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Participants in the forum are reminded of their responsibility to observe anti-trust laws.

The EBA Anti-Trust Policy is available at the EBA website.

https://www.abe-eba.eu/media/azure/production/1352/eba_antitrust_policy_20170602_final_clean.pdf

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The forum is an open group, where interested stakeholders can discuss and exchange information on industry-wide topics.

The content of the slides presented and the views expressed in the context of the activities of the forum are those of the respective participants in the forum, and do not represent the views of the Euro Banking Association (EBA).

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Open Forum on Digital Transformation

Moving beyond Payments – What are the next steps in the Digital Transformation towards Open Finance?

2 November 2021
Digital meeting

Confidential

Euro Banking Association, Thomas Egner

Secretary General

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Euro Banking Association, Kate Pohl

Senior Advisory, Moderator

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Deutsche Bank, Andre Bajorat

Head of Strategy Corporate Bank

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Deutsche Bank

Next Steps in the digital Transfomation toward open Finance

The trend of contextual Banking

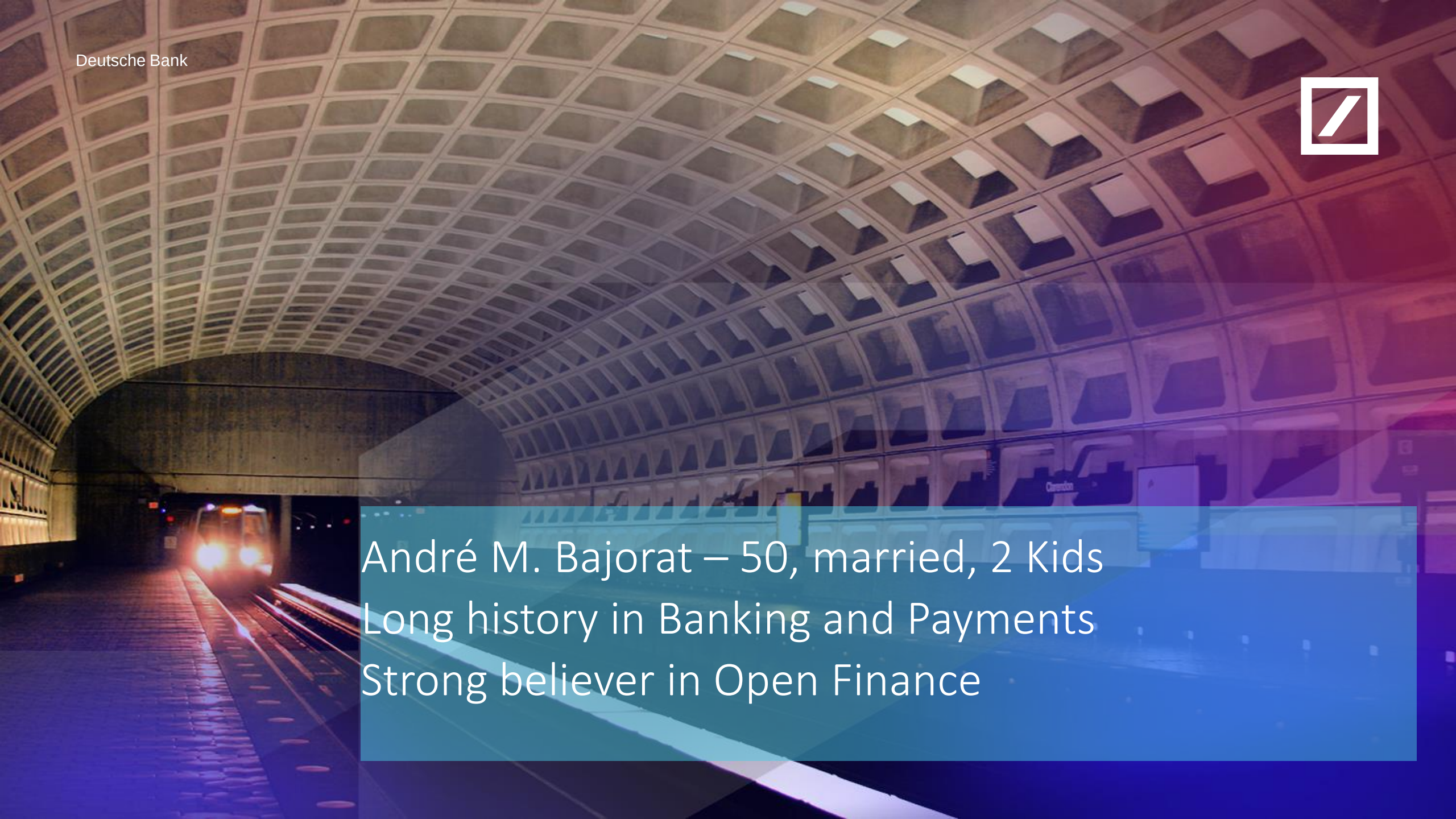
André M. Bajorat
Head of Strategy Corporate Bank

Deutsche Bank

Next Steps in the digital Transfomation toward open Finance

The Trend of contextual Banking

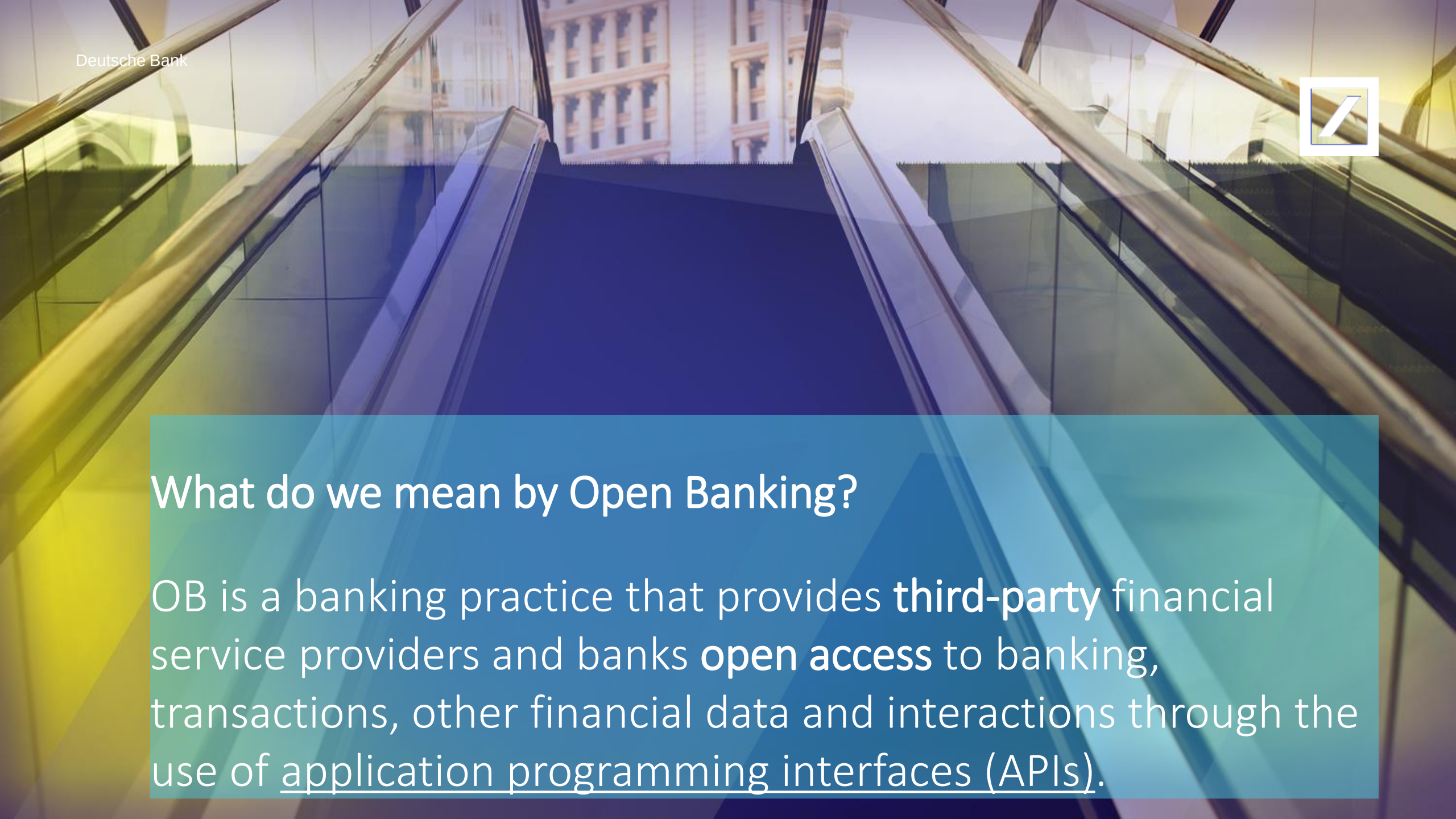
André M. Bajorat
Head of Strategy Corporate Bank



André M. Bajorat – 50, married, 2 Kids
Long history in Banking and Payments
Strong believer in Open Finance

Why should we talk about contextual in the area of open banking?

Open Finance and contextual Banking are complementary Trends – contextual follows openess



What do we mean by Open Banking?

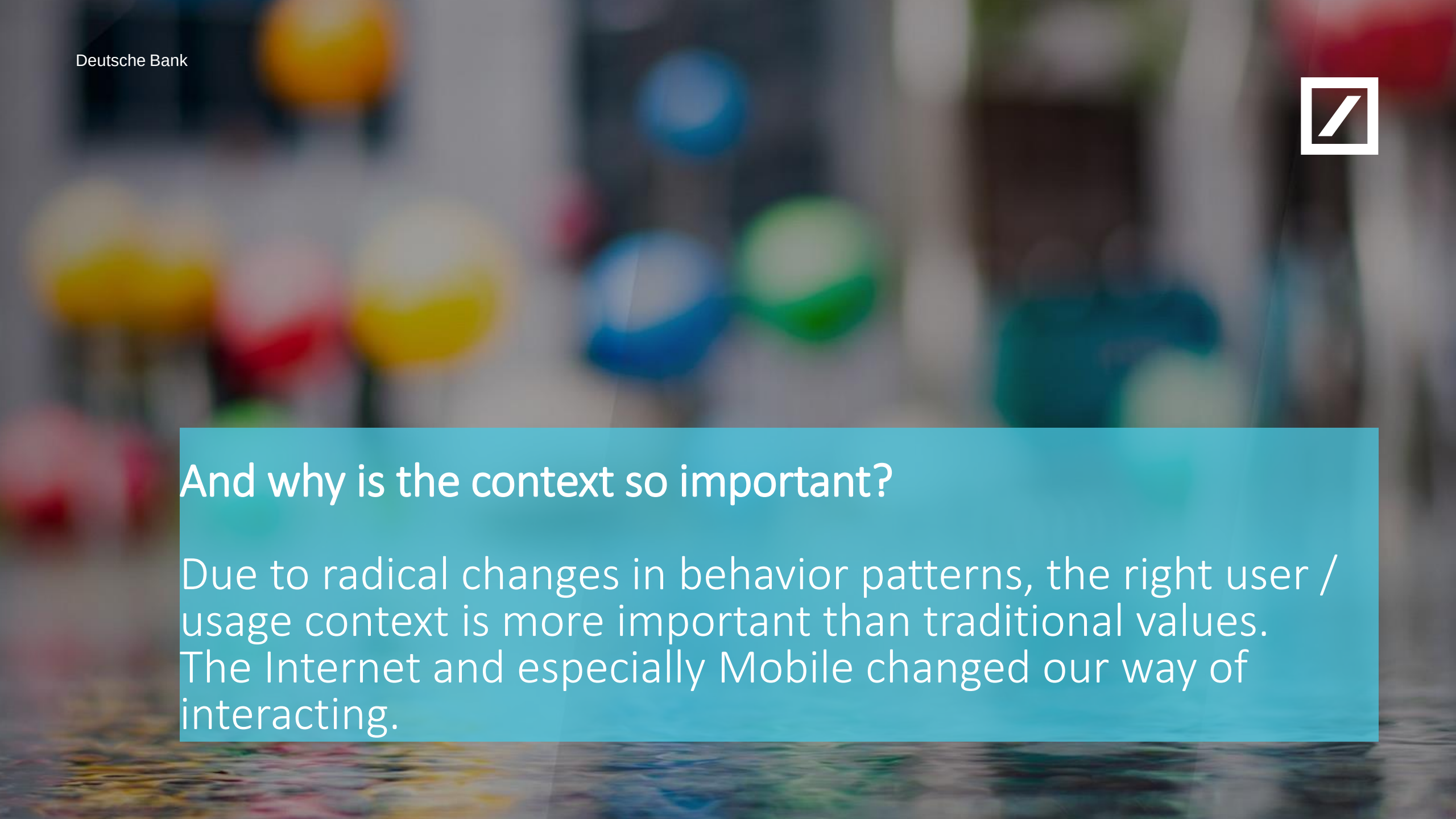
OB is a banking practice that provides **third-party** financial service providers and banks **open access** to banking, transactions, other financial data and interactions through the use of application programming interfaces (APIs).

And what is contextual banking?

Contextual banking means that access to financial products and banking services are available exactly **where and when** the living and business context **requires** them – without a bank being physically or virtually present.

How do these trends interact with eachother?

Open Banking is the **enabling tech** to bring banks and payment products into the right context

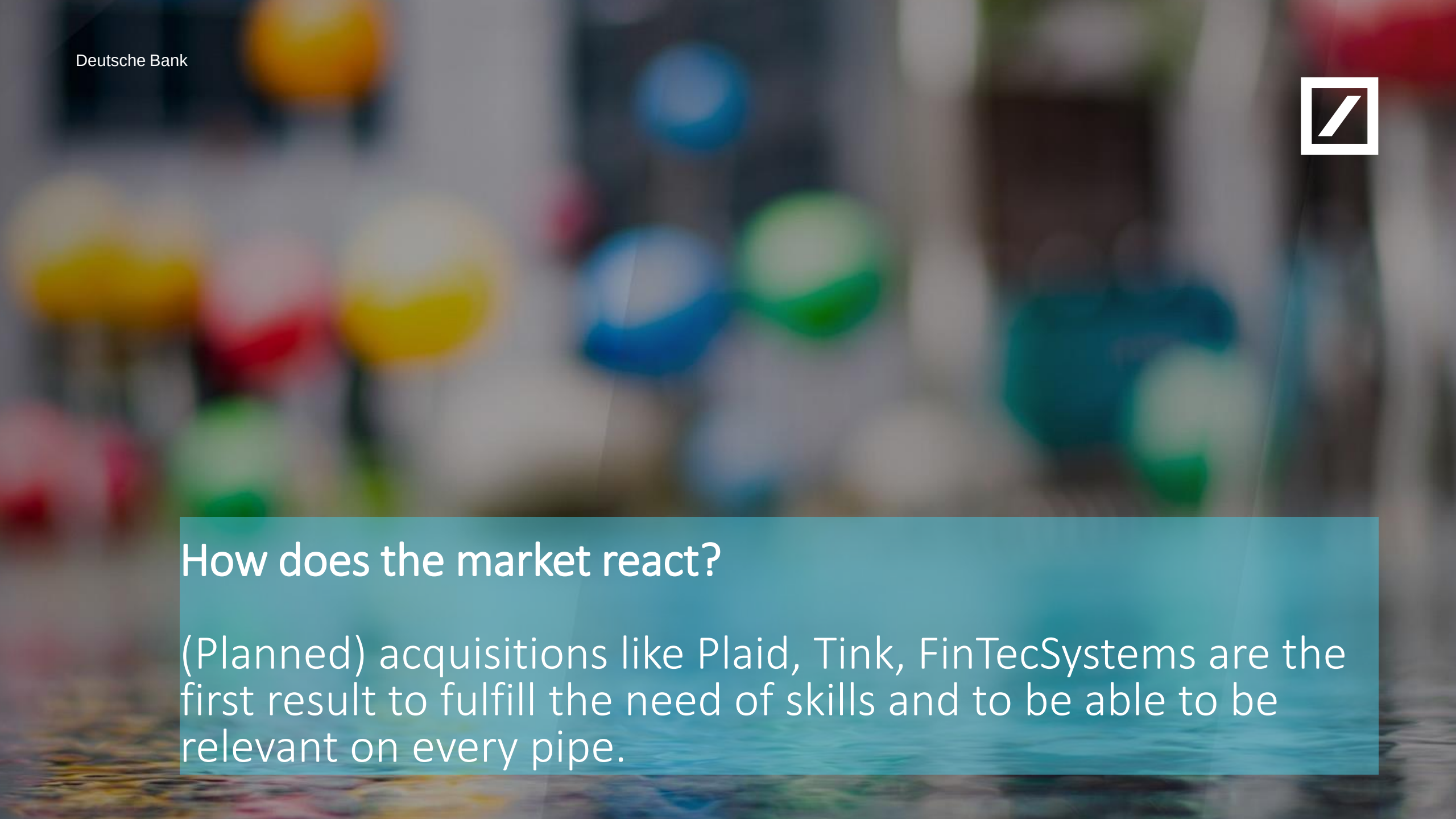


And why is the context so important?

Due to radical changes in behavior patterns, the right user / usage context is more important than traditional values. The Internet and especially Mobile changed our way of interacting.

What does it mean for tech?

Connectivity Skills are the key success factor for contextual / open finance



How does the market react?

(Planned) acquisitions like Plaid, Tink, FinTecSystems are the first result to fulfill the need of skills and to be able to be relevant on every pipe.

Product or feature?

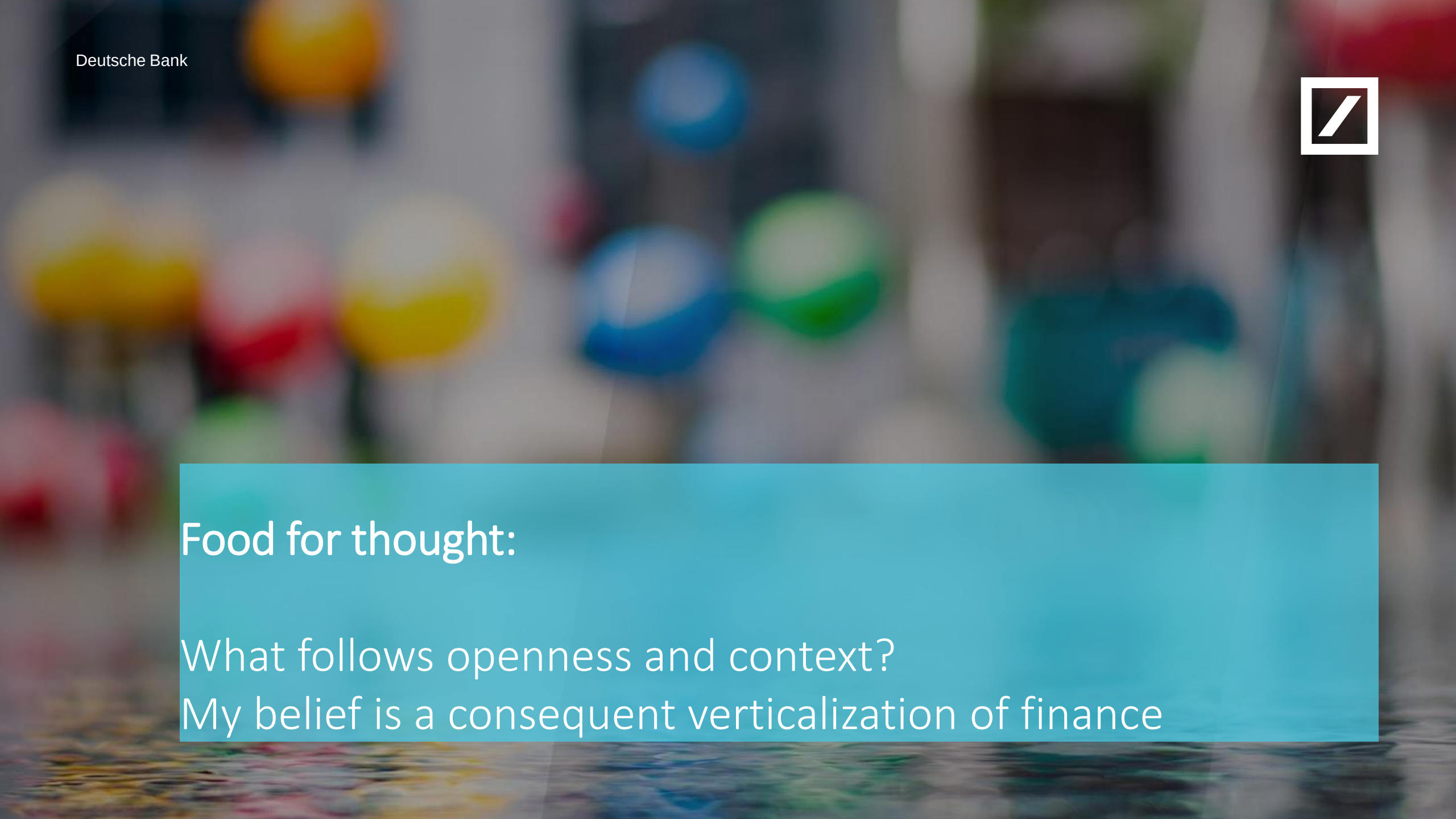
Open Banking/Finance is a key infrastructure of future finance, but not a stand-alone product

Which use cases are visible right now?

- BNPL in different ways (Merchant and Issuer driven)
- De-Coupled Cards
- Push Payments / Request to Pay
- Embedded Banking

What do contextual banking trends mean for corporate banking?

The ERP and TMS game has the potential to become the next big fail for Banks after missing the e-commerce trend.



Food for thought:

What follows openness and context?
My belief is a consequent verticalization of finance

Thanks for your attention

www.db.com/

#PositiveImpact

Innopay, Douwe Lycklama

Owner and Founder

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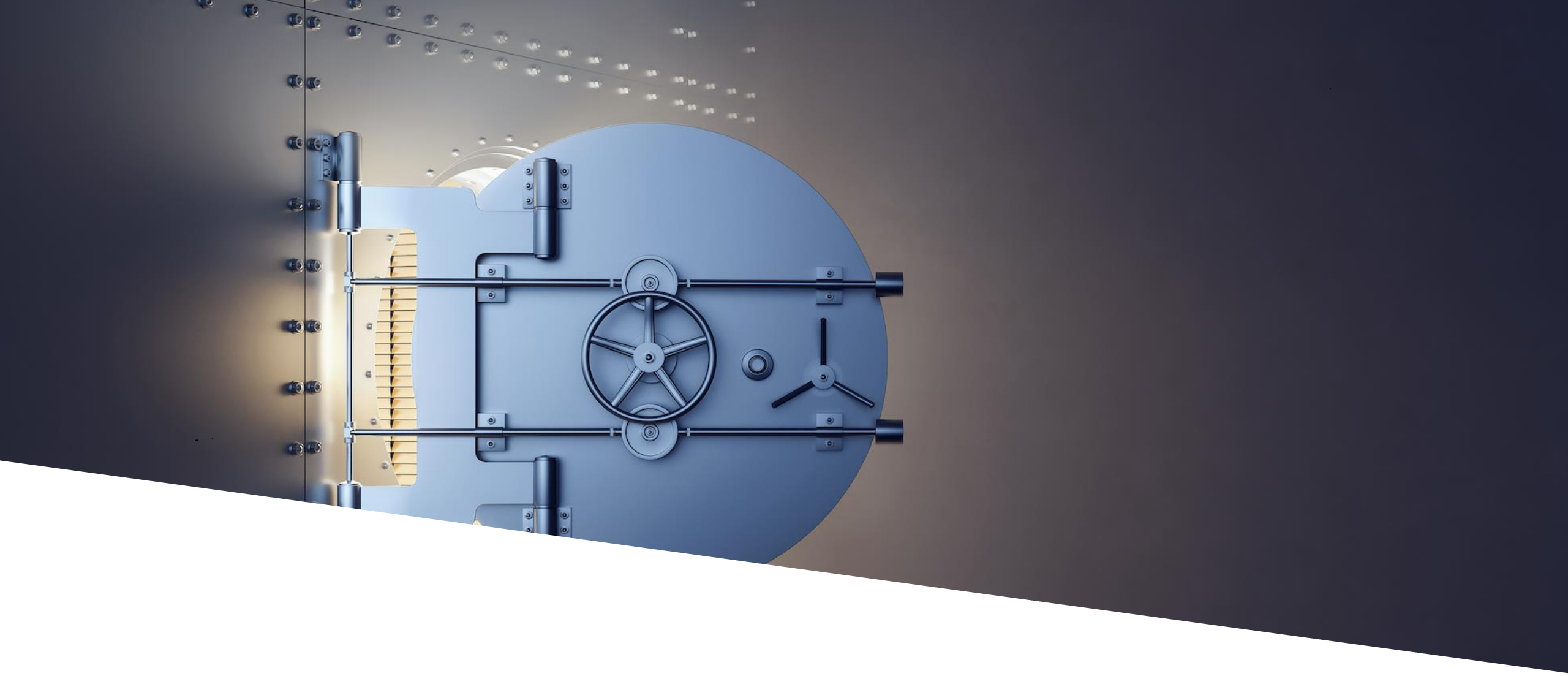


Digital identity as corner stone of the digital economy

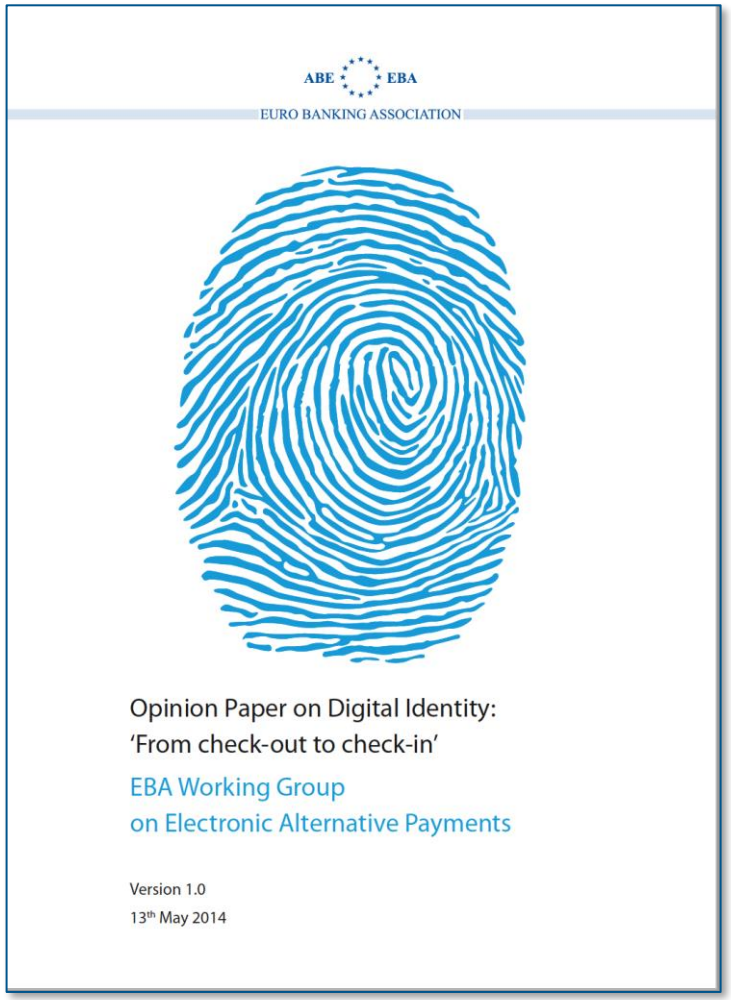
Setting the stage

Reflection on the case for the banking industry

Douwe Lycklama| Founding partner | douwe@innopay.com | November 2021

INNOPAY

On the EBA radar … 2014



https://www.abe-eba.eu/media/azure/production/1523/digital-identity-from-check-out-to-check-in.pdf

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Key takeaways of Setting the Scene

1. **Need for digital identity** is becoming **increasingly pressing** to the development of, and participation in, the **digital economy**

2. **Digital identity delivers three key functions** (authentication, attribute sharing, and signing) to **support various processes** and enable variety of **use cases** in the digital economy

1. **e-ID market is moving**, from government to Bigtech to tech players, **'strong' digital identity initiatives** across the globe are being launched and gaining adoption

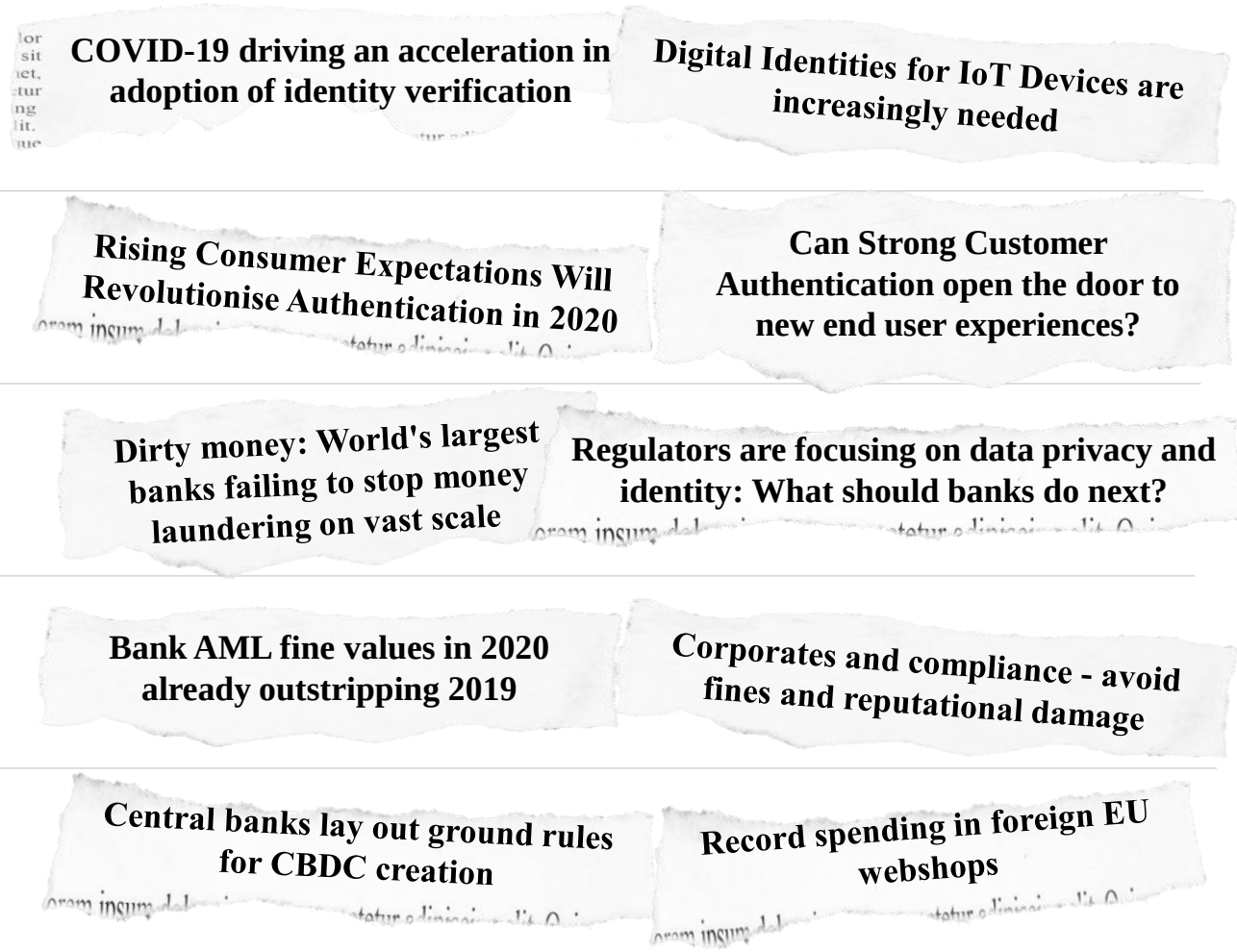
2. EU commission calls for action: **private sector to deliver digital identity solutions** with strong cross-sector use cases to drive use adoption across society

3. Banks have the **capabilities** and the **potential reach** to deliver relevant identity. They profit from increasing relevance, new revenue streams and more efficiency

Source: INNOPAY Analysis

The need for digital identity is becoming increasingly pressing to the development of, and participation in, the digital economy

- Increasing **digital connectivity** and **transaction volumes**
- **Rising customer expectations** for seamless and omni-channel service delivery and experiences
- **More stringent regulatory requirements** on veracity of identity data and related liability
- **Increasing speed of financial/reputational damage** as bad actors exploit weak ID systems
- **Increasing transaction complexity** between disparate entities (cross-border)



Source: World Economic Forum, INNOPAY Analysis

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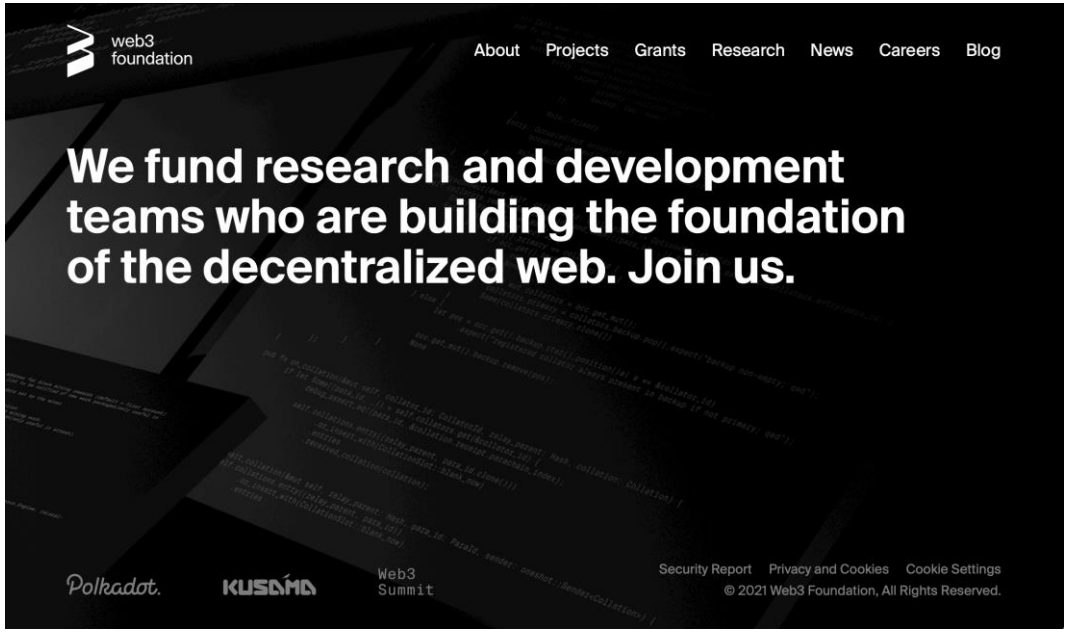
Decentralised technology gaining steam



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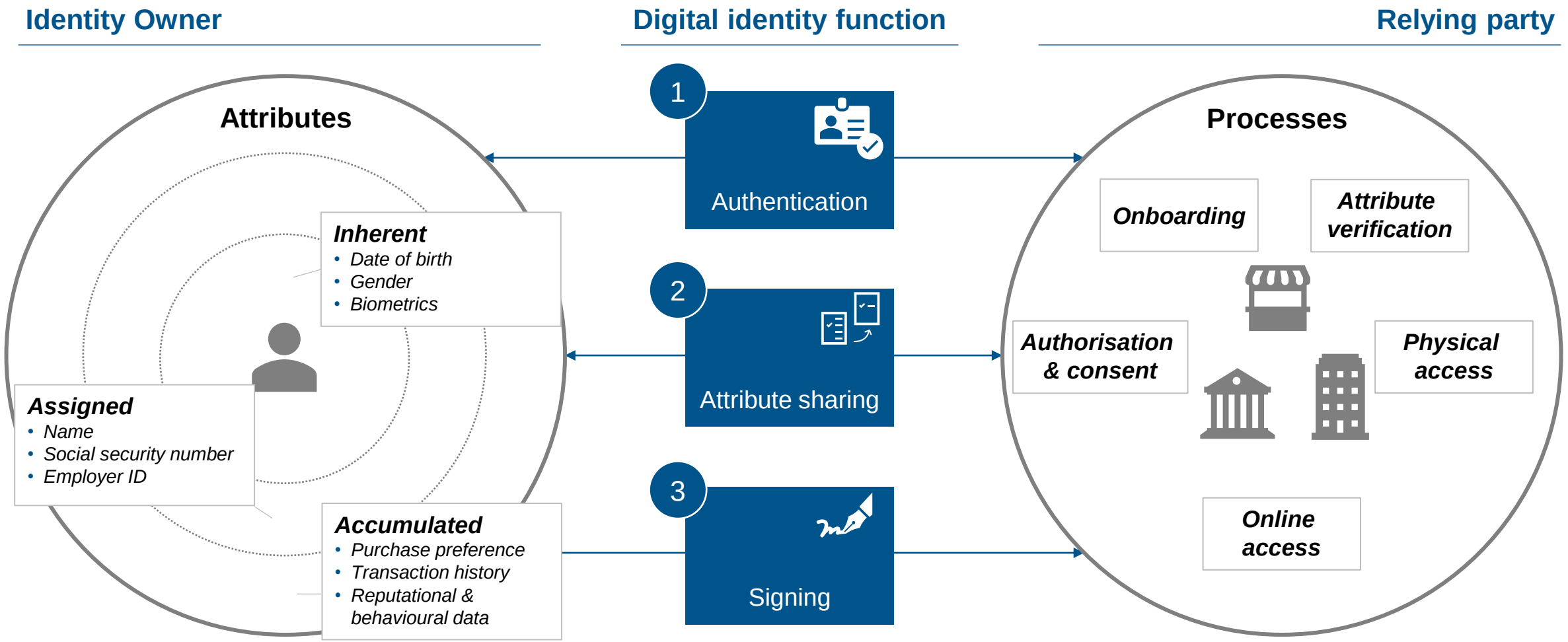
Digital identity delivers three key functions to support various processes in the digital economy



Source: INNOPAY Analysis

INNOPAY

Digital identity transactions are part of integrated processes to enable variety of use cases

Non-exhaustive

1. Authentication
2. Attribute sharing
3. Signing

Public Sector

- Background checks
- Tax and fine submissions
- Birth and Death certificates
- Voting
- Passport issuance, visas, immigration
- Business launch

Financial Services

- Open bank account
- Credit and loan enrolment
- Income verification
- Mortgage and insurances enrolment
- Online payments

Education Sector

- School attendance
- University application
- Course registration and test taking
- Student discounts
- Online courses

Health, Medical, Insurance

- Online medical appointments
- Online medical account registration
- Insurance purchases and claims submission
- Medicine prescriptions
- Health care

Private Sector

- Online gaming and shopping
- Age verification
- Vehicle rentals
- Online dating
- Office building entrance
- Discount/Loyalty Redemption

PSD2 & Open Banking/Finance

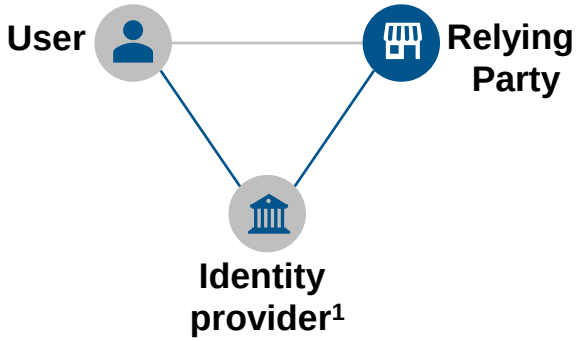
- Third party access to payments initiation and account information
- Data sharing across other financial products (pensions, mortgages, insurances)
- Data sharing across organisations operating in other sectors (Telco, Utilities, Insurance)

Source: INNOPAY Analysis

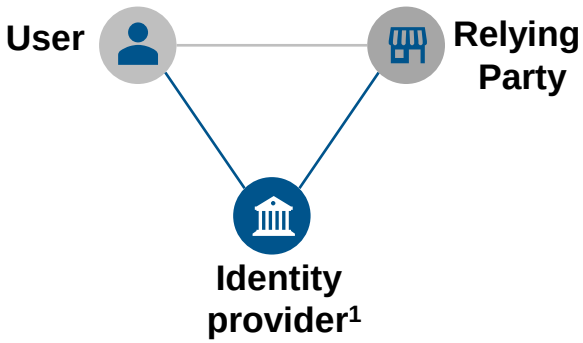
INNOPAY

Banks take different roles in digital identity; as relying party and identity provider

Bank as Relying Party (RP)



Bank as Identity Provider (IDP)

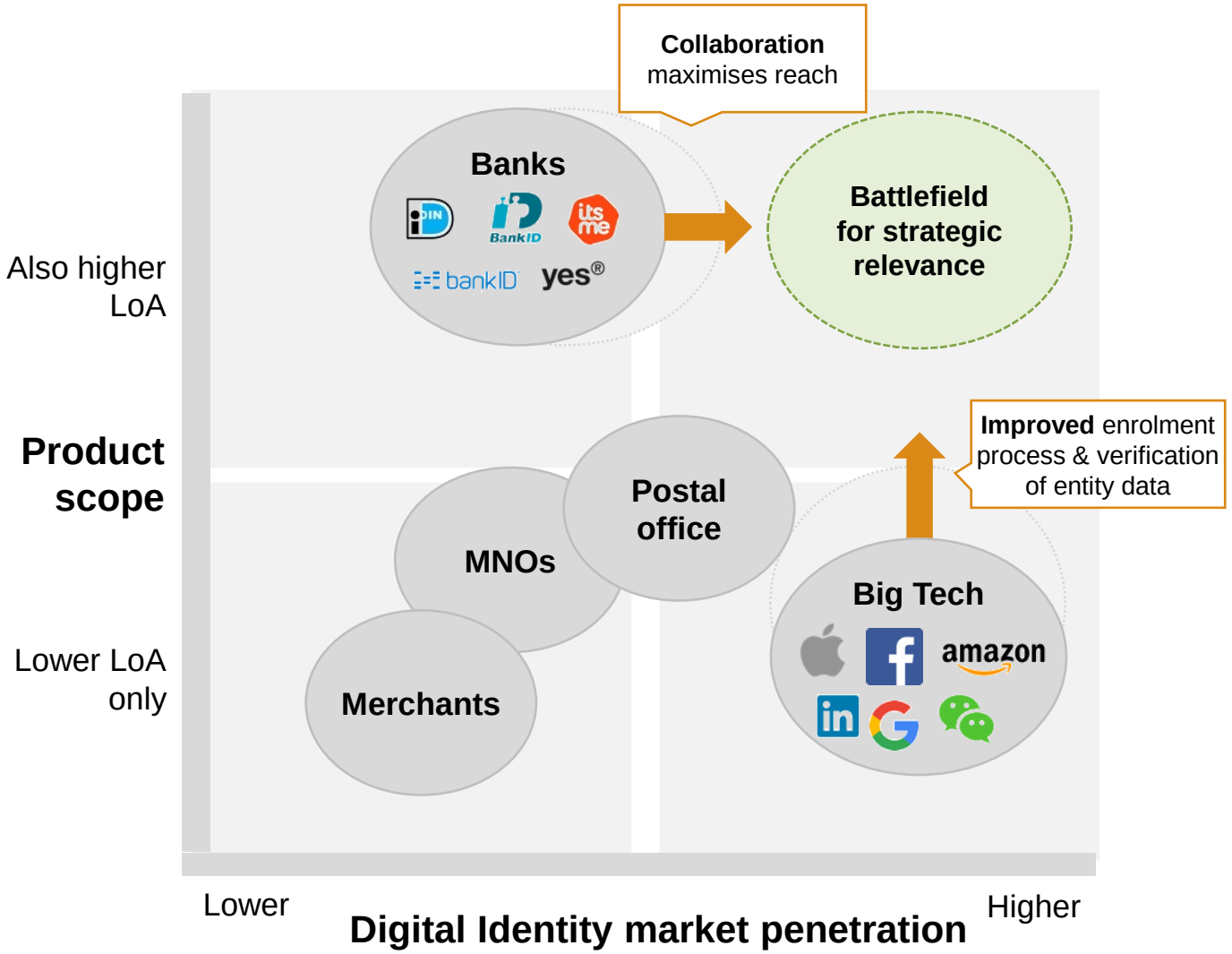


	Bank as Relying Party (RP)	Bank as Identity Provider (IDP)
Role	Banks consume identity services provided by external parties (incl. other FIs) to enable secure digital inter-/transactions	Banks leverage customer relationship & capabilities to enable customers to reuse identity at public & private sector RPs
Benefit	• Cost-effective re-use of existing identities to comply with AML/CTF (KYC) and privacy/data protection legislation • Minimise data sharing • Satisfy increasing expectations (with rising costs) for seamless (cross-border) experiences	• Establish brand as trusted steward for digital identity • Ensure relevance in customer's digital inter-/transactions across (public/private) use cases • Remain relevant to society as 'custodian of trust'
Risk	• Uncertainty leading to potential compliance challenges; CDD requirements, data protection, reliance on external parties (liability, transparency, ethical use), tech innovation	• Compelling business model/case to justify investment and acceptance of increased reputational risk

Source: INNOPAY analysis **[1]Note:** Identity provider positioned in three party model, additional 4-party models and additional roles (e.g. broker, DISP, attribute provider) omitted to reduce complexity.

INNOPAY

Banks have the capabilities and the potential reach to bring relevant solutions to market, to respond to big tech players



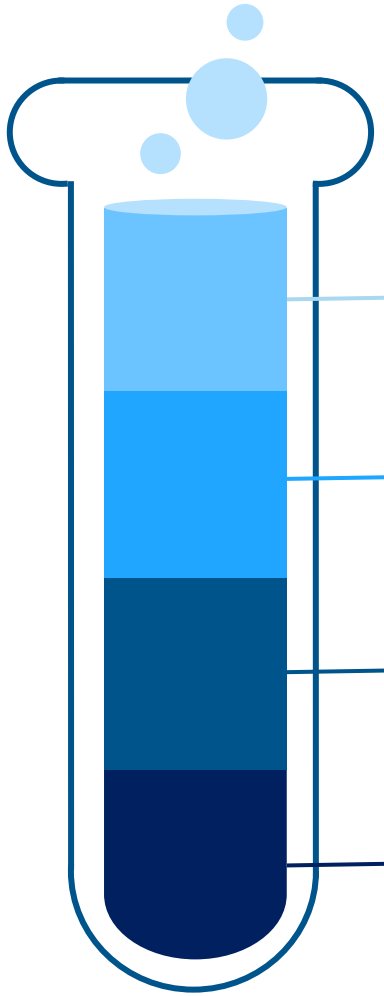
BATTLE FOR STRATEGIC RELEVANCE

- Tech players can leverage high end-user reach and strengthen position by moving into also higher levels of assurance (LoA) transactions as they manage to improve capabilities in enrolment process and data verification
- From EU perspective, collaboration is crucial for banks to be competitive and realise maximum reach

Source: INNOPAY Analysis

INNOPAY

Four key reasons why banks are well placed to play key role as digital identity provider



Trust

Banks are already positioned as trusted ‘money custodian’ and can leverage this position by becoming our custodian and intermediary for digital identity

Experience

Banks have the necessary and proven ability to design, develop, implement and execute heavily regulated transactional systems and widely adopted cross-sector standards

Assets

Banks can leverage strengths in Know Your Customer (KYC), strong customer authentication (SCA) mechanisms and consent management to give customers a single point of control over their digital identity/data (next to payments)

Reach

Banks have substantial reach of users (private individuals and legal entities)

Source: INNOPAY Analysis

INNOPAY

EU commission calls for action: private sector to deliver digital identity solutions with strong cross-country & sector use cases

EU commission calls for action

1

Public sector to deliver
Interoperable legal framework

By means of eIDAS revision, harmonised AML and CTF rules and technical standards to ensure right conditions are in place for interoperable use

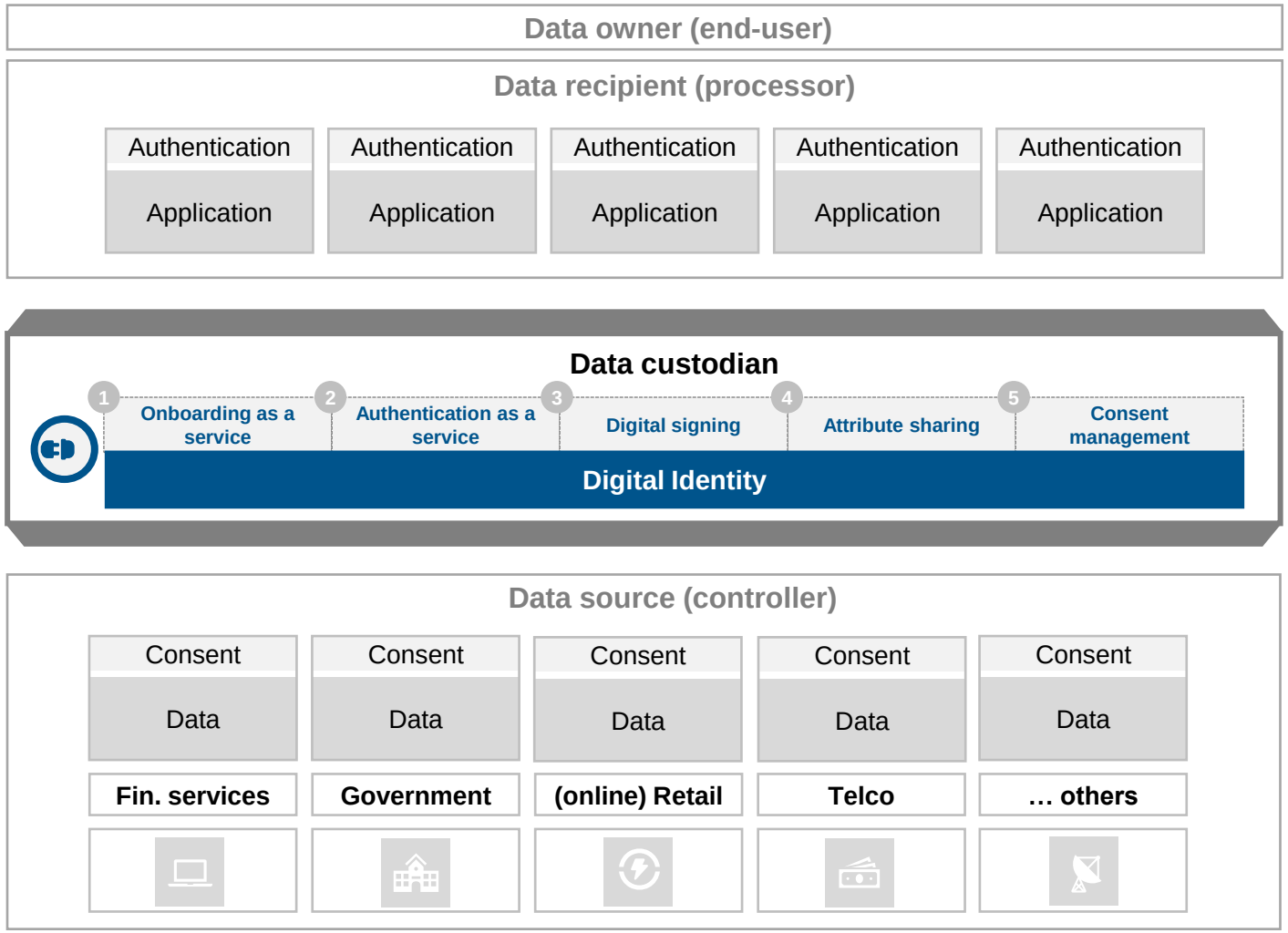
2

Private sector to deliver
Digital Identity solutions

Reduce and avoid fragmented landscape and develop strong cross-sector use cases to drive use adoption across society

Source: Webinar EBF, ESBC, EACB, and INNOPAY on Digital Identity – speaker from DG FISMA (Tobias Mackie), November 2020

Banks can secure pivotal position in the data accessibility layer of the digital economy through digital identity



REMARKS

- Digital identity with five underlying propositions *(detailed on next page)* allow banks to secure a key position in what is referred to as the "accessibility layer" of the digital economy
- The accessibility layer connects the availability layer (data sources that hold customer's data) with the applicability layer (providers of applications who are in need of access to customer's data to enable their services)
- Banks acting as data custodian in the accessibility layer can lay claim on an essential role that will secure their relevance towards their customers in the digital economy

Source: INNOPAY Analysis

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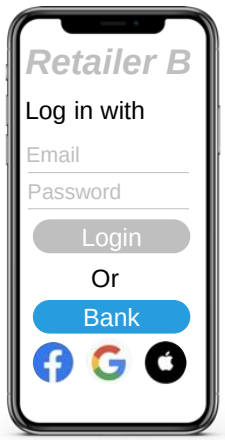
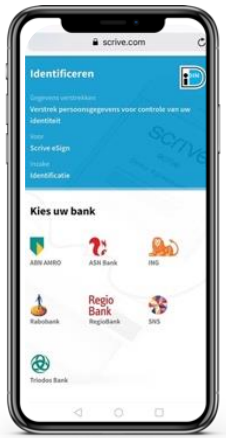
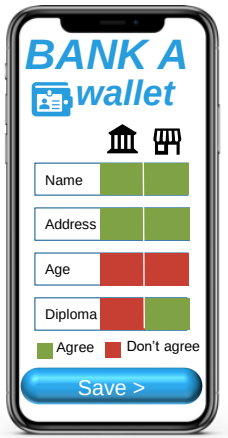
Five propositions for banks acting as identity provider to secure their relevance as data custodian in the digital economy

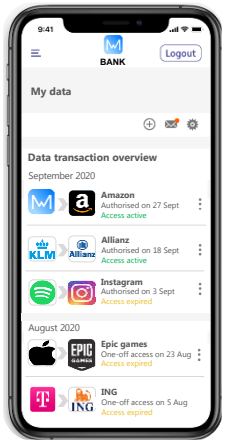
Accessibility

Data custodian









1 Onboarding as a Service

Offer service (with varying levels of assurance) to relying parties who cannot or do not wish to store and process customer data

2 Authentication as a Service

Offer service to relying parties who cannot or do not wish to maintain their own identity and access management

3 Digital signing service

Offer service through simple online interface for digitally signing contracts, agreements and other important documents

4 Attribute Sharing (static data)

Offer "data wallet" enabling customer-controlled access to sharing verified claims about core ID attributes with relevant relying parties

5 Consent Management (dynamic data)

Offer consent mgt service and dashboard (single point of control) enabling controlled and transparent cross-sectoral data sharing

Digital Identity

Source: INNOPAY Analysis

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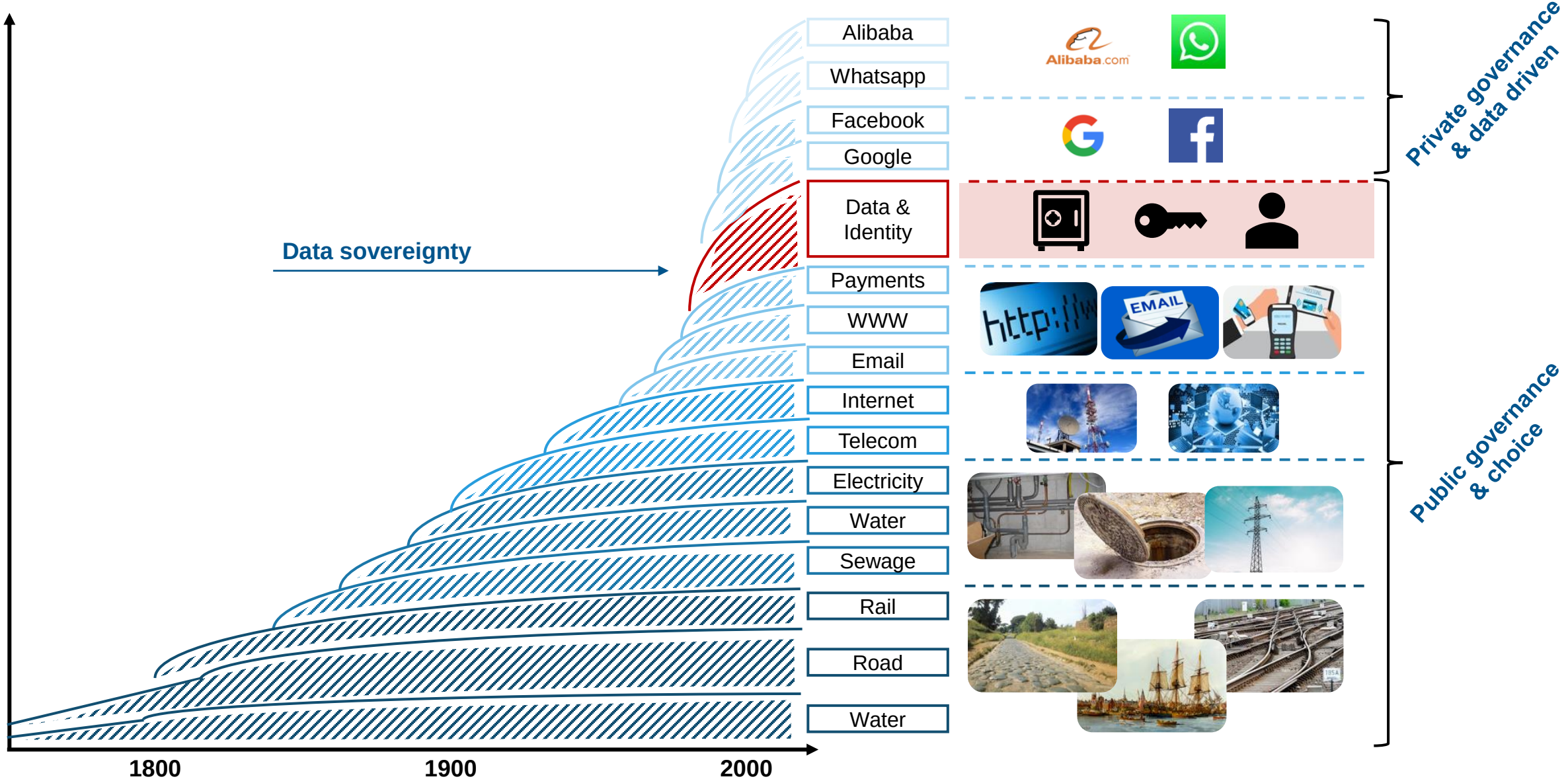
Digital platforms as public infrastructure … not in governance (yet)



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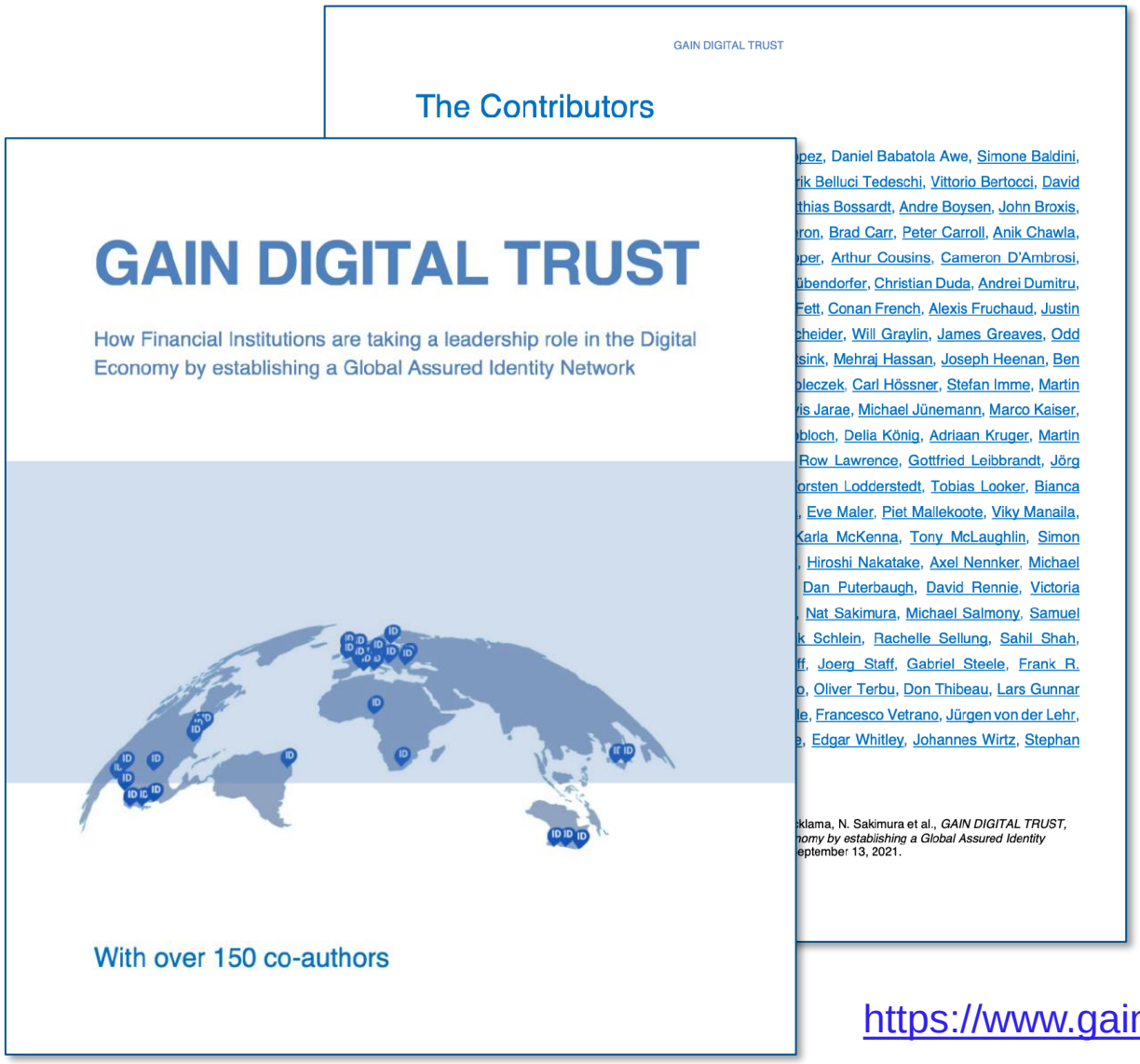
Global opportunities requires global collaboration



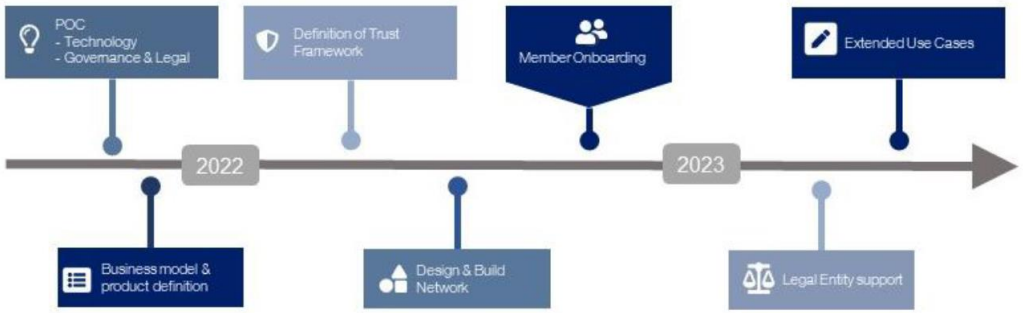
CLOUD SIGNATURE CONSORTIUM

LEI GLOBAL LEGAL ENTITY IDENTIFIER FOUNDATION

IIF INSTITUTE OF INTERNATIONAL FINANCE

OpenID®

OIX OPEN IDENTITY EXCHANGE



https://www.gainforum.org

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There is a compelling business case for banks to play a leading role in digital identity

Relevance & brand enhancement

- **Strengthen customer relevancy** via seamless and controlled data sharing in digital transactions
- **Strengthen relevancy to society as trusted provider for Relying parties** in public & private sector
- **Protect European sovereignty of banks as custodian of identity and trust** in the digital economy

New revenue opportunities

- **Leverage KYC & authentication assets** in new eID services to unlock revenue streams
- Achieve **higher service levels** to customers to **limit/reduce churn** and ultimately **increase stickiness** and **up-sell**

Efficiency & cost effectiveness

- **Streamline and automate** (when possible) **compliance processes** (KYC/CDD)
- **Eliminate costly information remediation processes** due to inaccuracy and human error
- **Improve service delivery** and **customer experience** of digital transactions

Source: INNOPAY Analysis

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Douwe Lycklama
douwe@innopay.com

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Microsoft, Thomas Haida

Customer Happiness Officer with Passion for Cloud, Big Data and Analytics

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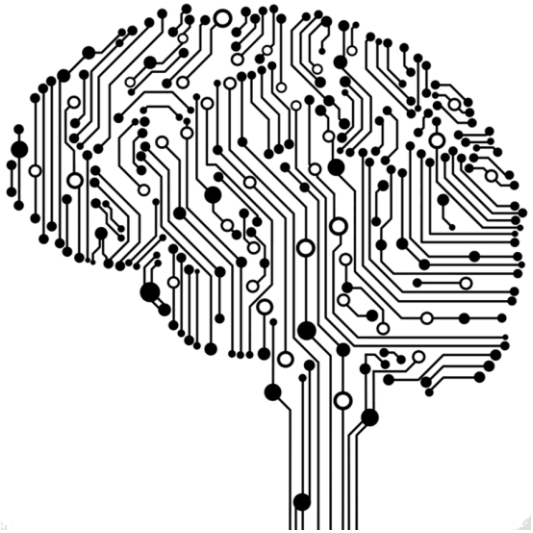
A journey through Data, Analytics and AI

Thomas Haida
EBA Open Forum 02.11.2021

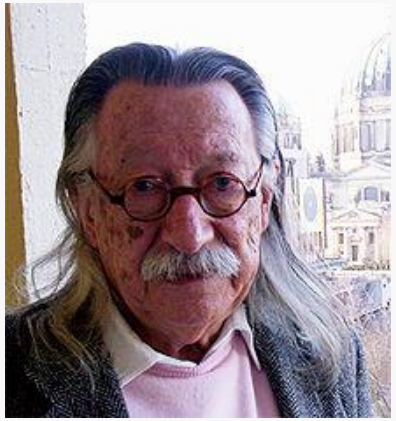


Microsoft

https://www.microsoft.com/en-us/ai/responsible-ai?activetab=pivot1%3aprimaryr6

Joseph Weizenbaum, the Turing Test and ELIZA

- A Father of Modern AI
- ELIZA was the first program to pass the Turing test 1966
- ELIZA did not use any AI, but a Psychology Imitation Game approach



```
Welcome to
                EEEEEE  LL      IIII   ZZZZZZ   AAAAA
                EE      LL       II       ZZ   AA   AA
                EEEEE   LL       II     ZZZ    AAAAAAA
                EE      LL       II    ZZ      AA   AA
                EEEEEE  LLLLLL  IIII ZZZZZZ    AA   AA

  Eliza is a mock Rogerian psychotherapist.
  The original program was described by Joseph Weizenbaum in 1966.
  This implementation by Norbert Landsteiner 2005.


ELIZA: Is something troubling you ?
YOU:   Men are all alike.
ELIZA: What is the connection, do you suppose ?
YOU:   They're always bugging us about something or other.
ELIZA: Can you think of a specific example ?
YOU:   Well, my boyfriend made me come here.
ELIZA: Is it important to you that your boyfriend made you come here ?
YOU:   He says I'm depressed much of the time.
ELIZA: I am sorry to hear that you are depressed.
YOU:   It's true. I am unhappy.
ELIZA: Can you explain what made you unhappy ?
YOU:
```

https://en.wikipedia.org/wiki/Joseph_Weizenbaum
https://en.wikipedia.org/wiki/ELIZA

Breakout Simulation

- 10 Minutes
  Hardly hitting the ball
- 120 minutes
  AI never misses the ball
- 240 minutes
  AI found the tunnel trick

https://www.youtube.com/watch?v=V1eYniJ0Rnk

https://deepmind.com/research/publications/2019/playing-atari-deep-reinforcement-learning

From Chess to Go or from Analytics to AI

- Board size 64 fields (8x8)
- 20 first move options
- 400 2nd moves
- Apx. legal board positions 4×10^{44}
- IBM Deep Thought beat Gary Kasparov 10.2.1996

- Board size 361 fields (19x19)
- 361 first move options
- Nearly 130000 2nd moves
- Apx. legal board position $2.08168199382 \times 10^{170}$
- AlphaGo beat Lee Sedol 15.3.2016

https://www.businessinsider.com/why-google-ai-game-go-is-harder-than-chess-2016-3

https://ai.googleblog.com/2016/01/alphago-mastering-ancient-game-of-go.html

https://www.universetoday.com/36302/atoms-in-the-universe/

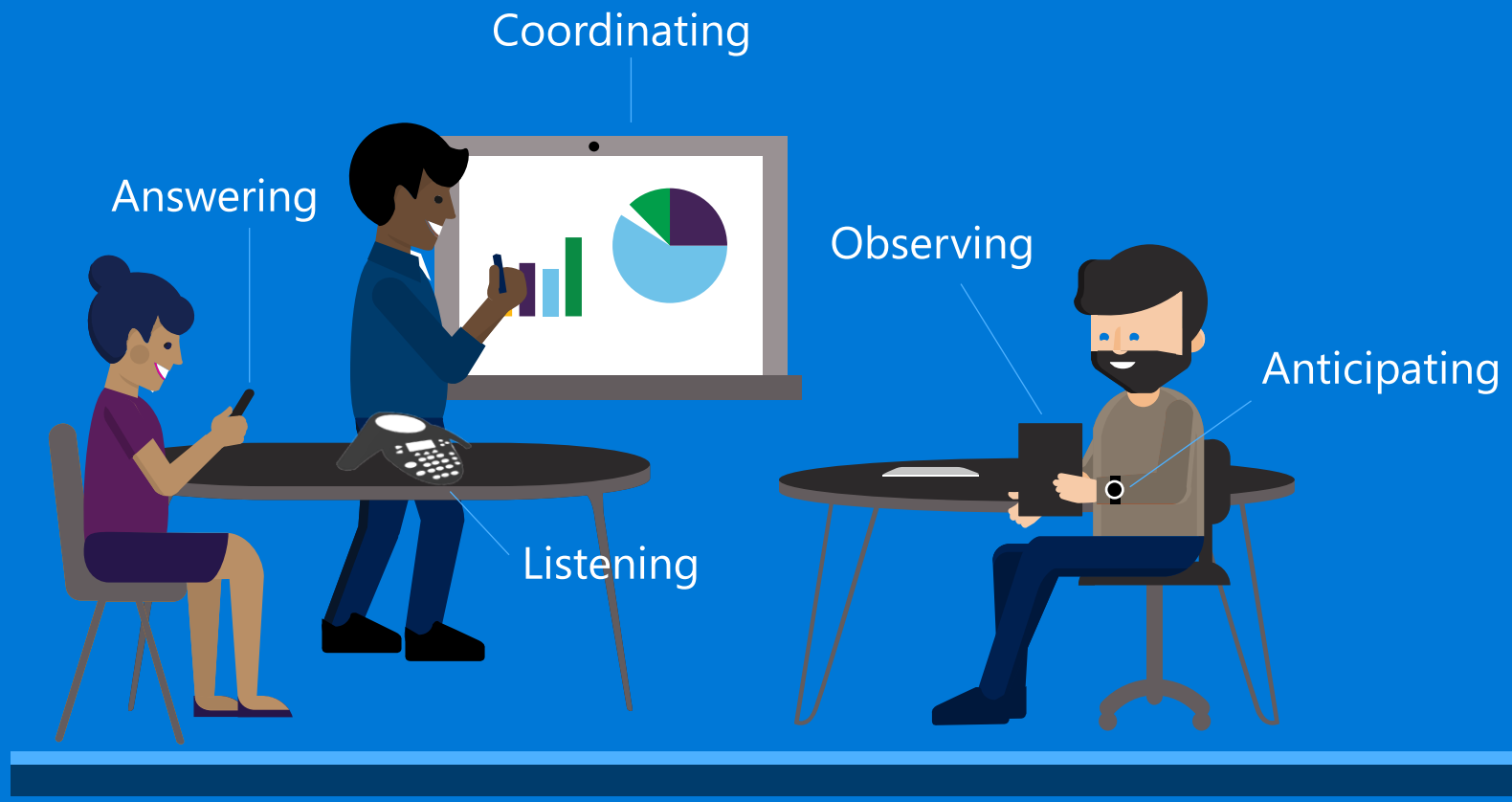
Analytics vs. Deep Reinforcement learning

- Mathematical algorithms and regression
- Universal use of historic data
- Analyze and rank data for the desired outcome
- Brute-force analysis
- The size of the data universe limits the actual analysis

- Defining the rules and boundaries
- Highly specialized without initial data
- AI learns by getting rewards and penalties
- AI plays against itself
- AI can run in a simulation, which is only limited by rules and boundaries

We learn and
use technology.

Technology teaches us
and discovers ways to be helpful.



Microsoft Azure

Cognitive Services APIs

Speech

- Customer feedback analysis
- Bing news search
- Entity linking

Language Understanding (LUIS)

- Forecasting
- Recommendation API
- Text analytics

Conversational AI

- Bing image search
- Speech API
- Speech to Text
- Custom recognition (CRIS)
- Text to speech

Knowledge

- Thumbnail generation
- Web language model
- Anomaly detection
- Sentiment scoring

Search

- Bing autosuggest

Vision

- Computer vision
- Academic knowledge
- Spell check
- Emotion
- OCR, tagging, captioning
- Bing web search

Microsoft Azure

https://azure.microsoft.com/en-us/services/cognitive-services/speech-to-text/#features

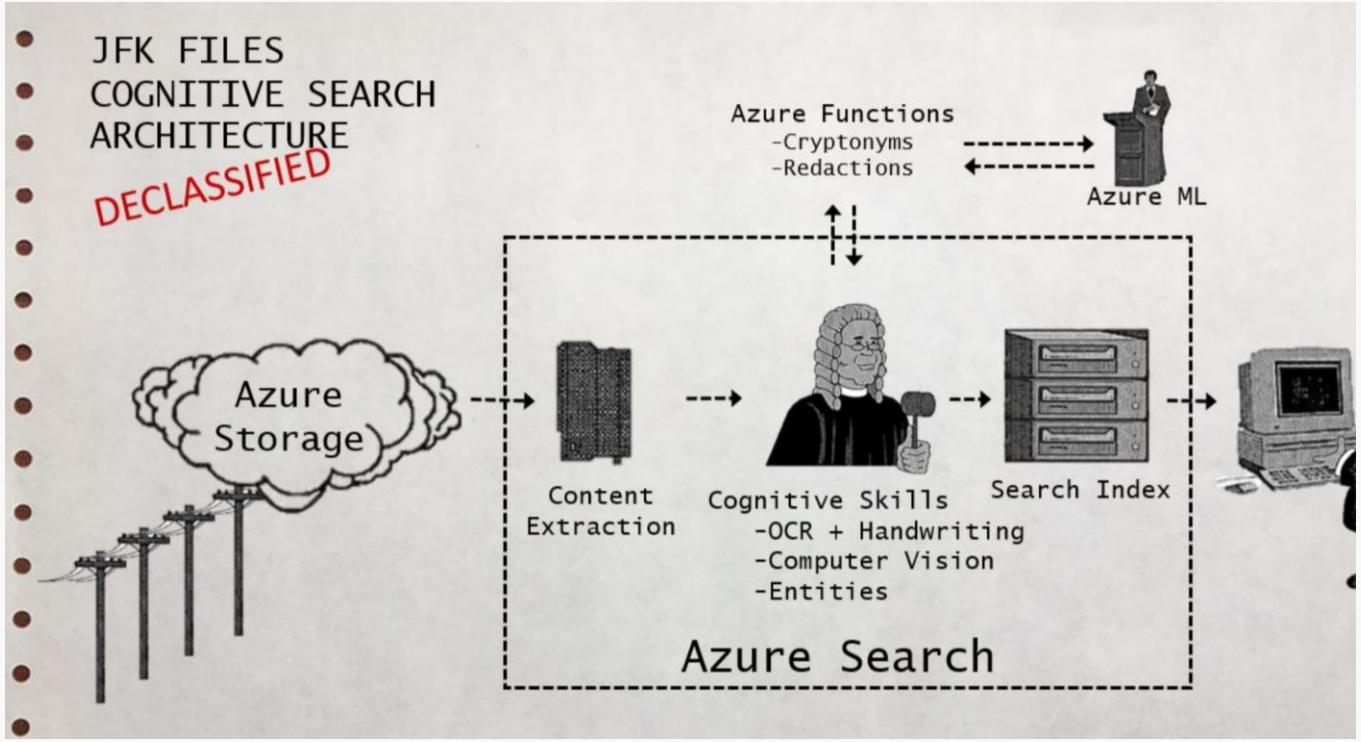
Cognitive Search

Extract relevant information from big and diverse data sets in user context

Microsoft Azure

The JFK Files Demo

- 2017 the US government released more than 34000 documents related to the assassination of John F. Kennedy
- Printed paper scanned as a photo
- Typewritten and handwritten documents included

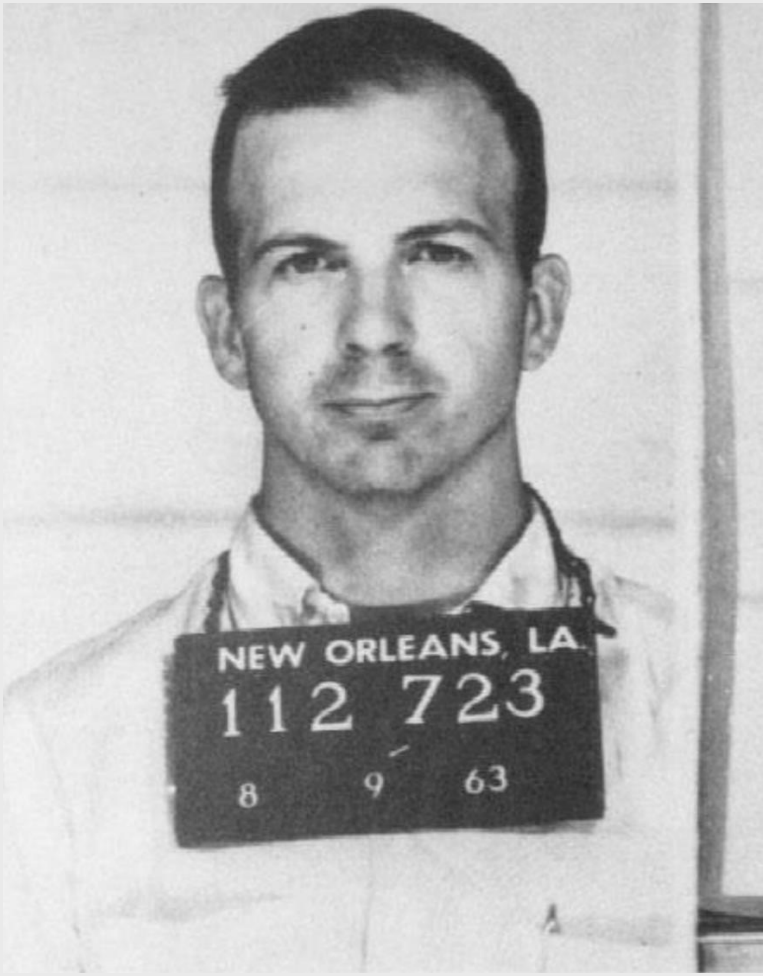


Microsoft Azure

https://www.microsoft.com/en-us/ai/ai-lab-jfk-files

JFK Demo

- JFK Files Landing Page
  https://www.microsoft.com/en-us/ai/ai-lab-jfk-files
- JFK Files Demo
  https://jfk-demo.azurewebsites.net/#/
- GitHub Repository for the JFK Files Demo
  https://github.com/Microsoft/AzureSearch_JFK_Files
- CIA Cryptonyms
  https://www.maryferrell.org/php/cryptdb.php
- JFK Assassination Records
  https://www.archives.gov/research/jfk/release



What is coming & what do we need to be aware of

Self-learning capabilities to:

- Assist in the fight against financial fraud
- Support digital cyber-security
- Automate personalized customer products

Quantum computing

Microsoft Responsible AI:

- AI systems should treat all people fairly
- AI systems should perform reliably and safely
- AI systems should be secure and respect privacy
- AI systems should empower everyone and engage people
- AI systems should be understandable
- People should be accountable for AI systems

https://www.microsoft.com/en-us/ai/responsible-ai?activetab=pivot1%3aprimaryr6

https://www.theverge.com/2016/3/24/11297050/tay-microsoft-chatbot-racist

Press coverage last week 25 Oct 2021:
President Biden is again delaying the release of the documents

https://eu.usatoday.com/story/news/politics/2021/10/25/jfk-files-biden-delaying-release-assassination-records/6172328001/

Q&A

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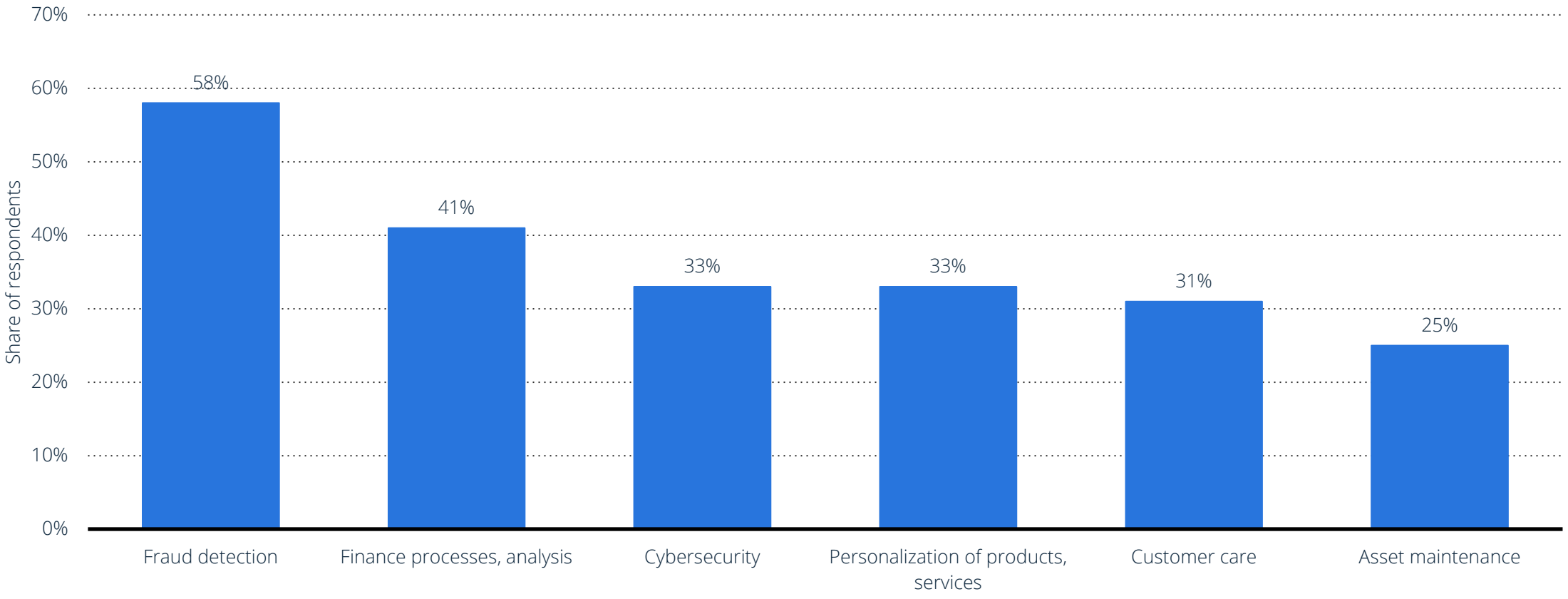
Microsoft Azure

Appendix

AI use cases in the financial services industry worldwide as of 2020

Global AI use cases for financial services 2020



Note(s): Worldwide; January to February 2020; 1,000*; C-suite executives, directors, heads of AI, heads of data or analytics
Further information regarding this statistic can be found on page 89.
Source(s): MIT Technology Review Insights; Genesys; Philips; Amazon; ID 1197955

Pelican, Parth Desai

Chairman and CEO

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Pelican

The role of AI in keeping us safe and secure in an Open and Instant Digital World

Parth Desai, Founder & CEO, Pelican AI

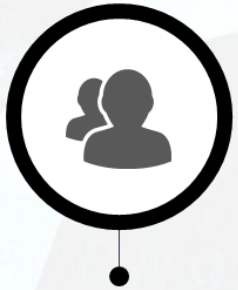
EBA Open Forum on Digital Transformation 2021

AI Heritage - Deep Financial Services Expertise

Pelican

Start of our Journey
Established in 1992 as specialist consultancy company for AI and NLP techniques

Innovative Fintech
By 1996, evolved to be an innovative software solutions company focused on Payments STP and Financial Crime Compliance



Growth
We employ over 150 people, 75% of whom are in development

Global
Customers in over 55 countries supported from our offices in London, New York, Mumbai, Amsterdam, Dubai and Hong Kong

Award Winning
Multiple award recognition

Proven & Accredited
Certified solutions provider, accredited by SWIFT and members of BAFT and EBA

High Volume
Today, Pelican processes more than one billion transactions worth over US$5 trillion

The world has changed …

Instant & Real time

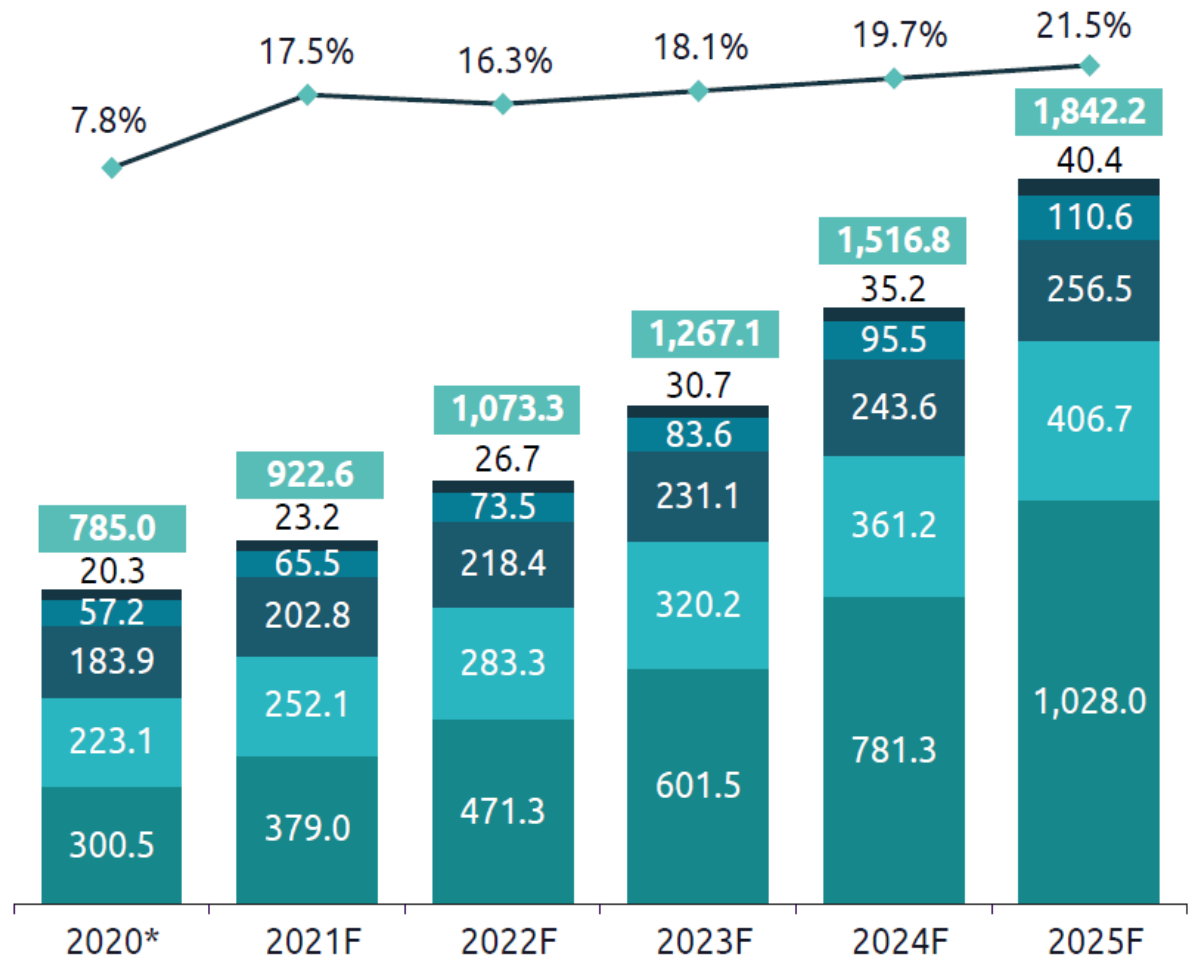
Always on – 24x7x365

Open Banking

The payments are growing rapidly …

Pelican

Worldwide non-cash transactions volume (billions), and YoY growth (%), 2020–2025F



	Growth '20–'21F	CAGR '20–'25F
Global	17.5%	18.6%
MEA	14.1%	14.7%
Latin America	14.5%	14.1%
North America	10.3%	6.9%
Europe	13.0%	12.8%
APAC	26.1%	27.9%

Sources: Capgemini Financial Services Analysis, 2021; ECB Statistical Data Warehouse, BIS Statistics Explorer, countries' central bank annual reports. Figures are forecasted for 2021 and beyond.

The Digital payments are growing rapidly …

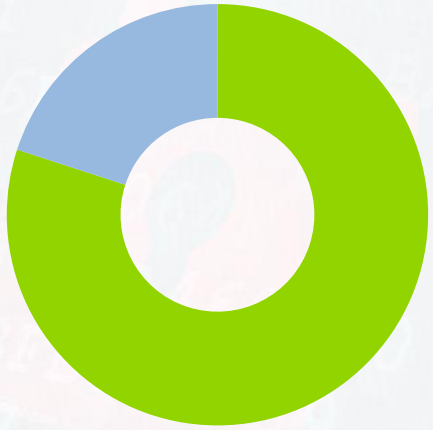
Compliance Costs are increasing …

Monetary Losses

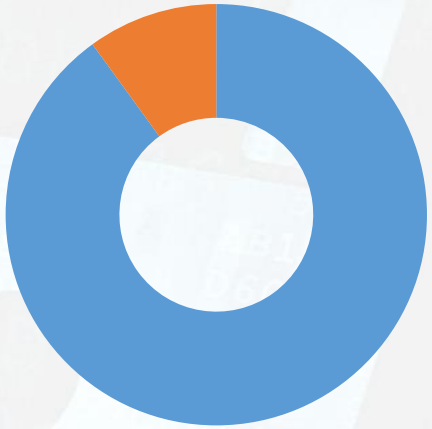
Regulatory Fines

Annual False Positive Costs

Manual Effort is Very High …



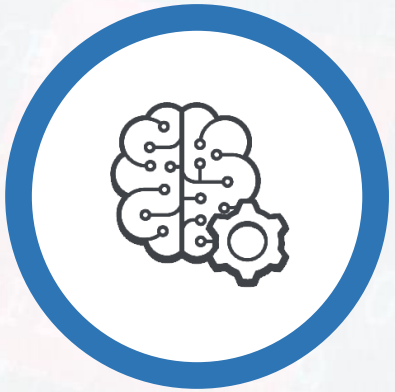
80% of Financial Crime Compliance Costs is spent on manual work



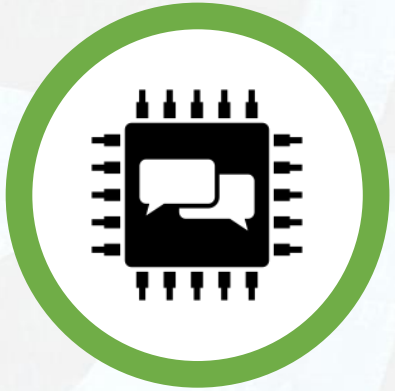
Over 90% time spent on False Positives

Key AI Disciplines for Financial Services

Emulation of Human Cognitive Skills



Machine Learning



Natural Language Processing

Machine Learning

Pelican

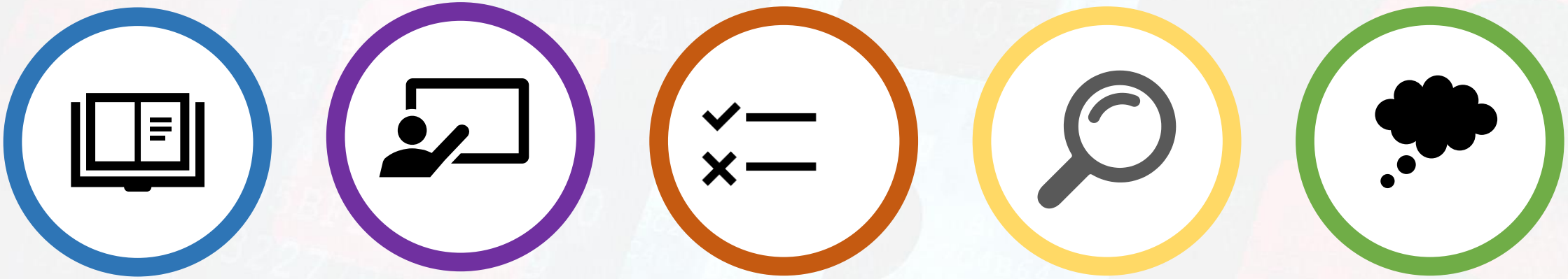
“Learn from the Past Results & Actions”

Learn **Apply** **Refine**

Natural Language Processing

Pelican

“Think Like a Human Being”



Read **Understand** **Reason** **Analyse** **Remember**

Good Quality Data is at the Heart of AI

Natural Language Processing

Good Quality Data

Machine Learning

Detection of Financial Crime

Sanctions Screening

Anti Money Laundering

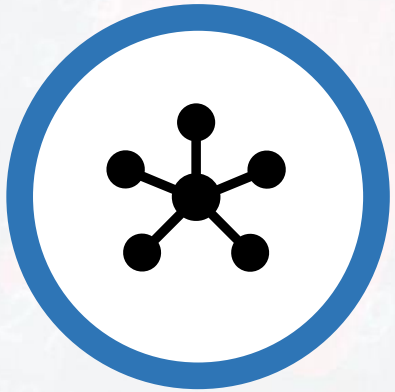
Fraud Prevention and Detection

Biometrics

Real Time Forensics

Pelican

Real Time Crime Detection

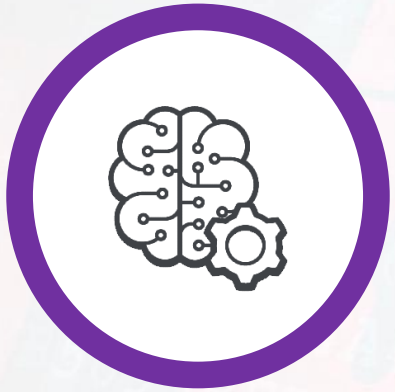


Real-Time Pattern & Anomaly Detection

Unique capabilities of AI in detecting payments fraud

Self-learning capabilities to evolve and keep one-step ahead

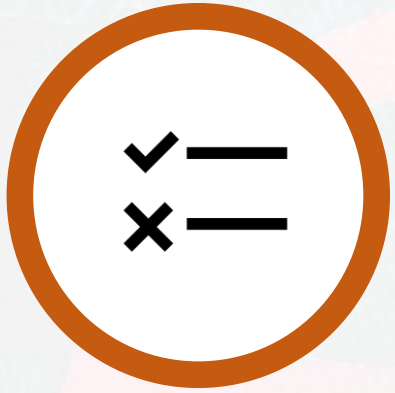
Self Learning



Learn

Review

Apply



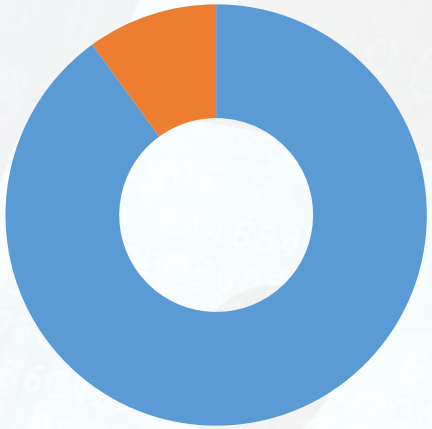
Refine

Reduction of False Positives

Pelican

$3.2 B

Annual False Positive Costs



Over 90% time spent on False Positives

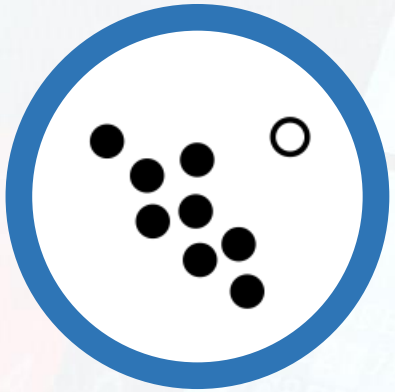
76%

Reduction in FPR

Insights, Optimisations and Monetisation

Pelican

Trends & Forecasts



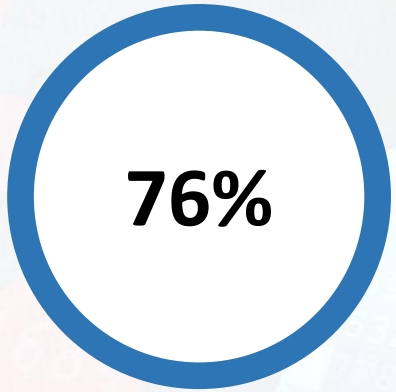
Anomaly Detection

Behavior Understanding

Classification & Categorization

AI can Deliver with 100% Accuracy and ….

Annual Revenue Gains



Reduction in FPR

Reduction in processing time

Significant Increase in Capacity

Insights on AI

Transparency

Explanations

AI is here Now!

Autonomous Intelligence

Augmented Intelligence

Good Quality Data using NLP

Data Normalization

Data Enrichment

Thank You

Parth Desai, Chairman & CEO

pdesai@pelican.ai

www.pelican.ai

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Thank you!

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https://www.abe-eba.eu/media/azure/production/1352/eba_antitrust_policy_20170602_final_clean.pdf

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