Phone</td>
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<td>Total</td>
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</tr>
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<td>2</td>
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<tr>
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<td></td>
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### 3.

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<tbody>
<tr>
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<td>4X a week</td>
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<td>2</td>
<td>3X a week</td>
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<td>3</td>
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<td>Less than 1X a week</td>
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<tr>
<td>6</td>
<td>Never accessed a homebanking platform</td>
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### 4.

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</thead>
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<td>1</td>
<td>Excellent</td>
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<td>11%</td>
</tr>
<tr>
<td>2</td>
<td>Very Good</td>
<td>11</td>
<td>31%</td>
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<tr>
<td>3</td>
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<td>5</td>
<td>Poor</td>
<td>1</td>
<td>3%</td>
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<tr>
<td>6</td>
<td>Very Poor</td>
<td>0</td>
<td>0%</td>
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<tr>
<td>7</td>
<td>Never accessed a homebanking platform</td>
<td>2</td>
<td>6%</td>
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<tr>
<td></td>
<td><strong>Total</strong></td>
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<td><strong>100%</strong></td>
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### 5.

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<td>4</td>
<td>11%</td>
</tr>
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<td>2</td>
<td>Somewhat Interested</td>
<td>19</td>
<td>53%</td>
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<tr>
<td>3</td>
<td>Not much interested</td>
<td>12</td>
<td>33%</td>
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<td>4</td>
<td>Not Interested at all</td>
<td>1</td>
<td>3%</td>
</tr>
<tr>
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### 7.

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<td>7</td>
<td>19%</td>
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<td><strong>100%</strong></td>
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