



Banking Systems Survey 2015/2016

**Technology challenges for
Dutch banks in the digital era**

May 2016

KPMG.nl/financialservices



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Executive Summary

In KPMG's 2016 Banking Systems Survey we highlight several IT developments within the Dutch banking sector, covering human resources, IT strategy and core banking systems and technology trend innovation.

The digital revolution causes banks to become increasingly IT-driven companies. As their customers embrace online banking, banks can often close a significant number of their branches and lay off staff. Back office straight-through processing enables the operational staff reductions. As a result of such developments, the relative size of banks' IT staff continues to increase in proportion to overall staffing resources.

Keeping up with the pace of the digital revolution puts a serious strain on banks' core IT systems. To a large extent, banks in the Netherlands continue to run on in-house developed banking platforms. Banks also continue to be very satisfied with these platforms because they can be tweaked to meet their specific business requirements. However, these

'home-made' systems are usually not as cost-effective and future-proof as banking systems or software packages available from external vendors.

Going forward, banks generally favor a 'package strategy', but whether they will indeed start to replace their in-house build systems in the next few years remains an open question. Budget constraints may force banks to postpone such investments; banks face many challenges, responses to which all compete for a part of banks' IT budgets and resources.

Clearly the biggest challenge to their IT systems, as reported by the banks themselves, is the further digitalization of processes and customer interactions. Up to now, the steps banks have taken in

this area are generally somewhat narrow in scope and boil down to a 'mobile first' approach. The potential to enrich the 'customer journey' using a fact-based and data-oriented approach are not explored as thoroughly as might be called for.

Among the other challenges that demand much of the banks IT budgets and capabilities are the slew of new regulation that banks have to implement; the many Fintech companies that continue to build momentum; grasping the opportunities that arise from the advances in big data & analytics and, as ever, the need to improve cost-effectiveness. The ability of banks to deal successfully with these challenges is going to determine how they will fare in the digital revolution.

Introduction

There are no shortage of publications on trends in banking. KPMG has contributed to this discussion and we consider the seven trends shown here as the ones that will have the biggest impact on the banking sector.

This fourth edition of our Banking Systems Survey adopts a specific perspective: it provides a survey of the Dutch banking industry as seen through the eyes of banks' IT leadership. It tries to link trends in business, technology and consumer behaviour to banks' IT strategies by answering questions such as what IT strategies the Dutch banks have developed to deal with the future of banking? What kind of IT systems do they currently use? Will Dutch banks invest in new platforms? Is IT leadership at banks aware of the current trends in Fintech and how do they think these

trends are likely to disrupt their companies? Do banks have sufficient funding for digitalization or is too much of their IT budgets spent on regulatory improvements?

In the previous survey from 2012 the most relevant trends we addressed were cloud computing, mobile banking and cyber crime. Many of the current trends fall under the header of the 'digital revolution': digitalization, client centricity and data analytics. Despite the changing trends – the exception is new regulation that keeps putting pressure on banks' IT systems and budgets - the functional technology platform of the banks is still remarkable stable. This survey examines how well equipped banks are to deal with all the new trends, developments and challenges they face.

Seven trends

The age
of the
customer



Digital
& Mobile



Data &
Analytics



(Cyber)
Security



Sourcing
& partner-
ships



Emerging
Mobile
Payments



Regulation



About the survey

KPMG IT Advisory has examined the issues and trends most relevant to banks in the Netherlands with regard to their core banking systems. We define core banking systems as applications responsible for core banking functions, such as processing and posting of transactions, accounting, maintaining accounts, managing securities positions and clearing payments.

This publication provides the results of the 2015/2016 KPMG IT Advisory banking systems survey for the Netherlands. This survey is conducted periodically (the previous one was published in March 2013), and is based on structured interviews. The questionnaire was developed by a team of KPMG IT Advisory professionals, specializing in the financial services industry. Furthermore, we included our vision on trends we perceive in the banking sector in the Netherlands. The report may be of interest to any bank currently preparing its IT services to accommodate future growth and transformation.

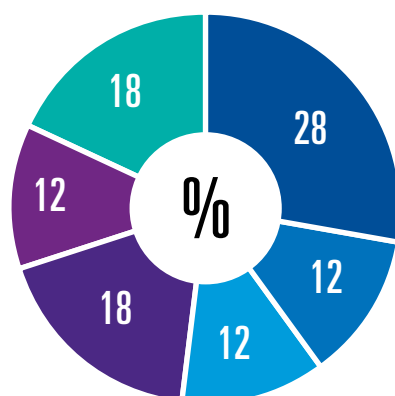
Participation

We have surveyed banks whose main focus is on the Dutch market. The seventeen banks that participated in the survey form a representative sample of the Dutch banking industry, as they include banks with a variety of sizes and target markets. Only one large Dutch retail bank did not participate in this survey. Half of the participants are active in multiple target markets, and retail banking is the market segment that is targeted by the largest number of participants (nearly 80%). The participating banks are also active in the wholesale and private banking segments, as well as a combination of all three segments. Refer to Figure 1A for details.

The functions that our interviewees hold are shown in Figure 1B; half of them are either the COO or the IT Director of their organization.

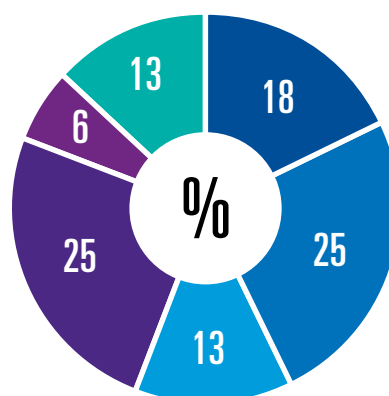
Fig. 1: Participation

1A: Target markets of participating banks



- Retail only
- Private only
- Wholesale only
- Retail and private
- Wholesale and retail
- Universal

1B: Position of respondents



- CIO or CTO
- IT Director
- IT Manager
- COO
- CFO
- Other

Trends in IT Staffing



The relative size of the IT staff within banks has clearly increased over the past decade. It is our expectation that this trend will continue in the coming years, as IT knowledge and capabilities become increasingly relevant to banks.

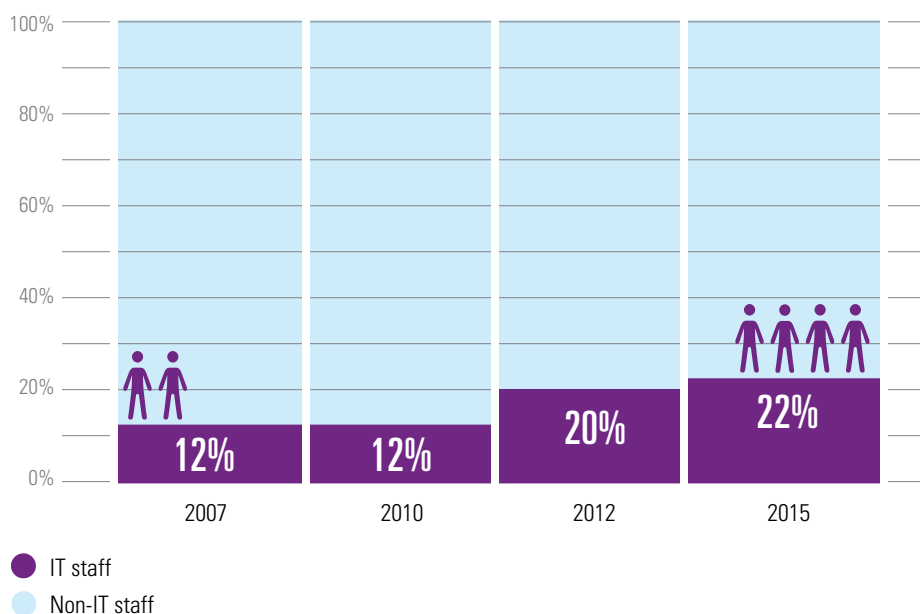
Based on the results from this survey and previous editions, we see that the number of staff in the IT domain has, in relative terms, doubled since our first survey in 2007. Nearly one in four bank employees is now a member of the IT staff. This trend is in line with the developments within the banking sector: further digitalization, straight-through processing (causing a reduction of Operations staff members in back offices), the development and increased use of mobile channels and, as a consequence, the closing of physical branches all contribute to a proportionally larger IT staff.

We expect that this trend will continue in the coming years. Banks will increasingly become IT-driven companies in which the quality and the capabilities of their IT systems and staff will be critical to the profitability of their business operations and, in the end, their continuity. In the words of Francisco González, chairman and CEO of BBVA, a Spanish bank: “Banks need to take on Amazon and Google or die.”

Frontrunners are already taking steps in this direction and are organizing themselves in new ways by bringing business and IT closer. As a result,

the adistinction between IT and non-IT staff may be fading away. Take for example the case of ING Netherlands that has adopted the ‘Spotify model’ in an effort to increase its innovation power in the digital space. ING implemented an agile way of working and reorganized into squads, chapters and tribes in which employees from various business and IT disciplines work together. As a result, these teams are now able to release new software versions in shorter periods, and have helped boost efficiency and quality at ING in significant ways.

Fig. 2: IT staffing vs. non-IT staffing of NL employees



Systems & Sourcing

The use of in-house built core banking systems remains high within Dutch banks, and banks continue to be very satisfied with these systems. Nevertheless, these systems might have to give way to packages from external vendors as these offer a number of advantages.



Make or Buy?

An essential part of banks' IT systems strategy is the make-or-buy decision. According to our survey results, around half of the banks in the Netherlands currently still operate on banking platforms that they developed in-house. Figure 3 shows the breakdown of these results into three separate banking domains: Liabilities (payments, current accounts,

savings), Assets (loans, mortgages, credit cards) and Capital Markets (securities trading, treasury). For Assets and Liabilities, in-house and package solutions are used in nearly equal measure. For the Capital Markets domain we notice that almost all banks rely on package software, and only two specialist banks make use of in-house developed systems.

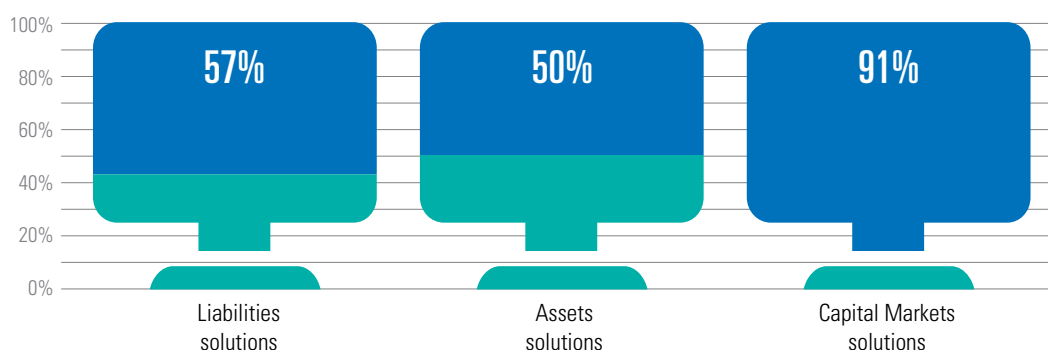


Fig. 3: Percentage of in-house development versus package solutions per domain

● In-house development
● Package solution



Since around half of the banks still operate predominantly on in-house developed systems, whereas a three-quarters majority reportedly have a 'package' strategy (see below), we should expect several projects in the coming years to replace in-house platforms. In our 2012 survey however many banks also indicated a desire to replace their legacy systems. In practice though we see little movement or activity within banks when it comes to replacing legacy core platforms.

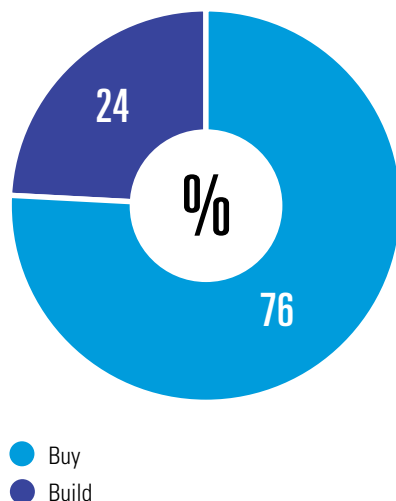
In general the pay-back period for a back-end replacement project is very long, often 6 years or more. This, in combination with the significant complexity and execution risk associated with such project, is why many banks postpone these kind of investments. Instead, banks have focused most of their resources on implementing regulatory requirements, and have developed mostly on the customer front-end rather than making investments in their back-end platforms. Regulatory requirements will remain an important driver for banks'

IT systems strategy (see Chapter 6), which might lead banks to further postpone replacement of their in-house developed platforms. On the other hand, new regulation, specifically the Payment Services Directive 2 (see Chapter 5), may force banks to finally overhaul their core banking platform.

With respect to future replacements of, or additions to their core banking platforms, a large majority of banks (76%) report a preference for buying software instead of making bespoke application software. As a side note, we find it remarkable that outsourcing or BPO was not mentioned by any of the responding banks. This is perhaps explained by the complexities and far-reaching consequences associated with outsourcing, and by a lack of service providers in the Dutch market with the required maturity and size. The exception in this regard is the servicing of mortgages, where third party service providers like Stater and Quion have gained a significant position in the market.

Satisfaction with software

Fig. 4: Buy or Build?



With respect to future make-or-buy decisions, four banks, representing 24% of the population, report that they will continue the developments of new applications on their in-house build platforms. The continued development on in-house build platforms is fed by how satisfied banks are with these: almost all banks with a predominantly in-house application footprint report a 'high' satisfaction (see Figure 5).

Satisfaction with banking software packages is noticeably lower, mostly 'medium'. Only for small parts of the application landscape (e.g. one mortgage and one savings platform) did banks mention a 'low' satisfaction.

These results beg the question of why banks have a strategy towards package software when their satisfaction with in-house software is higher. Our hypothesis is that packages are seen as less flexible to a bank's specific business demands, and hence as less satisfactory, but that this drawback is outweighed by the fact that packages are usually more cost-effective and future-proof, and that packages offer banks a way to 'outsource' part of the effort needed to implement new regulation.

Banking Software vendors

In our survey we asked banks about their software suppliers. The market for core banking systems in the Netherlands is characterized by the presence of numerous vendors, all competing for the attention of a limited number of banks. No single software vendor dominates the Dutch market. See figure 6 where systems used by the respondents per function are shown.

Fig. 5: Satisfaction with current IT platform

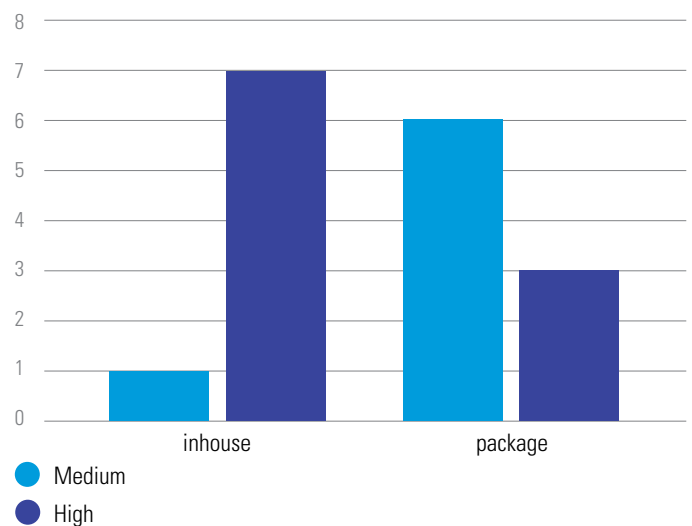
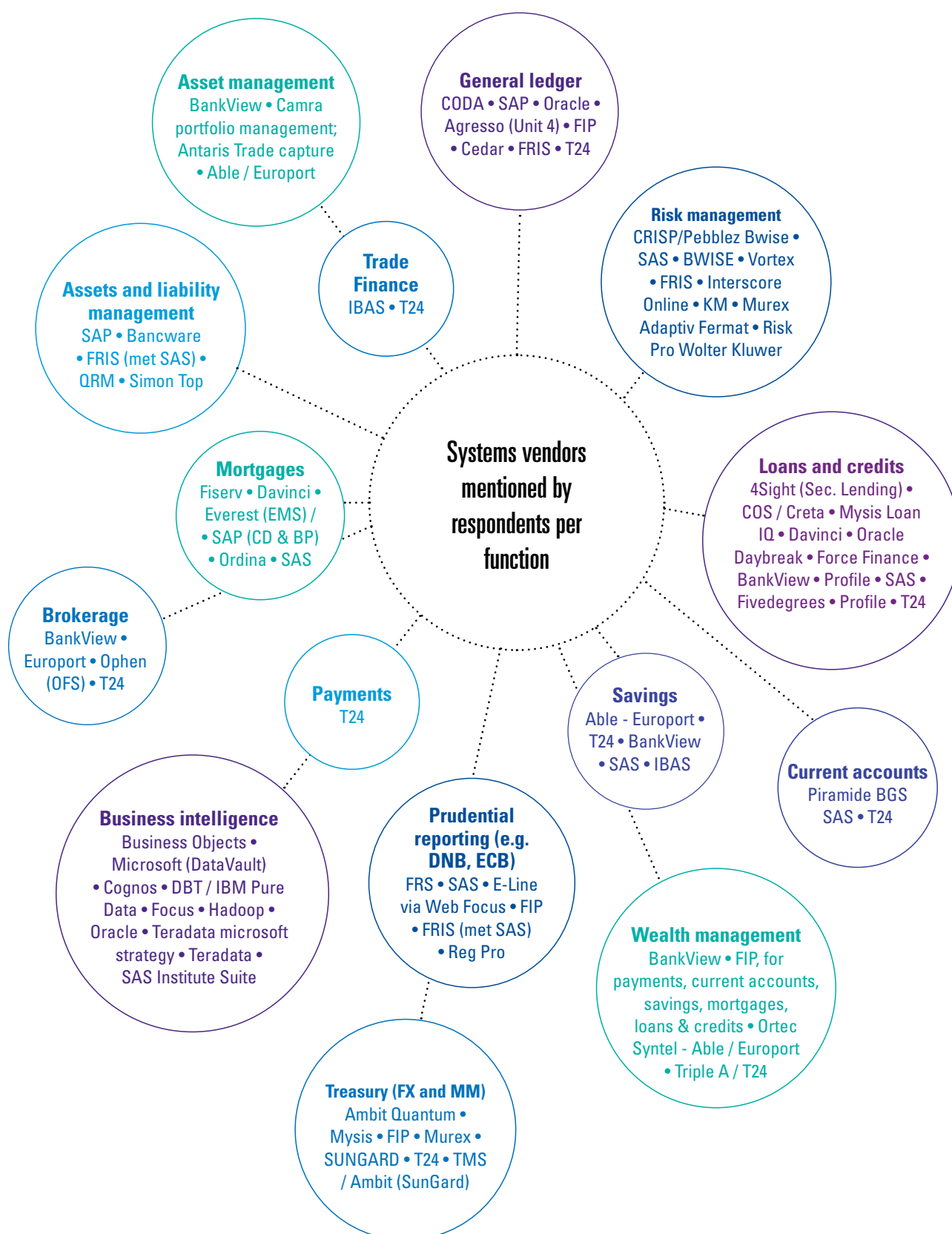


Fig. 6: Systems mentioned by respondents per function



Compared to the 2012 survey there has been limited adoption of new packages in the Dutch market. None of the large core systems vendors increased their footprint in the Dutch market. It is remarkable that small Dutch software vendors have a relatively strong position on this market; Able, Piramide, Topicus, and Five Degrees are good examples.

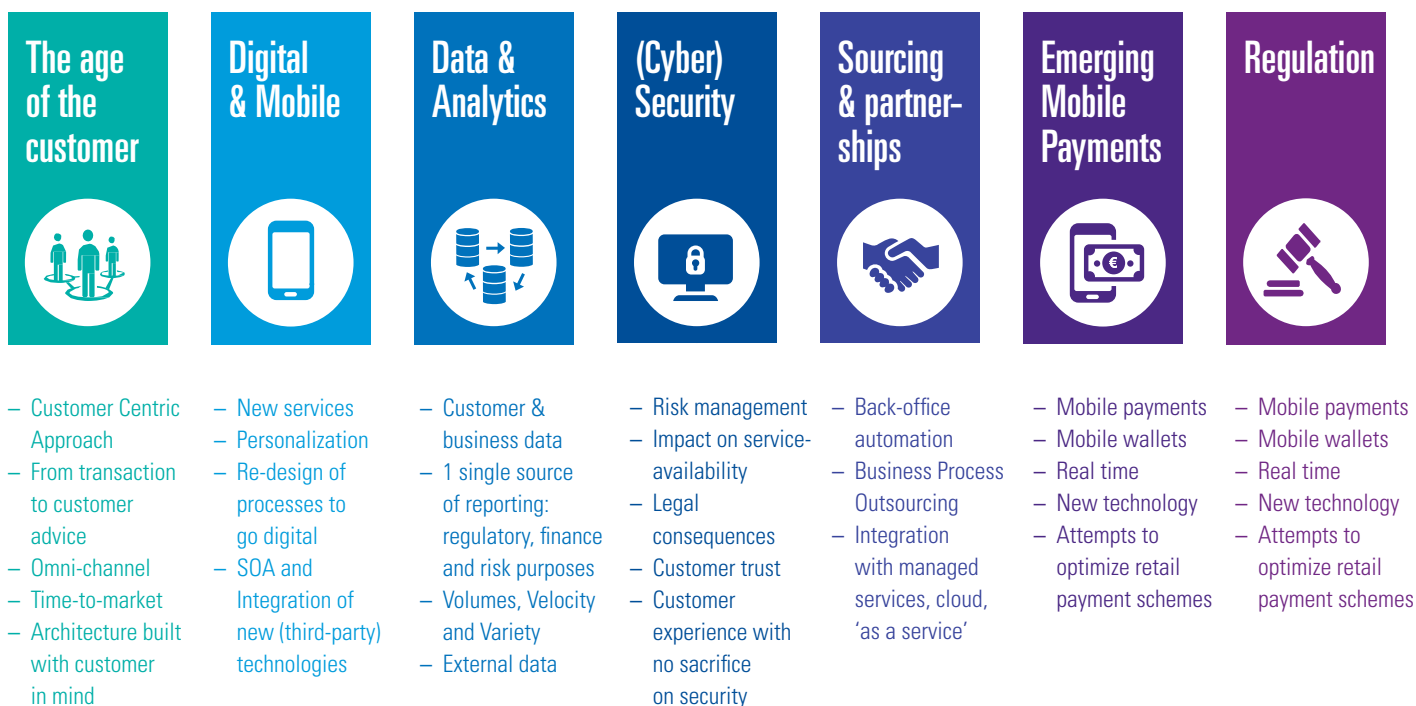
Our observation is that most Dutch banks follow a 'best of breed' strategy, whereas hardly any bank follows a 'suite' strategy. For each banking process a package solution is available, however for most functions the in-house solutions are most frequently used. This implies that the connectivity layer between the applications is of critical importance to Dutch banks. Some banks have invested in the middle-layer connectivity platforms with the reuse of services in mind. Other banks still take a more ad hoc approach in connecting the back-end systems with the flexible front-ends.

Trends in Banking

In the remainder of this publication we will discuss a select number of trends in banking that have specific implications for banks' IT systems strategy. KPMG has identified seven such trends; they are shown in Figure 6.

These trends, which we discussed with our interviewees, overlap to a large extent (as one would hope) with the IT challenges and developments identified in this survey by the banks themselves (see Figure 8). Of all such developments, the increasing need for the digitalization of banking processes and customer interactions is clearly perceived by banks as the biggest challenge to their IT systems strategy. We will discuss this topic further in the next chapter on Customer Centricity; a topic that is closely related to digitalization as many interactions with customers are through digital processes.

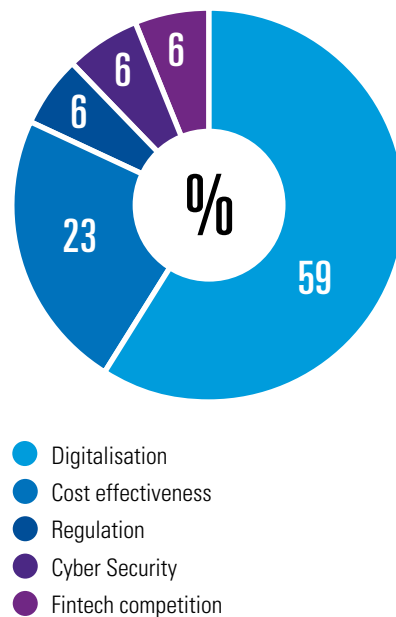
Fig. 6: Seven Trends - Summary



The second most important driver for their IT systems strategies is cost-effectiveness. According to the banks in our survey, one in four mention cost effectiveness as the primary driver. Business perceives the IT costs in banks as high. The legacy systems often operate on costly mainframes and making changes in the complex environment is also an expensive journey. We believe one of the reasons banks have limited room for costs savings initiatives is that they have been too busy implementing new regulation and with the money left, they choose to invest in the front-end tools to provide fast business value.

Other IT challenges mentioned by banks that we will discuss in the remainder of this report are competition from Fintech companies (Chapter 5), the ongoing stream of new regulatory requirements (Chapter 6) and the need to beef up their capabilities in data analytics (Chapter 7).

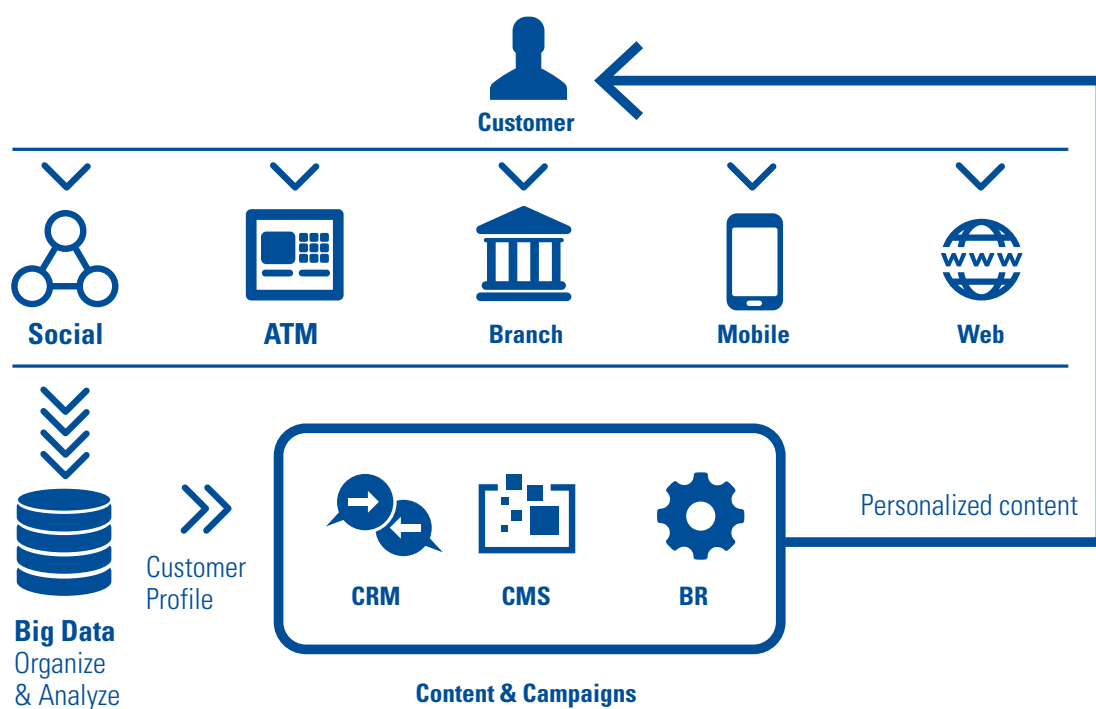
Fig. 8: IT challenges



Banks are forced to embark on large projects to simplify the old mainframe complexity in order to stay competitive from a cost perspective and to be able to meet the functional demands. ”

Alex Brouwer, Director KPMG Financial Services





Customer Centricity

Banks' efforts to put customers front and center may be too narrow in scope. There is room for a more fact-based and data-oriented approach to enrich the customer journey.

We have identified Customer Centricity as one of the most important trends in banking, as it is a prerequisite in 'the age of the customer'. Customer Centricity involves understanding customer needs and ensuring that the right internal and customer-facing strategies, processes and marketing initiatives are in place to satisfy the customers. From our survey we learned that the main approach to achieve Customer Centricity and to respond to 'the voice of the customer' is a Mobile First strategy.

Banks indicate that the mobile channel is becoming the preferred channel, especially for information gathering and increasingly for transactions as well. Customers demand to receive the same information irrespective of the way they contact their bank. Responsive websites are therefore a necessity. When in touch with banking employees, no matter where they are located, customers assume that these employees are knowledgeable about their situation as a customer.

Banks frequently mentioned an intention to improve their customer interactions by creating frictionless, hassle-free customer journeys that contribute to improved Net Promoter Scores. They specifically plan to invest in what is called an omnichannel customer experience. The requirements for such an omnichannel experience present significant challenges to the IT architecture. It requires the various channels to be aligned in relation to the processes and the data. Especially the batch-oriented back-end systems will encounter challenges.

We expected more banks to use fact-based data-oriented approaches regarding the customer journey. From our discussions with banks' IT leadership we conclude however that they are not actively involved in this discussion let alone driving it. That might have been expected given that banks are traditionally product-oriented in line with their organizational

structure. We believe however that the digital revolution warrants a closer and more active involvement from IT leadership and staff in business and commercial matters, for instance what ING is doing in the aforementioned example. The availability of data currently allows for a fact-based customer view (without having to change the sometimes sticky banking hierarchies). In our observation, banks do not yet explore such approaches thoroughly enough.

The transition towards digital banking is undisputed. Digitalization, standardization and rationalization may seem attractive approaches from a banking perspective. However the difficulty is to stand out in a more transparent digital world. Combining flawless digital banking with a human touch might be an attractive choice.

We conclude that although banks communicate that they are working on 'the voice of the customer', the majority of their actions narrow down to implementing standardized Mobile First approaches. Not all banks have a maturity level where they can use hard data to develop real Customer Centricity concepts, and this lack of maturity causes them to remain stuck with Mobile First.

“Customer Centricity:
time to act on facts.”

Ank van Wylick, Partner Fintech and
Innovation Execution

Fintech Developments

Fintech developments continue to gather momentum. Traditional banks may not be as immune to their disruptive powers as they seem to think.

In 2015, global private equity investments in Fintech companies reached a record high of \$ 19.1 billion, double the amount invested in 2014¹. In our survey of Dutch banks we discussed with them the most relevant Fintech developments and asked if they thought their business and even their company would be disrupted by the Fintech companies pushing those developments. A majority (65%) answered that they did not believe that Fintech would disrupt their company.

We found this quite surprising as we believe Fintech certainly has the potential to bring upheaval to the Dutch banking landscape. So does DNB, it seems. In its latest Overview of Financial Stability², it warns that technological innovation can increase the pressure on the business models of traditional institutions. DNB explicitly states: "For the financial sector it is important to be prepared for the challenges that Fintech brings along."

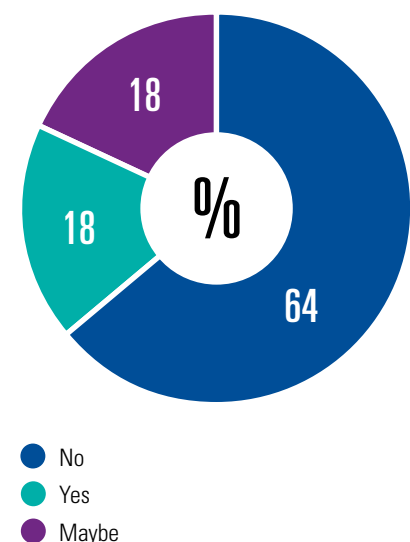
A revenue loss of around 20% to online sales channels has massively disrupted many retail outlets, to the

point where a number of them, including some venerable chains, have recently gone bankrupt. Banks, with often high cost-to-income ratios, would certainly be disrupted by a revenue loss of that magnitude. Fintech companies are eating away at traditional bank revenue from a number of directions: crowd funding platforms continue to grow; pension funds invest directly in mortgages that are distributed with the aid of Fintech; start-ups offer bank accounts and payments services, and so on. This is how elephants are eaten: one bite at a time.

Asked what the impact of Fintech developments on their IT systems strategy would be, the majority indicates that these developments do not have an impact yet. One bank mentioned that it is investing in open architecture with a modern integration layer in order to be able to quickly implement and benefit from successful Fintech solutions. In the UK we see developments in standardizing Application Programming Interfaces (APIs) for banking processes.



Fig. 9: Will Fintech be disruptive to your company?



¹ [The pulse of Fintech 2015 in review](#)

² De Nederlandsche Bank, Overview of Financial Stability, spring 2016 (p.42).



Three of the banks that we surveyed indicate that Fintech companies do form a threat to their existence. The most relevant threat to the banks in this respect is the new Payments Services Directive 2 (PSD2) regulation that will be in effect from 2018. PSD2 will not only require banks to make a large investment due to the required adjustment of the batch-oriented systems in the payments chain, it will also reduce banks' existing revenue streams and introduce a whole wave of new competitors. Based on PSD2, new Fintechs can consolidate account information from the banks' customers in one place. With this data, they can develop cross-selling opportunities.

The threat that was mentioned by two private banks is Robo Advisory: an online automated, algorithm-based investment advice for wealth management. In the market we have indeed noticed several successful initiatives in this area, such as Betterment and Wealthfront.

Finally, it is mentioned that the payment industry will not only be affected by PSD2 but that the BlockChain technology, as used for the BitCoin currency, could be very influential. Many banks have joined consortia to invest in BlockChain pilots together with giants from the technology industry, such as IBM and Microsoft.

“

There is a substantial part of retail banking revenues at risk due to new incumbents that challenge the status quo. Although I don't believe that there will be a single startup - the Uber for banks - that will disrupt the industry, the competitive field has definitely become much more interesting. ”

Daniel Horn, founder KPMG Innovative Startups & Fintech Watcher

Regulatory Requirements

Efforts to comply with a host of new regulatory requirements eat up a sizeable portion of banks' IT budgets and resources. This may compromise necessary improvements in their core banking systems and the development of new commercial offerings. On the other hand, these efforts may also lead to new competitive advantages.



Regulatory developments may not have been mentioned by most banks as the primary IT challenge they face (see Figure 7), we know from experience and day-to-day contacts with many of the banks in our survey that new regulations place a real burden on banks' IT resources. On the regulatory agenda we see that banks will continue to be hit by a wave of requirements coming from the European Union, the European Central Bank and national regulators (see table on page 19). How severely the impact of regulatory developments will be on banks' IT systems, processes and data management varies between banks. It will depend on their size and complexity of activities and their available knowledge and resources. Over 80% of the banks stated that they are addressing topics like Basel 3, IFRS 9 and MiFID II where applicable. For the other banks the status on these requirements were not always known by the interviewee. We find it remarkable that data privacy was not mentioned more often by the banks. We would expect this topic to be high on banks' agendas due to the fact that the Dutch law on data leakage ("Wet Meldplicht Datalekken") came

into effect as of the 1st of January 2016. This law has a direct impact on processes and IT systems within a bank. We also noticed that not all the IT representatives we interviewed were familiar with all the relevant regulatory developments. This might imply that for some of the regulatory issues the IT department needs to be more involved or better informed. The heavy regulatory demands on banks put so much pressure on their IT budgets that developments and investments in new business concepts are running the risk of being underfunded. This presents a big challenge: banks need to find a right balance between coping with the regulatory demands and being able to develop new business activities to ensure their future competitiveness.

Another challenge that banks mentioned concerns the availability and the quality of data that regulators require, and the level of detail at which banks have to provide data to regulators. The Asset Quality Review (AQR) initiated by the European Central Bank together with the national supervisors, was the first big data request and it revealed

issues with respect to the accuracy and (timely) availability of data; more such data requests are expected in the future. A limited number of the banks are required to comply with the Basel Committee standard BCBS239, which defines a number of principles on effective risk data aggregation and reporting. To deal with the concrete requirements in BCBS239, these banks have to invest significant sums in their IT landscape, their infrastructure, and their organizational and operational structures.

Data quality and reporting efficiency are becoming essential success factors for banks. Regular stress tests and data requests from regulators will put further pressure on banks' IT infrastructures. Keeping up with those developments in the long term is only feasible with appropriate IT architectures. In our vision, banks, even the smaller ones, have to continue to invest further in this area. Our expectation is that all banks will be required to set up a solid risk data aggregation and reporting infrastructure. Vendors of core banking systems must adapt their products to facilitate this change. Meanwhile, we see a new group

“Regulation continues to hit both the core of a bank and the heart of core banking systems.”

Rob Voster, Senior Manager
KPMG Financial Services



of so-called RegTech vendors emerging who position themselves to address this and other regulatory challenges. These RegTech companies aim to control and take advantage of changes in regulations by providing dynamic, agile services that interact with, enhance or replace financial processes and IT systems. In addition to data aggregation and reporting, other examples of RegTech services are the identification and assessment of regulatory changes, regulatory compliance, the analysis of processes affected by regulation, plus the prevention and management of regulatory risk. Many RegTech solutions are build for the cloud, which make them scalable and easily accessible. The RegTech industry is actively supported by a number of European national supervisors. Both the Netherlands Authority of Financial Markets (AFM) and the UK Financial Conduct Authority (FCA) started initiatives to promote innovation in the RegTech space. Both authorities are looking for collaboration to help both the financial sector and its clients.

Regulatory Horizon 2016 / 2018

Legislation abbreviation	Legislation full name	Legislation in force (date)
SFTR	Securities Financing Transactions Regulation.	Jan 2017
UCITS V	Directive on the coordination of laws, regulations and administrative provisions relating to undertakings for collective investment in transferable securities (UCITS) as regards depositary functions, remuneration policies and sanctions.	March 2016
MAR	Regulation on Market Abuse.	July 2016
PAD	Directive on Payment Accounts.	Sep 2016
PRIIPS	Key Information Documents (KIDs) for packaged retail investment and insurance products.	Dec 2016
AMLD 4	Directive on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing.	June 2017
IFRS 9	International Financial Reporting Standard (IFRS) version 9.	Jan 2018
MIFID II	Markets in Financial Instruments Directive II.	Jan 2018
PSD II	Payment Service Directive II.	2018

Data & Analytics



“The Black Box of banks is becoming bigger and blacker. Data going into the box is becoming more complex, and decisions based on the box are becoming more impactful. We must be able to trust the results of the black box.”

Sander Klous, Professor of Big Data Ecosystems, University of Amsterdam and Managing Director Big Data Analytics, KPMG in the Netherlands

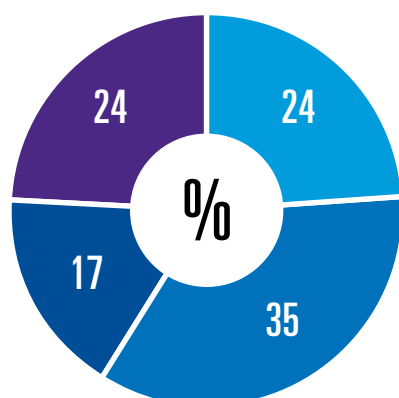
Banks have embraced the use of Data & Analytics. Applications however are mostly found on the 'defensive' end, 'offensive' opportunities are not yet fully explored.

The use of Data & Analytics is clearly on banks' IT agendas. As of this year a majority (76%) of banks are investing in advanced analytics, and 42% of them have been doing so for over a year. On the other hand, one in four banks indicate that they do not have concrete plans to start using advanced analytics.

Of the banks that use advanced analytics, 90% apply it to improve risk and fraud management, and around 80% indicate that integrated reporting across the enterprise is a highly important business outcome of their data analytics program (see Figure 10).

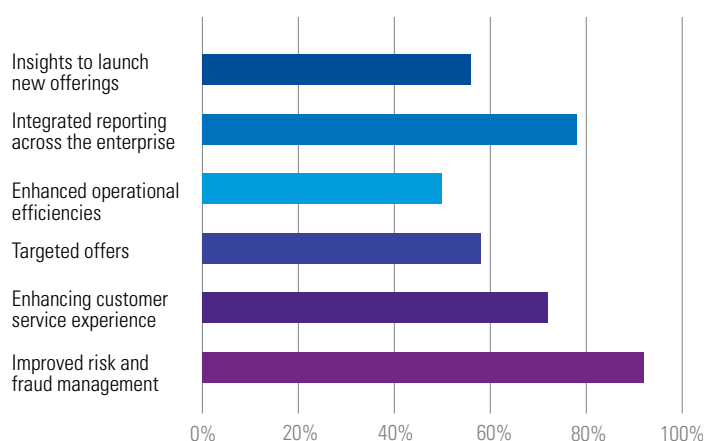
The usage of Data & Analytics is rather restrained given the opportunities that come with the amount of data at hand within banks. Although we see that over 70% of the banks use data analytics to enhance the customer experience, their initiatives are mostly still in an early stage and have so far not produced noticeable results. The banks' careful approach is probably explained by data privacy considerations in combination with the adverse public opinion that banks faced when the idea of commercializing customer data was floated. Another barrier to an enterprise-wide approach for Data & Analytics is the lack of a uniform data banking model that would facilitate the use of Data & Analytics in a variety of ways: the creation of the single customer view, AQR reporting, Ana Credit reporting, collateral management insights, et cetera. We see that IT companies and Fintechs are making more progressive steps in this area, an example in this area is IBM's Watson.

Fig. 10: Investing in Data Analytics



- Not yet
- This year
- In the last 1-3 years
- Longer than 3 years

Fig. 11: Importance of Data Analytics



Conclusion

The findings in this survey combine to paint a picture that does not look very rosy. In general the Dutch banks have a strong reliance on legacy systems; they are limited or, in other cases, much reduced in size; and they face a regulatory burden that is heavy in any case but feels even more so for smaller banks. All this does not put Dutch banks in a very favorable position. Can they afford the necessary investments to keep up with the pace of the digital revolution?

Can they transform into IT-driven companies as fast and decisively as the digital revolution demands? Whereas a number of banks will probably struggle to meet these challenges, we also see some encouraging cases of Dutch banks that seem determined to answer such questions with a clear 'yes'. Such determination is exactly what banks need in order to stand a chance in the digital revolution.





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