

Moving from the Business Strategy to Technology Strategy

(A Top-Down Approach to Strategy Development)

Daljit R Banger MSc FBCS



Enterprise Architecture
Specialist Group

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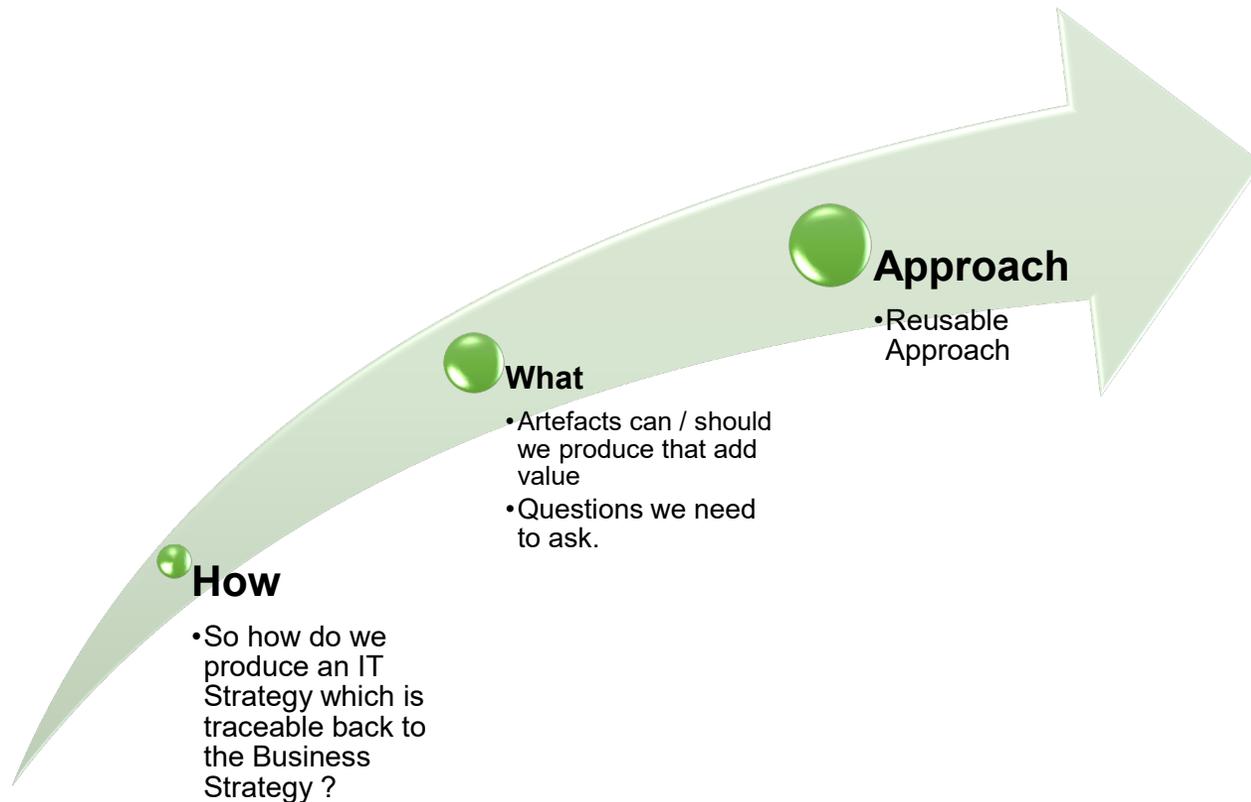
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#EASGAC2019

Agenda

- Exam Question
- Precursor
- A Simple Reusable Pattern for Strategy Development
- Business Architecture / pattern Mapping
- Pattern Discussed using ING as a Case Study
 - *ING*
 - *The Global Business Strategy Extract*
 - *Default Words Extracted From Strategy Extrapolating Technology Themes*
 - Extrapolating – Technology Capabilities Assembling the Elements
- Extrapolating – Technology Capabilities
- Final Message

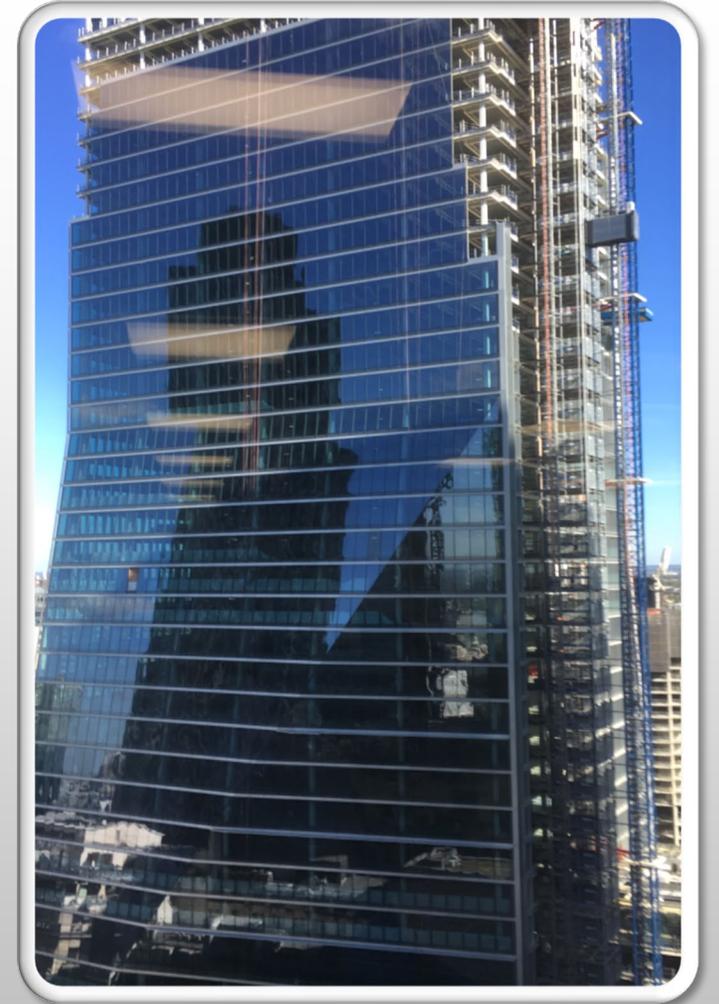
How do we develop the ICT Strategy so that it aligns to the Mission, Goals & Objectives as documented in the Corporate Strategy ?

Remembering Your Strategy is in essence a request to use organisational resources (people, money etc) to achieve a set of defined outcomes



Some Precursors

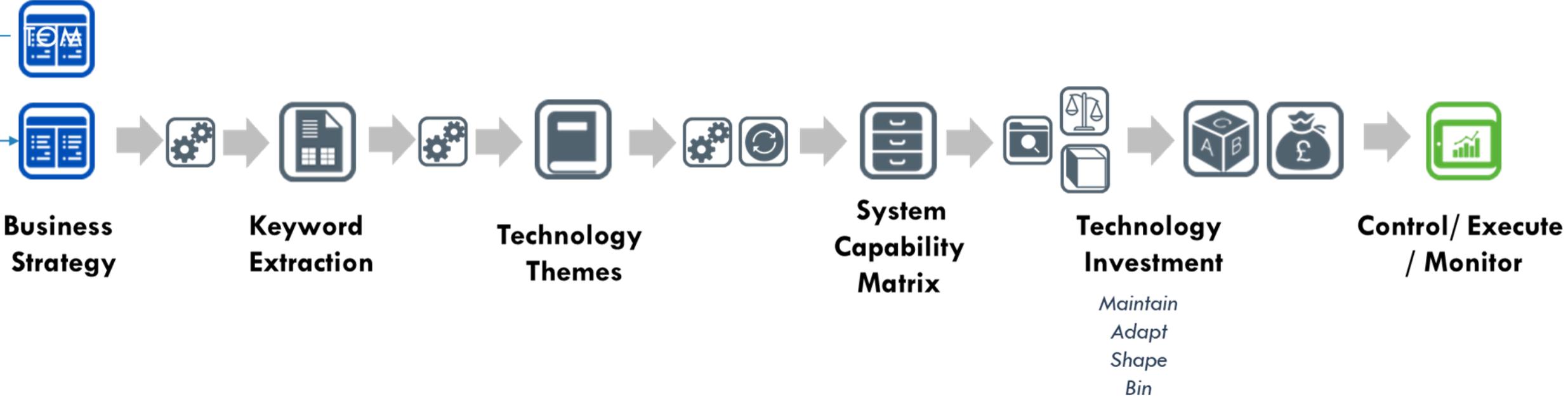
- Understand the Technology ecosystem
- Understand the trade-offs in terms of time and capital.
- Appreciate, if any, the on-going technical debt being accrued by the business
- The Regulatory Compliance required in your markets by the Business.
- Be aware of the unknown knowns i.e. Shadow IT
- awareness of Competitor/New Market Entrants use of Technology
- Disruptive Market Forces at play in your industry
- Mandatory reporting – financial / regulatory



A Simple Reusable Pattern



From Business Strategy to Technology Realisation



Top Down



Bottom UP



To demonstrate the use of the Pattern we will use ING the Dutch multinational banking and financial services corporation headquartered here in Amsterdam as our case.

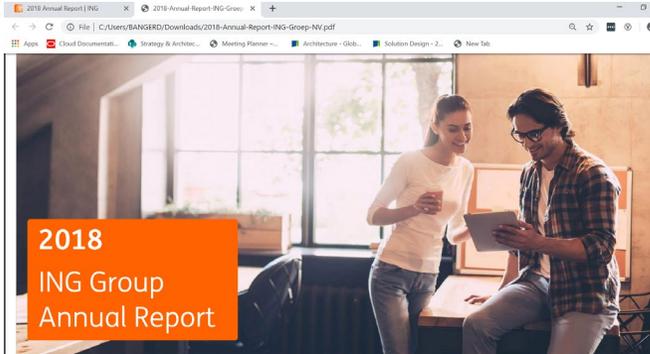
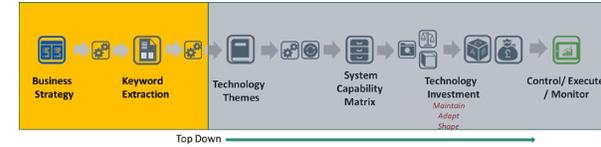
ING's primary businesses are **retail** banking, **direct** banking, **commercial** banking, **investment** banking, **asset management**, and **insurance** services.

Disclaimer

The documentation/direction I will discuss is based on no prior operational internal Knowledge of ING, Its Systems, Processes or People and will only refer to publicly available material (quoting source where applicable) for illustrative purposes only –

I have not discussed the following material with any ING Employee or have any prior knowledge of its operations and the examples can be applied to any similar financial global organisation.

Example Keyword Extraction

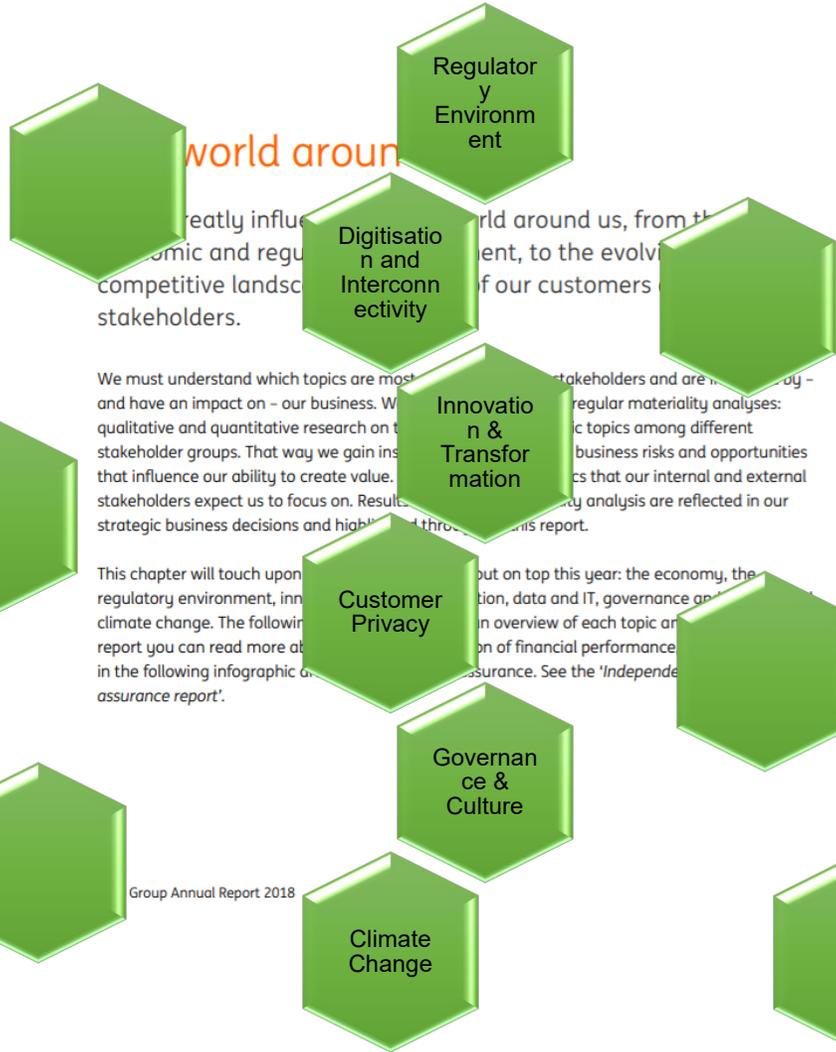


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Source : ING Website

(<https://www.ing.com/About-us/Annual-reporting-suite/Annual-Report/2018-Annual-Report.htm>)

Looking For Key Words – To Map to Themes



greatly influence the world around us, from the economic and regulatory environment, to the evolution of our competitive landscape and the needs of our customers and stakeholders.

We must understand which topics are most important to our stakeholders and are likely to have an impact on – our business. We use a combination of qualitative and quantitative research on the expectations of different stakeholder groups. That way we gain insights that influence our ability to create value. Our regular materiality analyses identify the business risks and opportunities that our internal and external stakeholders expect us to focus on. Results from our materiality analysis are reflected in our strategic business decisions and highlighted through this report.

This chapter will touch upon the most important topics on top this year: the economy, the regulatory environment, innovation, data and IT, governance and climate change. The following report you can read more about each topic and its impact on financial performance in the following infographic of the 'Independent Assurance report'.

Trending themes	Material topics	Our approach and performance
 The economy and regulatory environment	<ul style="list-style-type: none"> Financial performance 	<ul style="list-style-type: none"> Performance highlights table in 'ING at a glance' 'Our strategy and how we create value'
 Innovation and transformation	<ul style="list-style-type: none"> Innovation Digitalisation and interconnectivity Usability and accessibility of our products IT systems and platforms Customer privacy 	<ul style="list-style-type: none"> Innovation section of 'Innovation and transformation' Business transformation section of 'Innovation and transformation' Transformation management section of 'Innovation and transformation' Primary relationships section of 'Our business' Reliability and stability section of 'Innovation and transformation'
 Data and IT	<ul style="list-style-type: none"> Cyber resilience (includes cyber-attacks and data theft / fraud) 	<ul style="list-style-type: none"> The world around us cares about data section of 'The world around us' Data section of 'Innovation and transformation' Security section of 'Innovation and transformation'
 Governance and culture	<ul style="list-style-type: none"> Business ethics and culture 	<ul style="list-style-type: none"> Data ethics section of 'Innovation and transformation' Orange code section of 'Our people' Business ethics and risk culture section of 'Our people'
 Societal challenges	<ul style="list-style-type: none"> Climate change 	<ul style="list-style-type: none"> Responsible finance section of 'Our business'



Group Annual Report 2018

Our strategy and how we create value

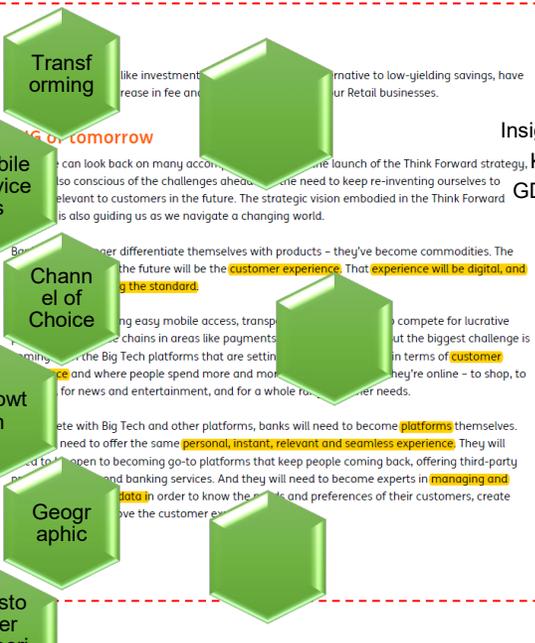
When launched in 2014, the Think Forward strategy anticipated many of the challenges and opportunities that will change in today's financial services market. It continues to show the way as we transform ING to harness the power of digitalisation and platform thinking to create the customer experience of tomorrow.

The Think Forward strategy has provided a blueprint for transforming the customer experience at a time when digitalisation is increasing and mobile devices are rapidly becoming our customers' channel of choice. Inspired by the strategy's Customer Promise – clear and easy, anytime and anywhere, empower, and keep getting better – we have delivered a differentiating digital customer experience through innovations such as digital financial advisors, forecasting tools and instant lending available through award-winning mobile apps as part of an omnichannel approach.

Strong customer satisfaction ratings and a continuing healthy increase in customer numbers show that we are succeeding in staying relevant in a fast-changing market for banking services. The number of retail customers has increased by 1.5 million to 38.4 million. Primary relationships, where customers have a current account and at least one other product, increased by more than a quarter in 2018. And in net promoter score (NPS), customers ranked us number one in 10 of our markets. (A)

Strong and consistent profitability has been driven by the steady increase in our lending business at resilient margins and by growth of fee income. The well-diversified increase in lending spans segments and geographies. In particular, lending to businesses and consumers has grown strongly in our Challengers & Growth Markets. In Wholesale Banking, Industry Lending and Transaction Services activities have led to strong increases in fees. And new propositions that add

ING Group Annual Report 2018



Insights
KYC
GDPR

Elements of our strategy

Our Think Forward strategy was launched in 2014, showing us what we do. This section describes the strategy and includes references to additional information on how our strategy links to the material topics identified.

Strategic priorities

To deliver on our Customer Promise and create a differentiating customer experience, we have identified four strategic priorities:

1. Earn the primary relationship
Earning the primary relationship is a strategic priority for ING as it leads to deeper relationships, greater customer satisfaction and, ultimately, customers choose us for more of their banking needs. In Retail banking we define primary customers as those with multiple active ING products, of which one is a current account where they deposit a regular income such as a salary. For Wholesale Banking it means being the lender of choice and having an appropriate volume of flow products in Transaction Services, Working Capital Solutions and Financial Markets.

Read more in the 'Our business' chapter.

Material topics: financial performance, usability and accessibility of our products.

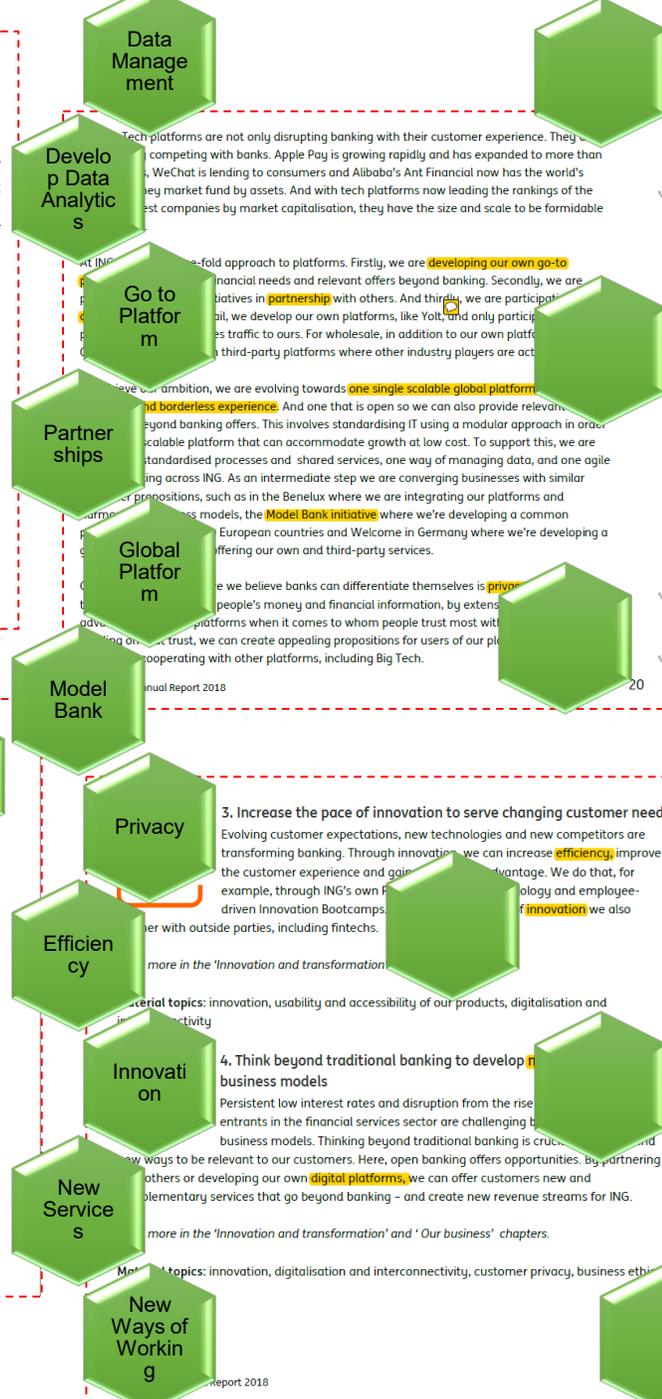
2. Develop data driven insights
With the further development of data is an important aspect. We aim to improve the customer experience by understanding what customers need. We use these insights to personalise our interactions with customers to empower them to make their own financial decisions. Data skills are also essential to know our customers from a regulatory and risk perspective, to prevent fraud, improve operational processes and generate services that go beyond traditional banking. At ING, we recognise that excelling at data management is a core competency if we are to realise our ambition to create a personal digital experience for customers. We are on course to implement one global approach to data management to ensure we maximise the potential of our data resource. Discussions in society about data privacy and the tightening of data regulations, such as embodied in the EU's General Data Protection Regulation, are raising awareness of this important issue. At ING, we are committed to protecting customer data safely and being open about how we use it.

Read more in the 'The world around us', 'Innovation and transformation' and 'Our business' chapters.

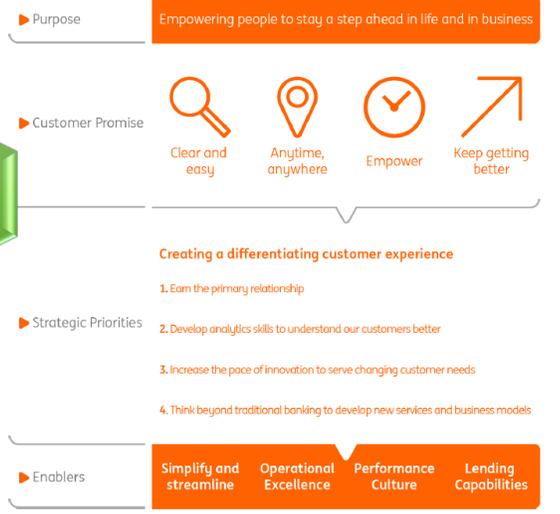
Material topics: customer privacy, business ethics and culture, innovation and interconnectivity, cyber resilience.

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Our strategy on a page



Enablers
Four strategic enablers support the implementation of our strategy: simplifying and streamlining our organisation, operational excellence, enhancing our performance culture and diversifying our lending capabilities.

1. Simplify and streamline
Simplify and streamline refers to ING's aim to become a more effective, cost-efficient and agile organisation with the flexibility to respond to fast-changing customer needs and low-cost competitors. To facilitate the bank's digital transformation and respond faster to changing customer needs we are introducing one Way of Working (WoW) across ING, which organises employees in multi-disciplinary, cross-functional 'squads'. WoW has been introduced in the Netherlands, Poland, Romania, Belgium, Austria, Spain and Germany as well as in Wholesale Banking and several support functions. The design and implementation for other countries and support functions is in full swing. ING is the first bank to adopt the methodology in several countries and in Wholesale Banking.

Read more in the 'Innovation and transformation', 'Our business' and 'Our people' chapters.

Material topics: usability and accessibility of our products.





2. Operational excellence

Operational excellence requires **continuous focus**. We need to ensure that ING's operations provide a **seamless and flawless customer experience**. Our operational excellence vision concentrates on the Customer Promise. To meet changing customer expectations arising from increasing digitalisation, we aim to converge to a single platform for financial services that will deliver a uniform customer experience across borders. This will be based on simplified and standardised product systems supported by modular architecture, integrated and scalable IT systems, and services. While pursuing this ambition we are also investing to provide stable IT platforms so we are there for our customers when they need us and to provide the highest standards of data security.

Read more in the 'Innovation and transformation' chapter.

Material topics: IT systems and platforms, cyber resilience.



3. Performance culture

We believe there are strong links between employee engagement, customer engagement and business performance. This is why we continually **improve our performance culture** by creating a differentiating employee experience and enhancing the capabilities of our leaders. By focusing on delivering a great employee experience and by stepping up our leadership capabilities we **develop our employees' capabilities** and engagement to deliver on our purpose and strategy.

Step Up Performance Management is a comprehensive performance management process that also assesses people against ING's Orange Code values and behaviours. It focuses on managing performance on a continuous basis, including through 'continuous conversations' between managers and their reports.

The Think Forward Leadership Programme (TFLP) aims to develop greater leaders and better managers who can engage staff and enhance team performance. The first phase of the programme was introduced in 2017, initially to senior leaders. It focused on the Orange Code, personal purpose and the Think Forward strategy. In 2018, it was extended to all people managers globally as the TFL Experience (TFLE), a four-day programme with follow-up learning activities. A total of 4,100 leaders and managers have so far participated in TFLP and TFLE.

In the Netherlands and Belgium we initiated 'i for integrity' in 2018, an approach aimed at creating a mind-set that puts integrity above all. The approach focuses on increasing knowledge and equipping them to make balanced decisions when facing dilemmas, to comply with all applicable laws, standards and regulations, and to act with integrity.

Challenges ING faces in finding, attracting and retaining people with the skills of a data-driven bank. A large proportion (more than half) of vacancies at ING are related to data or technology skills, and this is expected to grow in the coming years. Competition in the market for these talents is fierce.

To help us recruit new talents we took steps in 2018 to upgrade our careers site and our global approach. This includes further developing the global employer brand and introducing **targeted cross-border sourcing** to find suitable candidates for more difficult-to-fill profiles.

In 2018, we defined a new direction to promote a more diverse and inclusive workforce, introducing 'mixed teams' and the 70 percent principle. This principle strives for 30 percent difference in team make-up. Mixed teams include all types of diversity, both visible and less visible. Ultimately, managers are responsible for building mixed teams by choosing the dimensions of diversity to focus on while also being guided by the global 70 percent principle as far as possible. At the same time, we will continue our efforts to make all people feel included whatever their background, culture, experience, religion or sexuality.

Continuous Focus

Performant

Develop Employees

our people' chapter.

business ethics and culture.

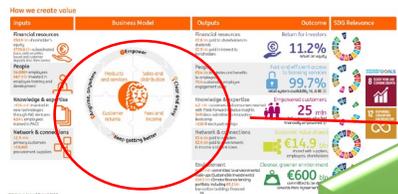
4. Lending capabilities

Broadening and diversifying our lending capabilities to continue to grow client franchises is our fourth strategic enabler. To do so, we are seeking opportunities in Retail, SME and Consumer Lending segments, as well as focusing on Wholesale Banking lending growth in our Challengers & Growth (C&G) Markets. Wholesale Banking lending growth in our Challengers & Growth (C&G) Markets and in our specialised Industry Lending franchise. In 2018, we continued to grow and diversify lending at healthy margins, with net core lending growth of €36.6 billion, or 6.4 percent. Our ambition is to continue to grow profitably within our risk appetite, but given market dynamics we expect lower growth in Wholesale Banking.

Read more in the 'Our Business' chapter.

Material topics: financial performance, climate change.

Business Model



Innovation and transformation

Platform Thinking

Growth

Connectivity

To fulfil its purpose of empowering people to stay a step ahead in life and in business, it must continue to be where its customers are. Nowadays, that's on digital platforms: our own platforms, not those of others. It's here we need to offer one consistently superior customer experience, one that is instant and borderless.

To break down borders and become one platform.

Platform thinking will play a major role in this one experience. This chapter outlines ING's platform age. In innovation, it's how we aim to stand out from the crowd: a better experience, one that is more personal, instant, relevant. In operation, it is what we are doing to build one ING, one digital bank with one platform and one digital banking platform.

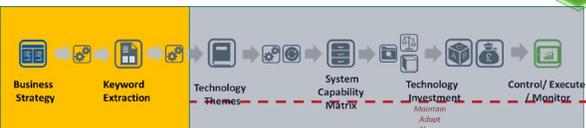
Becoming a platform business, or even being platform-curious, is a challenge. But the reality is that Big Tech companies, like Facebook, Alibaba and Amazon, have been platform-based for over a decade. They are the success stories that have annually raised the bar when it comes to the user experience they offer. To buy things, socialise, explore, learn, travel, entertain or be entertained, users want to meet their demand for goods and services. It is why platform businesses are so successful and keep coming back.

Being where customers are is a big part of what makes any business successful. We have to continue to evolve if we are to earn a place in customers' lives. That means being on these digital platforms and creating our own platforms to be able to understand and serve customers better.

Moving towards **platform thinking** isn't a radical shift but rather an extension of what we already do. It empowers people to take control of their own situations. Like traditional businesses, we connect suppliers with customers. The difference is that platforms are digital platforms which can be used to achieve huge scale at little cost. And it's not just about scale; it is also suppliers who are able to create value at scale. Platforms scale up all of that, provide lower-cost structures for supplier offerings. Then they can be used to develop new products and services and personalise the user experience.

Platform thinking offers ING little space for building meaningful customer experiences. In making an Amazon purchase, for instance, the payment service is just a click. So ING's future depends on becoming a platform ourselves or building independent platforms. To make that happen, we have to give people very good reasons to come to us. Something very different from what they can get anywhere else. Something that empowers them to get ahead. And that's what we're aiming to do.

The main characteristics that make platforms so successful is that they provide simplicity, consistency, convenience and personalisation as well as one consistent way to interact with customers.



Business transformation

To create one user experience for all of our more than 38 million customers, we have to be one ING. We need to build a single global foundation that is the same everywhere, one that has the same approach to data, the same IT infrastructure, the same processes and similar products and services.

In 2016, ING announced a series of programmes to unite similar businesses and bring us closer to one mobile-first digital platform that offers a uniform and superior customer experience.

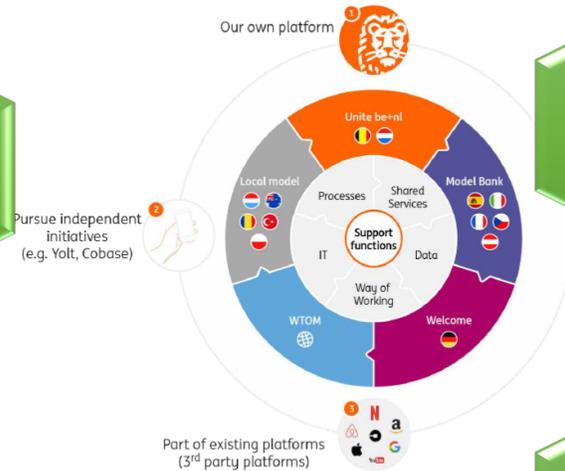
The main business transformation programmes are:

- Unite be + n1 (formerly Orange Bridge), to unite Belgium and the Netherlands** across two countries, combining both countries' strengths for a more efficient one integrated banking platform and a harmonised business model.
Highlights: Created a cross-border delivery organisation, combining business across two countries. A new harmonised retail organisation was launched offering services to all Belgian customers and completing the first joint marketing campaigns.

- Welcome**, to digitalise ING in Germany and create a go-to financial platform offering services to third-party services.
Highlights: The first release of the **Go2Place platform** was launched among a host of features including shared navigation, full account overview, new search function, a money management tool, and a new digital current opening process for joint account holders.

- Model Bank**, to move Retail banks in France, Spain, Italy, the Czech Republic and later Austria towards becoming one bank; one borderless, scalable unified customer engagement platform, providing a personalised customer experience.
Highlights: The expertise of several ING countries is being combined to build a best-in-class mobile (and digital) platform based on scalable IT infrastructure. The platform will be used to serve several

countries with a consistent **omnichannel** experience, which will bring a strong improvement in experience for customers in the respective countries. A first version was launched in the Czech Republic in December 2018. The platform will be developed further and introduced gradually in the coming years.



Customer Experience

Omnichannel

Private Cloud

Management Decisions

Shared Service

Security

Open Technology

Developer Portal which makes it easy for internal developers to... bank's digitisation globally. Selected APIs are also available for... and innovative customer experiences.

store and process data and IT services such as mobile phone... take towards giving customers a consistent experience in... standardises ING's IT infrastructure, simplifies and streamlines... and brings an automated and self-service infrastructure to development... has reduced time-to-delivery of infrastructure from an average of... in an hour. It also reached 100 percent availability in 2018 allowing... customers much quicker. In 2018, we expanded the service portfolio in... global adoption of IPC, from around 3.5 percent of total global infrastr... percent by the end of 2018.

and stability... customer experience relies on ING always being available when and where customers... In 2018, ING recorded 99.7 percent¹ weighted system availability... Netherlands and Belgium. In addition, system availability... as 99.9 percent. (A)

use it to improve processes and make... useful customer insights that help ING to... have data-driven products that personalise and

system availability for 2018 does not yet include the recent integration of Record... Report 2018

However, raw data in itself has little value. To be meaningful, it needs to be sorted, harmonised and put into context. To do this in an efficient and effective way, ING developed a **data management strategy in 2016 to standardise data definitions and data models**. This strategy ensures the availability, quality, integrity, usability and control as well as global governance of our data. A feature of this strategy was the introduction, in 2016, of common data language ING Esperanto.

privacy... trust banks with confidential information that they expect us to keep safe. It is important... maintain that trust and comply with our legal obligations around data protection, which... from country to country. We are transparent about what we do with the personal data of... employees, suppliers and business partners, and only process it for specific business... Our approach can be summarised as: the right people use the right data for the right

On 25 May 2018, ING has been subject to the data protection requirements outlined in the EU General Data Protection Regulation 2016/679 (GDPR). In 2013, ING implemented data protection requirements on a global scale, through its **Global Data Protection Policy (GDPP)**. The GDPP has been implemented in each country where ING operates and is being updated to reflect **GDPR** requirements. To know more about what personal data ING collects, what we do with it and who we share it with, go to our Privacy Statement on www.ing.com/18ar003 or any local ING website.

Data ethics... ING's data ethics approach is an integral part of our behaviour and decision-making and is embedded in ING's Orange Code. It consists of data ethics values and principles that are applicable for the whole organisation. Both global and local data ethics councils have been introduced to advise ING business units and help ensure that complex queries or dilemmas relating to data ethics are dealt with properly.

- Wholesale Banking TOM**, further digitalising and standardising Wholesale Banking products, processes and customer propositions across all continents.
Highlights: Approximately 18,000 customers are now using Wholesale Banking's Inside Business digital portal. The introduction of a single platform for loans and trade finance has been extended across the network, with a consolidated Financial Markets franchise in the UK, over 650 IT applications decommissioned and numerous customer experience process improvements including **consistent account opening process** for international corporate clients in 18 countries. Supporting these business transformations are target operating models (TOMs) uniting support services globally such as HR, Finance, IT and Procurement, and the enablers, the so-called foundations: IT, global data management, process management, shared services and ING's one agile Way of Working (WoW).

Transformation management

Managing ING's transformation is a complex task. It involves many interdependencies between different workstreams and may involve trade-offs in local priorities or autonomy so that we prioritise what is best for the bank on a global level. Our transformation management method... decision-making, resolve issues when they arise and re-plan. All this needs to be... minimising any adverse impacts and keeping the bank safe, secure and compliant.

Running a bank-wide transformation is complex. It involves many interdependencies between different workstreams and may involve trade-offs in local priorities or autonomy so that we prioritise what is best for the bank on a global level. Our transformation management method... decision-making, resolve issues when they arise and re-plan. All this needs to be... minimising any adverse impacts and keeping the bank safe, secure and compliant.



Technology

Information technology remains crucial to ING's platform ambitions. IT enables programmes such as ING Private Cloud and TouchPoint Architecture and contributes to major strategic programmes.

The IT target operating model introduced last year is in line with the Think Forward strategy. It aims to create speed, scale and security as well as cost efficiency and growth, with one purpose, one common backlog and one technology platform.

The quality of our people makes a difference in the quality and efficiency of our services. We aim for a global, collaborative workforce of highly skilled engineers meaning that we assess and calibrate our engineering workforce using one engineering profile. In 2018, more than 80 percent of our internal engineering staff have adopted one engineering profile and more than 60 percent of our workforce has implemented one Way of Working, both marking an increase from a year earlier.

TouchPoint Architecture (TPA)

TouchPoint Architecture (TPA) is an **open technology foundation** that enables ING to become a... is one of the foundations for ING's Think Forward strategy. Producers can... combine these services into scalable business propositions across... standardise ING's banking applications and supports the creation of... constraints and limitations. This modularity is a big step towards a... platform that offers customers everywhere a consistent experience and... from unlocking global scalability, TPA facilitates innovation across... and accelerates time-to-market. The use of web components provided... increased during 2018 and contributed to one user experience across the... used, for instance, in the Model Bank programme.

Operational excellence

customers we'll keep getting better. One way is by simplifying and standardising end-to-end processes. Some processes are internal, such as HR and Compliance, others impact customers directly, such as mortgages, lending and payments. Making them easier will lead to a higher quality processes and greater efficiency.

are being centralised in shared service centres. In 2016, ING set up Business Shared Services BV (IBSS) to consolidate all such legal entity. Currently, IBSS has four foreign branches. The daily banking operations support. Branches in Katowice and ING Tech services. The Manila branch is a multi-functional centre with an extensive operational platform targeting Wholesale Banking.

Process Management

Process Management (GPM) department was established in 2016 to improve the experience for the bank's markets, including Market Leaders, Wholesale Banking, as well as Growth Markets. It does this by introducing a single, global approach to improve processes and a common way to manage those processes and standardise... achievements in 2018 include designing global mortgage, consumer lending... account processes. GPM also put in place a global process infrastructure with global process...

Way of Working

To respond quicker to changing demands and customer feedback, encourage an innovative mindset and engage employees, ING's one agile Way of Working (WoW) unites employees in cross-functional teams. End-to-end responsibility of tribes and squads empowers employees to act quickly and effectively across the organisation.

in the Netherlands, Poland, Romania, Belgium, Austria, Spain and Wholesale Banking and COO Finance. The design and implementation for ING. ING is one of the first banks to adopt the methodology.

cultures is a challenge that requires a behavioural shift, guided by our differences between countries are challenging but not unsurmountable. This trust an important component, also tends to be more difficult for managers than those on the working floor. Special leadership training programmes have been organised for local leaders to prepare them for such behavioural change. We've also organised monthly bootcamps to train Way of Working ambassadors from the countries and business units.

to the digitalisation of business processes, to make it easier for customers to do the same time, it recognises cybercrime as a major threat in all sorts of areas. For an integral part of our strategy to make customers aware of the risks that are out of our digital solutions for Wholesale Banking clients, while Retail customers are provided with our digital channels and interaction with our apps.

professionalisation and automation of criminal organisations remains a challenge. The use of online services, with some less careful with personal data, makes it easier for criminals. Training and awareness of employees is a crucial part of ING's preventive measures.

measures. Our all-staff online integrity programme is regularly updated with the latest cybercrime trends and prevention measures. In addition, special 'risk days' are organised for staff, highlighting specific risk themes and how to be resilient against them.

To fight cybercrime, ING also maintains a strong global cybercrime alliance with the financial industry, law enforcement authorities, governments and internet service providers.

White hat - or ethical - computer hackers are invited to share their observations using ING's Responsible Disclosure programme as published on ING.com.

Cybercrime resilience

Distributed Denial of Service (DDoS) attacks are increasing in size, frequency, and complexity. Attacks against Dutch banks have increased in magnitude and new techniques continue to emerge. Global developments are monitored in close cooperation with other banks and government institutions. Preventive measures are in place for ING data centres and organisations. The frequency of DDoS attacks is continuously tested.

The 'threat' landscape and 'advanced persistent threat' indicators are closely monitored. Preventive measures are taken where needed. Cyber-resilience reporting is part of standard risk governance processes.

Cybercriminals are also increasingly using advanced malware to gain access to the IT systems of banks and their customers. New gateways to access the internet for users and applications have been implemented to strengthen malware resilience and to prepare for open banking under the European Payments Directive (PSD2).

Artificial intelligence and robotics

ING is accelerating the integration of robotics and artificial intelligence to help customers and ING remain a step ahead. Customers increasingly are using AI-supported services such as Amazon's Alexa and Google Home. They also expect more predictive capabilities in their products and services, so meeting that customer demand is important.

The bank established a Global Analytics Unit in 2018 aimed at speeding up analytic capabilities and transforming ING into a truly data-driven company. Examples of recent projects include machine learning in anti-money laundering and transaction monitoring, the use of chatbots and voicebots, and the use of text mining techniques to improve efficiency in back-office operations and risk models to drive the efficient use of capital.

Chatbots

ING uses a number of chatbots in its Retail and Wholesale Banking operations. In Belgium, the 'Marie', a chatbot that instantly helps customers with debit card transactions, and in the Czech Republic, staff developed a conversational mobile banking app that uses both text and voice to offer a variety of services including checking balances on savings accounts, sending money and purchasing insurance. In Wholesale Banking, a chatbot called 'Bill' is integrated into our Inside Business platform. In the Netherlands, a chatbot called 'Inge' is integrated into ING's search function to answer FAQs as well as questions on cut-off times, while in Germany the 'PING' chatbot has been integrated into ING's search function to answer FAQs and queries based on existing public web content.

In the Netherlands, Kijf is a forecasting tool that uses advanced analytics to show planners trends and insights, helping customers to keep a grip on their finances and avoid going over budget. In the UK, 'Inge' is a forecasting tool that uses advanced analytics to show planners trends and insights, helping customers to keep a grip on their finances and avoid going over budget when asked about making a payment request.

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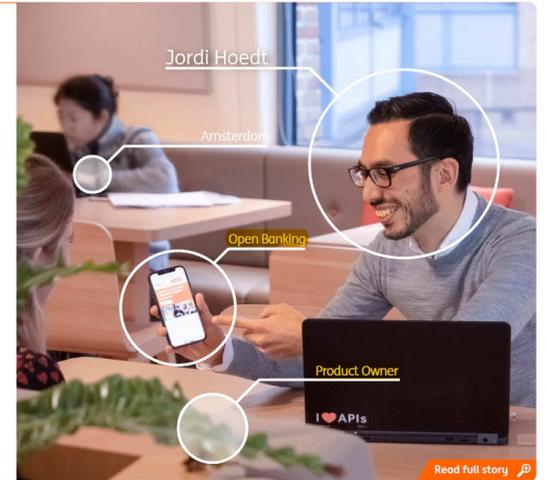
"We want to be the go-to platform for financial needs, offering the best and most relevant products, even if some of those are not our own."

Open banking is a crucial enabler for ING's platform strategy. The launch of the ING Developer Portal in May 2018 was an important step in this journey. Here external developers can access ING's application programming interfaces (APIs). These are pieces of software that allow applications to communicate with each other.

Open banking platform brings together producers and consumers of APIs and encourages collaboration with partners to co-create the best user experience possible. An example is ING's Payment Request API. Making it available on our platform allows other organisations to re-use it to send payment requests to their own customers.

The ING platform strategy is to inspire developers and make it easy for them to find and use APIs so they can create awesome customer applications. Based on their needs, I shape the platform's customer journey, improving its features and user experience.

"Our ambition is to become the go-to API platform for financial needs, offering the best and most relevant products, even if some of those are not our own."



Australia (Lionel), Turkey (INGo), Poland (Miguel) also have chatbots in operation.

Digitalising manual activities

Robotic Process Automation (RPA) uses robots to automate manual activities. ING currently has around 1,200 RPA applications in use across its units including Retail, SMEs and Mid-Corps as well as Wholesale Banking. RPA is used because robots tend not to make mistakes and are able to work 24/7, seven days a week. Some examples of RPA in action include know your customer name screening, opening and closing current accounts and finance report generation.

The use of robotics is widespread throughout the bank, with ING in Poland, in particular, responsible for 700 of the 1,200 robots currently in use.

To ensure consistent use between ING countries, a global scripters community has been formed to share information and best practices.

Innovation

Innovation is a strategic priority for ING. It is important that ING not only transforms into an innovation-enabled organisation, but also increases the number of adjacent and disruptive innovations in the market.

For ING, innovation is about the three Cs: empowering customers and creating a differentiating experience, taking ING's culture of innovation to the next level and connecting ecosystems to boost innovation.



Innovation culture

ING uses a structured process called PACE to accelerate innovation. It is a combination of Lean Start-up, Agile Scrum and Design Thinking methodologies. ING business units and ING Labs participated in an Accelerator programme. The PACE Accelerator is a 12-week programme that speeds up time-to-market by testing ideas for new products and services and validating them with customers through experimentation.

In 2017, the PACE Accelerator programme was introduced to teach employees how to innovate in their daily work. It was rolled out into a hands-on programme to teach employees in 10 countries in a self-directed way. By the end of 2018, 6,941 employees were trained. ING Spain used the PACE methodology to improve the customer experience by testing ideas in depth from their perspective. This revealed that processes were not designed from the point of view of someone wanting to join the process but from the point of view of someone wanting to improve the process.

ING's ambition is to encourage employees to come up with new ways to improve the customer experience and compete for a place in one of our ING Labs accelerators. In 2018,

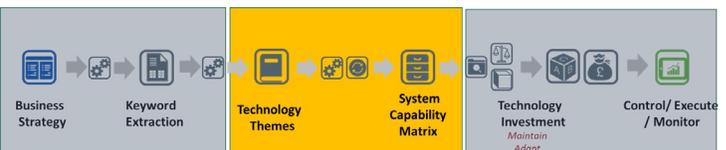


Default Words Extracted From Strategy

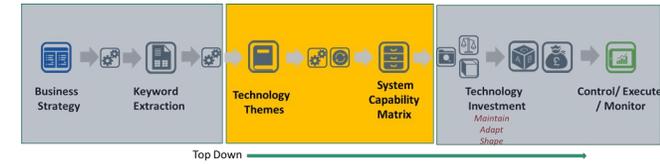
Data Management	Develop Data Analytics • Insights • KYC • GDPR	Go to Platform	Partnerships	Global Platform	Model Bank	Privacy	Efficiency
Innovation	New Services	New Ways of Working	Transforming	Mobile Devices	Channel of Choice	Growth	Geographic
Customer Experience	Analysing Customer	Continuous Focus	Performant	Develop Employees	Platform Thinking	Growth	Connectivity
Omnichannel	Private Cloud	Management Decisions	Shared Service	Security	Open Technology	Customer Experience	Cyber Crime
	Chatbots	Threat Landscape	Robotic Processes	Innovation	API Platform	Open Banking	



Extrapolating Technology Themes

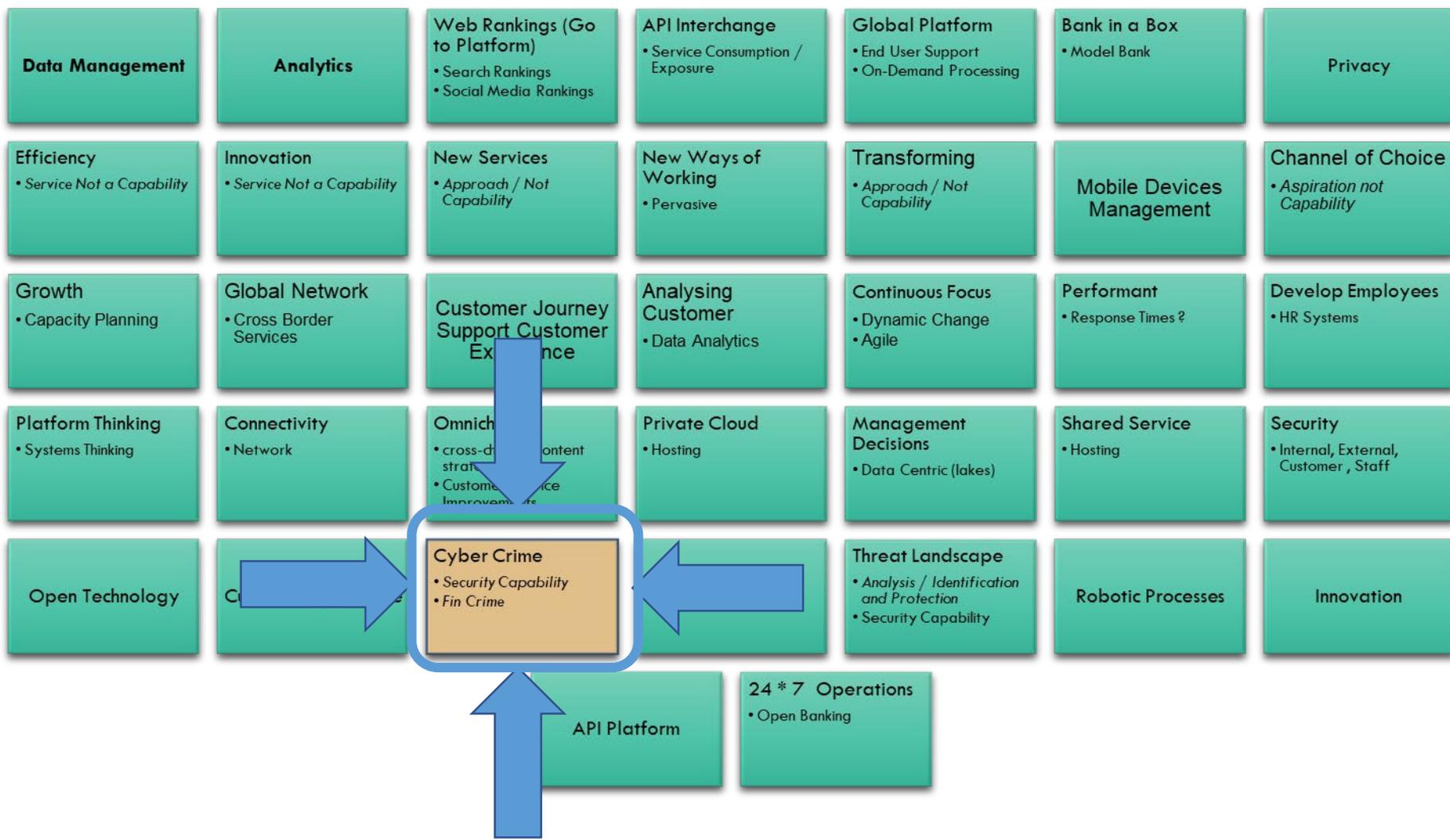


Extrapolating – Technology Capabilities

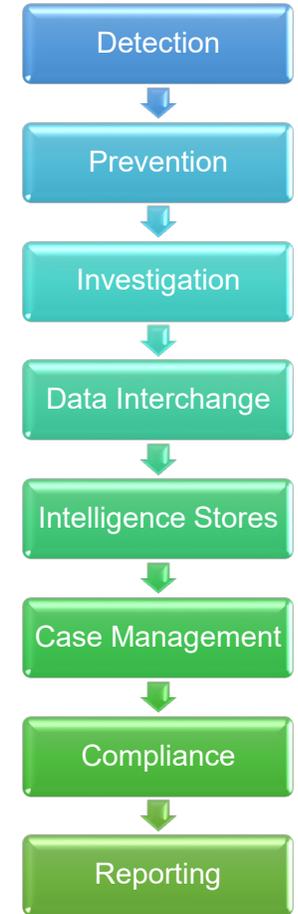
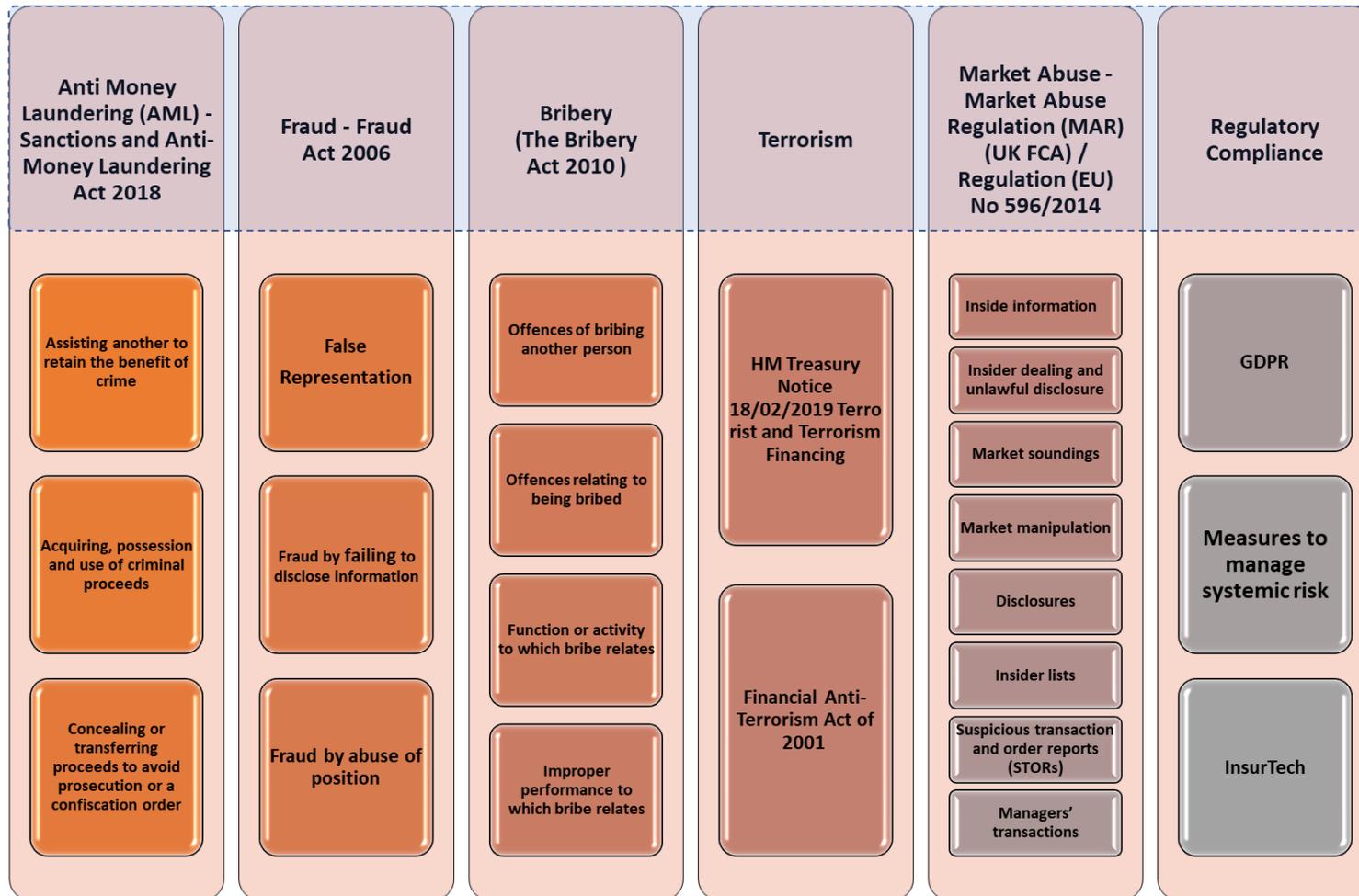
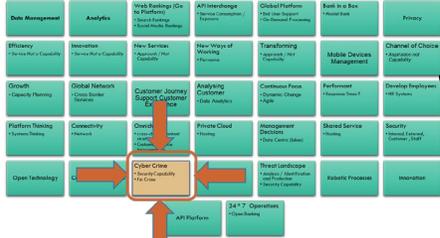


Technologies





Example - Financial Crime example for Domain / Capabilities Mapping



Technology Investment



Assembling all the Elements

From Business Strategy to Technology Realisation / Executable Plan



Business Strategy

Keyword Extraction

Technology Themes

System Capability Matrix

Technology Investment

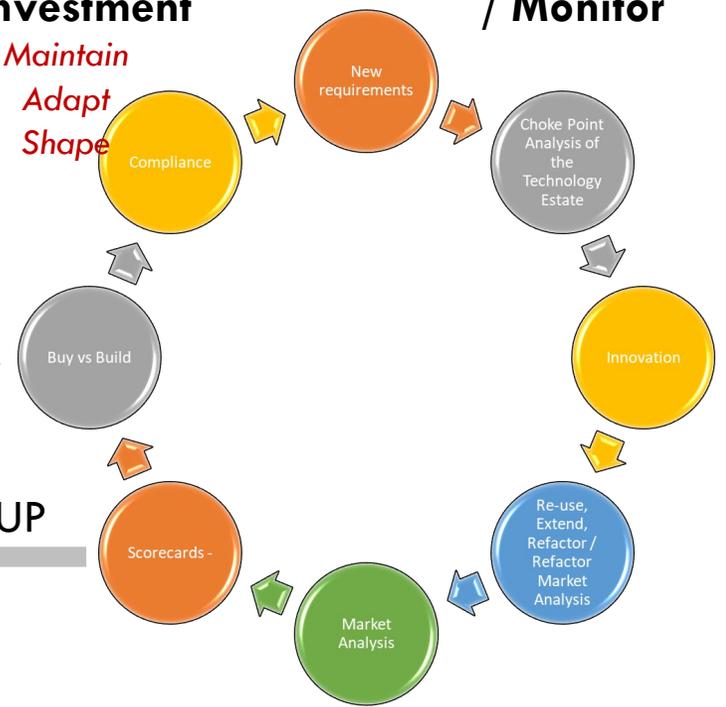
Control/ Execute / Monitor

*Maintain
Adapt
Shape*

Top Down



Bottom UP



Example Table of Contents

- Strategic Objectives
- Background
- Purpose of Document
- Intended Audience
- Intended usage and lifecycle
- Related documents
- Management

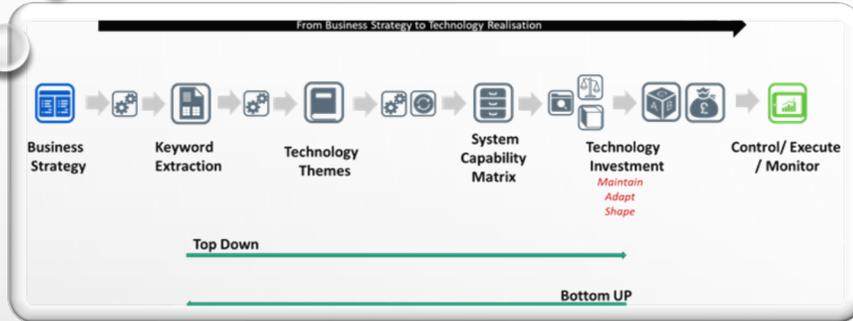
Summary

- **Part 1- Business Drivers**
 - Assessment – Strategic / Operational
 - Initiatives
 - Value Streams
 - Aligning the Business Strategy to IT Outcomes
 - Business Themes
 - Transposing the Business Themes into Technology Themes
 - Automate
 - Innovate
 - Collaborate
 - Optimise – Kill Complexity
 - Architecture Principles
 - Governance
 - Business
 - IT
- Policy & approach

- **Part 2- Technology Strategy**

- Current Technology ecosystem
 - Shadow IT
 - Issues
- Drivers for Technology Transformation & Change
- Suppliers / vendors
- Target Model – Reference Architecture Canvas
- Capabilities Definitions
- Channels
- API / Data Interchange
- Process Automation / Robotics
- Compliance / Reporting Information
- Capability assessment and Issues
- Target end-state architecture
- Proposed global standards
- Trajectory, Roadmap and migration scenario(s)
- Transition architectures
- Appendix
 - Systems Inventory by Domain
 - Maturity Levels Guide
- Acronyms

Abridged



- Target Operating Model / Business Strategy (Corporate / Functional) provide the drivers for the Technology Strategy
- Technology Themes allow the Business to have Traceability between the ICT and the GOALS of the Organisation
- Dissecting the Themes to map to Future, Current and Innovation Capabilities that drive the agenda of the business forward at the least unit cost
- Splitting these capabilities into buckets allow the ICT BUDGETS to be managed further
- Execution and keeping the lights on is the enabler for the business to continue functioning
- Top Down approach is NOT the same as Bottom up – Expect different results



Final Message

- Wise Rulers : Not restricting themselves to dealing with present threats but using every means at their disposal to foresee and forestall future problems as well

- Niccolò Machiavelli

Thank You

Website : www.s-ea-t.com (Tools, Papers Downloads)
Blog : <https://dalbanger.wordpress.com/>
Email  : dal@s-ea-t.com



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