For the banking of the future –
Deutsche Bank’s Digital Factory

Dr Markus Pertlweiser
29 September 2016
## Agenda

<table>
<thead>
<tr>
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<th>Research and development: numerous partnerships and the creation of the Digital Factory are further strengthening capabilities; Digital Factory up and running for 100 days; today: dialogue with our experts</th>
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Research and development: numerous partnerships and the creation of the Digital Factory are further strengthening capabilities.

High-performing research and development will be crucial to future market leadership.
For the banking of the future – Deutsche Bank’s Digital Factory

400 employees from 14 countries working in ~ 40 agile teams

Mixed teams (internal/external) from business, IT and control functions

8 scrum rooms, client lab, accelerator for fintechs, etc.

Roughly 300 additional employees in (agile) teams at IBC and TZE

Early 2018: move/expansion to include building for 800 FTEs in FFM
Fintechs are essential partners for making the digitalisation strategy a reality

**Fintech partners** (selection)

- **gini**: Invoice scanning
- **webID solutions**: Video authentication
- **Fincite**: Robo advice
- **DSwiss**: eSafe
- **STRANDS**: Personal finance manager
- **Rigo**: Multi-bank aggregation
- **DEPOSIT SOLUTIONS**: Retail Deposit marketplace

Coming soon:
- **eSafe**: Payments
- **insurtech**: ...

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Our goal: we want to be the contact and collaboration partner of choice in the banking world in Germany and Europe for leading fintechs.
API/Open Hackathon: 10 teams out of more than 100 applicants will compete in Berlin from 28 to 30 October

https://api-open.db.com
We develop the banking of the future together with strong partners – Axel Springer Plug and Play as well as MIT

**Axel Springer Plug and Play Accelerator** – since Sep. ‘16

- Early-stage access to start-ups – to find promising up-and-coming tech players, promote their growth and support them in the financing process
- AS PnP is an experienced partner that has already helped support over 1,500 start-ups
- Start-ups receive access to expertise and a client base
- Goal: to do an even more systematic job of tapping into new ideas earlier in the game

**Massachusetts Institute of Technology (MIT)** – since Aug. ‘16

- Initiative on the Digital Economy (IDE): international alliance of visionary pioneers in the digital economy
- MIT professors:
  - Geoffrey G. Parker, Marshall W. van Alstyne (“Platform Revolution”)
  - Erik Brynjolfsson, Andrew McAfee (“The Second Machine Age”)
- Identifying new developments and trends at an early stage
- Joint research projects in the works

The competition for top ideas and top talents will grow even more intense in the future
1 Research and development: numerous partnerships and the creation of the Digital Factory are further strengthening capabilities; Digital Factory up and running for 100 days; today: dialogue with our experts

2 Digitalisation of retail and commercial banking is proceeding as planned. Digital capacities in business, IT and control functions have been expanded; cooperation with fintechs is bearing fruit, and innovation pipeline is full. Many innovations that will set standards are about to go live

3 At the same time, we have enhanced our strategy for “platform banking in a digital world”; the development of our digital ecosystem is also making progress
Our digital solutions – market leadership in digital banking

1. Bank account/Mobile ...
   ... for access to the digital ecosystem

2. Multi-bank aggregation ...
   ... offers all financial information at a glance

3. FinanzCheck/Robo advisor ...
   ... for personally tailored real-time recommendations

4. New products and services ...
   ... for meeting client needs in an optimum manner

5. Personal¹ and digital² advice ...
   ... for advice custom tailored to personal preferences

¹ At branches and/or advisory centres
² Virtual personal advisor, chat/co-browsing
Major progress on innovation development – many products and services about to go live

<table>
<thead>
<tr>
<th>Innovation (see workshop, 19 April)</th>
<th>Go-live</th>
<th>Fintech partner</th>
<th>USP</th>
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<tbody>
<tr>
<td>Digital account opening</td>
<td>Nov. 2016</td>
<td>webID solutions</td>
<td>– In just a few minutes, clients can open an account and start using it right away – easy and convenient, anywhere, anytime</td>
</tr>
<tr>
<td>DB Mobile app</td>
<td>Additional releases in Q4 2016</td>
<td>gini</td>
<td>– Most individual and modern app with the most innovative services (multi-award winning)</td>
</tr>
<tr>
<td>eSafe</td>
<td>Nov. 2016</td>
<td>DSwiss Internet Data Safe</td>
<td>– Store confidential documents and password the digital, secure and convenient way in online and mobile banking</td>
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<tr>
<td>Multi-bank aggregation</td>
<td>Nov. 2016</td>
<td>nigo</td>
<td>– Digital bank of choice – all bank accounts, securities accounts, loans and credit cards at a glance – on all digital devices, with all of Deutsche Bank’s digital services</td>
</tr>
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<td>FinanzCheck</td>
<td>Additional releases in Q4’16/ Q1’17</td>
<td>DEFINO Deutsche Fintech</td>
<td>– Real-time requirements analysis in line with DIN standards – omnichannel, for clients and advisors</td>
</tr>
<tr>
<td>Digital DPM</td>
<td>Mid-2017</td>
<td>Fincite</td>
<td>– Individualised, easy investment with constant, automated risk management based on the investment expertise and research of a global investment bank</td>
</tr>
<tr>
<td>Retail deposit marketplace</td>
<td>Early 2017</td>
<td>DEPOSIT SOLUTIONS</td>
<td>– Convenient access to attractive deposit products from selected banks based in core European countries from a Deutsche Bank account</td>
</tr>
</tbody>
</table>
Deutsche Bank’s digital account opening: in just a few minutes, clients can open an account and start using it right away

- **Anytime, anywhere** from a desktop PC, tablet or smartphone
- **Digital features set up automatically** – such as FinanzPlaner (FinancePlanner) und NachrichtenBox (Mailbox)
- **Individual 360° configuration** – e.g. for overdraft facilities and custom PINs

Easy and convenient – fast and efficient
Deutsche Bank Mobile is setting standards – coming soon: SiriKit payment, eSafe, multi-bank aggregation and mobile payment

**April release:**
- Personalisation and gesture control
- Transfer money to friends
- Graphical overview of finances and securities accounts
- Innovative timeline-style display of transactions

**June, August and September releases:**
- Money transfer templates, money transfer to sub-accounts, standing orders
- FinanzPlaner
- Benchmark securities account comparison
- 3D Touch

**Upcoming releases:**
- SiriKit (Oct. 2016)
- eSafe (Nov. 2016)
- Android (Nov. 2016)
- Multi-bank aggregation (Dec. 2016)
- Mobile payment (early 2017)

The most individual and modern banking app
eSafe: Deutsche Bank’s online and mobile banking service with the most secure space to store confidential documents and passwords

- Available in **desktop version** and for **Deutsche Bank Mobile**
- Clients can store **documents** the safe way in the digital online banking safe
- Sync client makes uploading documents from the desktop to the eSafe easy
- **Password safe** included as an add-on
- Different **pricing models** depending on desired functions and storage space
- **Enhancements in 2017**: Direct communication between clients and the bank; mail-in, documents from third-party providers (e.g. insurers, energy providers), full-text search, etc.
- Only clients can access their “digital safe deposit boxes”

Core element of the digital ecosystem
Multi-bank aggregation gives all of our clients’ securities accounts, bank accounts, loans and credit cards a home

- **Covers all products**: securities accounts, bank accounts, loans and credit cards
- **Omnichannel approach** available for desktop PCs, mobile apps and advisors
- Clients can use **all of Deutsche Bank’s digital services** for all bank and securities accounts (info services, FinanzPlaner, FinanzCheck, etc.)
- **Real-time** information and categorisation in FinanzPlaner
- **Data is stored securely** on Deutsche Bank’s servers
- **Easy-to-understand, transparent data protection settings**
- From early 2017: money transfers and orders

The digital bank of choice
Many new innovations and features have gone live in recent months, and usage is rising rapidly.
Making the digital workplace a reality

**Dashboard app**
Roll-out completed
Goal: all tools (advisory services, admin., research, etc.) web-based in one app

**Digital branch: iPads, Wi-Fi, digital “shop window”**
7,000 iPads  550 branches with Wi-Fi  Pilot digital “shop window”
Goal: equip all employees with iPads (by Q1’ 17) and all branches with broadband/Wi-Fi (by Q1 ‘17)

**Video advisory services: B2B/B2C**
Pilot advisory service centre currently operating
Goal: B2B video advisory services at all branches (by Q1’ 17)

**Virtual reality**
Pilot in progress; today: visit to the new Q110/Quartier Zukunft
Goal: use in advisory services + tbd
HeilberufePortal (Portal for healthcare professions): A new online approach to financial knowledge for your practice

As a doctor, you know what patients need…

…with the HeilberufePortal, I discover what my practice needs.

- eLearning offering for people looking to found a practice
- “PraxisCheck” (PracticeCheck) analysis tools for determining the location of the practice
- “InvestitionsCheck” (InvestmentCheck) to determine whether it is worth purchasing a new medical device
- PraxisBörse (Market for practices) for making succession plans

The HeilberufePortal supports doctors (clients and interested parties) in particular with their business decisions

Linking of digital services and personal consultation to expand our leading position in advising healthcare professions
Extensive use of the leading digital service offering

**InfoServices for order** (selection from the top 10)
1. **Account**: Sending account balance
2. **Account**: Notice re. posting of amount
3. **Account**: Notice re. upper/lower limit
4. **Securities**: Price attainment confirmation (sec. account)
5. **Construction financing**: Notification of end of fixed-interest rate
6. **Deposits**: Notification of maturity of one-off investment
7. **Securities**: Notification of income payment

**Automatic InfoServices** (selection from the top 10)
1. **Postbox**: Notice re. unread documents
2. **Securities**: Notification of income payment
3. **Cards**: Notification credit card has been sent
4. **Securities**: Notification of maturity
5. **Deposits**: Maturity notification of fixed-interest savings

**Online SelfServices** (selection from the top 10)
1. **Account**: Returning a direct debit
2. **DB Card**: Activation of DB Card for use abroad
3. **Taxes**: Ordering replacement annual tax statement
4. **Miscellaneous**: Changing appointment address
5. **Account/Sec. account**: Reordering account/sec. account statements

Located under “Services” on the online banking platform

- 27 InfoServices in 4 topic clusters
- 250,000 clients
- > 1 million emails (August YTD) with 79% opening rate

- 35 InfoServices in 5 topic clusters
- 3.1 million emails (August YTD) with 56% opening rate

- 35 online SelfServices in 7 categories
- Used ~ 350,000 times (July YTD)
Maxblue on course for growth – with TrendInvest, we offer investment opportunities from the world of our clients’ ideas

**Our clients’ questions…**

- What are the current investment trends?
- What is behind this trend, or what is it exactly?
- How has this segment been developing?
- What companies stand to benefit from these trends?

**TrendInvest provides answers**

- Translation of trends into an index
- Algorithmic index calculation, incl. simulation of the index history with Fincite and Interactive Data
- Market information, KPIs, key figures, charts on the TrendIndex to provide support for making investment decisions
- Presentation of individual stocks from the TrendIndex
- Funds/ETFs for investing in trends

Net new assets maxblue 2014 / 2015 / August YTD
EUR 0.9 m / EUR 1.1 m / EUR 0.6 m
The importance of digitalisation for business success is already fundamental today and will continue to rise

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<tr>
<th>Income/client</th>
<th>Client fluctuation</th>
<th>Client contacts</th>
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<tbody>
<tr>
<td>Clients w/o an account</td>
<td>+210%</td>
<td>+16%</td>
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<tr>
<td>Clients with an account</td>
<td></td>
<td>x17</td>
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<tr>
<td>Clients with an account and online/mobile</td>
<td>+230%</td>
<td>-39%</td>
</tr>
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</table>

**Source:** SNL Financial, client survey 2016, approx. 500 participants who have switched banks within the last 12 months; Bain
Roadmap for the next 12 months – for growth and market share gains, more efficiency and new business models

<table>
<thead>
<tr>
<th>Strategic fields of action</th>
<th>Rationale</th>
<th>Initiatives of the next 12 months (selection)</th>
<th>Strategic goals</th>
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<tbody>
<tr>
<td>Marketing &amp; Communications</td>
<td>Relevance</td>
<td>- Content engine &amp; campaign management</td>
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<td></td>
<td></td>
<td>- Customer journey management</td>
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<td></td>
<td></td>
<td>- Digital marketing &amp; social media</td>
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<td>Products, Services &amp; Access Routes</td>
<td>Simplicity</td>
<td>- Digital banking, digital DPM, entrepreneur portal</td>
<td>- Digitalisation of core business for growth and market share gains</td>
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<td>Differentiation</td>
<td>- Retail deposit marketplace, digital broker</td>
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<td>Accessibility</td>
<td>- Digital workplace, digital branch, advisory centre</td>
<td>- End-2-end process redesign for efficiency gains &amp; enhanced client experience</td>
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<td>Processes</td>
<td>Convenience</td>
<td>- Omnichannel advisory platform/processes</td>
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<td>Speed</td>
<td>- End-2-end product processes (account, sec. account, loan)</td>
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<td></td>
<td></td>
<td>- Operation renewals/automation via Robotics</td>
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<td>Technology</td>
<td>Innovation</td>
<td>- Digital core solutions (e.g. order mgmt., billing engine)</td>
<td>- Development of a digital ecosystem/new business models for new sources of income</td>
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<td>Security</td>
<td>- API/BaaS, blockchain, cognitive analytics/AI</td>
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<td>- Security, biometrics</td>
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<td>Culture</td>
<td>Agility</td>
<td>- Digital Factory, Deutsche Bank Labs</td>
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<td>Expertise</td>
<td>- Cooperation &amp; partnerships</td>
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<td>- Digital leadership</td>
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3. At the same time, we have enhanced our strategy for “platform banking in a digital world”; the development of our digital ecosystem is also making progress
Platform strategy is revolutionising industry after industry – is the financial service industry next?

### Platform industries (examples)
- **Retail**
- **Mobility**
- **Social Media & Entertainment**

<table>
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<tr>
<th>From</th>
<th>To</th>
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<td>Ownership of infrastructure</td>
<td>Ownership of customer relationship</td>
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<tr>
<td>Supply-side economics of scale</td>
<td>Demand-side economies of scale/networks effects</td>
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<tr>
<td>Control of internal resources</td>
<td>Orchestrating external partners</td>
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### Industries on the platform’s eve
- **Engineering**
  - IoT
  - 3D printing
- **Energy**
  - Micro plant
  - Batteries
  - Smart home/IoT
- **Financial Services/Banking**
  - BaaS/API
  - Blockchain
  - Artificial intelligence

“Tectonic structural changes”:
- New competition from outside the industry
- Insurance: revival of bankassurance
- Asset management: partner vs. competition to banks
- Banks: platform banking and “beyond”
Deutsche Bank platform for banking and beyond – many parts of the ecosystem already in development

**Strategic offering**
- Digital principal bank ("new core")
- Advisory banking/marketplace
- Beyond banking ecosystems

**Topics (examples)**
- Account/payments\(^1\)/eSafe/mobile app
- Multi-bank aggregation
- Digital 360° FinanzCheck
- Retail deposit marketplace
- Brokerage 2.0/digital DPM\(^2\)
- Digital insurance broker/InsureTech
- PFM + concierge services
- Entrepreneur portal/NetworQ community
- API/third-party services
- ... 

**Client benefits**
- Everything at a single glance & click – anywhere, anytime
- Best solutions ("marketplace")
- Best financial usage ("Life companion/trusted partner")

**Advice/Access**
- Omnichannel banking advice (branch, advisory centre, online/mobile)
- Virtual personal assistant/Robo-advisor (voice/chatbot)
- Capital and cost efficiency
- Rebalanced business mix
- Strong growth

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\(^{1}\) P-2-P, Instant, Mobile
\(^{2}\) Discretionary Portfolio Management
Next big thing: artificial intelligence and blockchain technology show great promise

**Artificial intelligence/cognitive analytics**

- **Use cases**
  - Advising a business/commercial client using…
  - ...(un)structured data (semantic analytics)
  - ...speech processing (context-sensitive dialogue)
  - ...next-best action (machine learning)

**Aims/benefits**

- Automatic advisor support/augmented 360° “client perspective”
- Developing expertise in scalable, AI-based advisory services and interested-party management

**Blockchain technology**

- “Smart contracts” for unsecured loans
- Speed and efficiency in loan decisions and processing
- Potential technology vehicle for securitisation
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