Gergely Fábián | Executive Director

MNB-OMFIF
Financial Stability Conference
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BANKS IN THE NICK OF TIME

Global context: challenges and challengers

- Technology
- Ongoing change in the monetary system
- Green transition

Where should we be in 10 years?

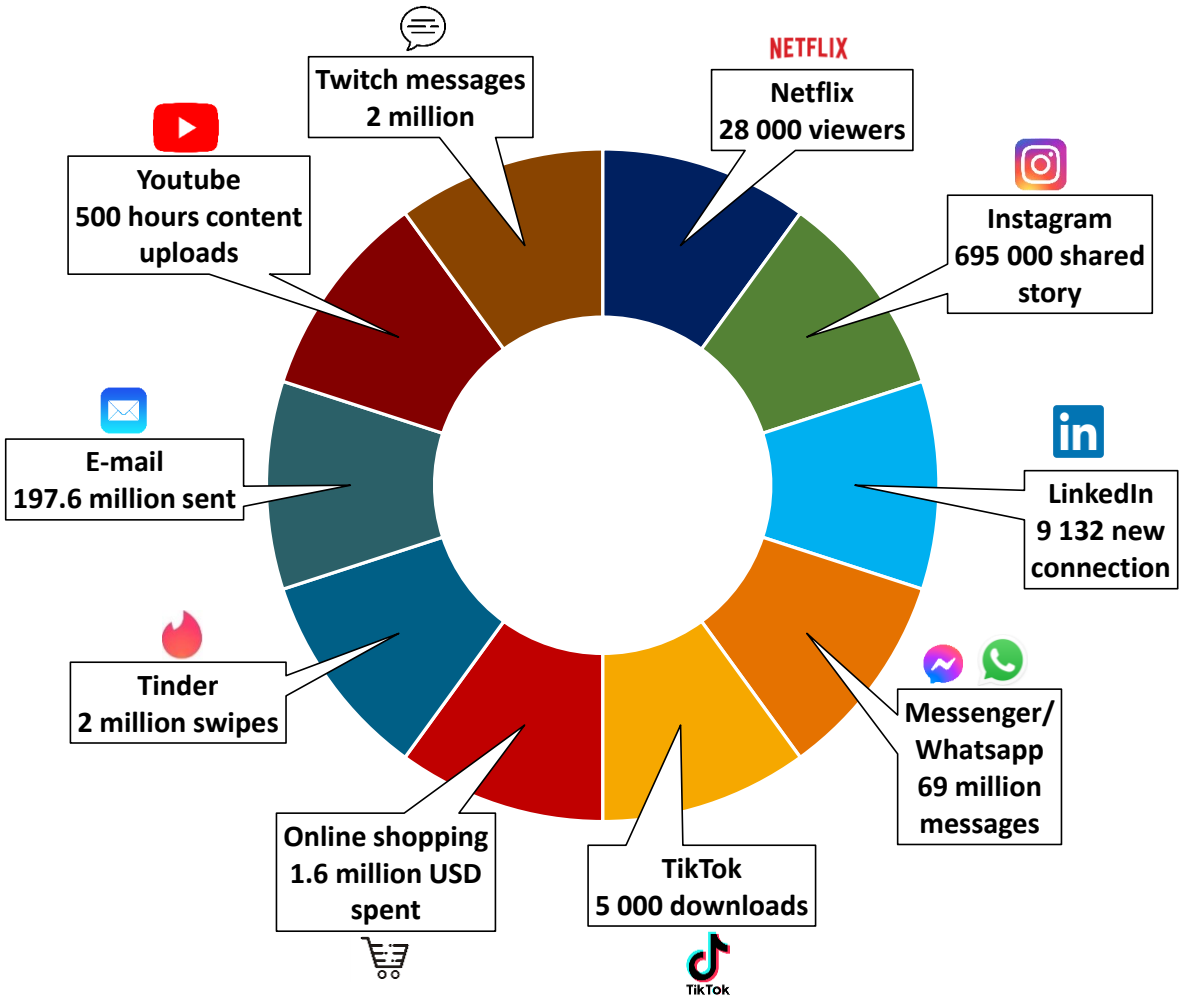
- Hungarian banking system: a case study

GLOBAL CONTEXT: Challenges and challengers

THREE MAIN CHALLENGES FOR BANKING

I. Development in technology	Revolution in data collection and management Platform-based services Banks' legacy systems vs the more agile structures of Fintechs / Bigtechs
II. Changes in the monetary system	New shapes of private money (stablecoin, bitcoin) CBDC gaining momentum Banks having trust issues after the 2008 financial crisis
III. Transition to a green economy	Climate risks (including regulation) affecting banks' portfolios The economy needs banks to finance the transition ESG aspects should be considered in pricing (but they are not yet)

DIGITAL SERVICES CREATE AN ENORMOUS AMOUNT OF DATA THAT IS BECOMING CHEAPER TO STORE AND PROCESS



ONE MINUTE ON THE INTERNET IN 2021

Source: Statista

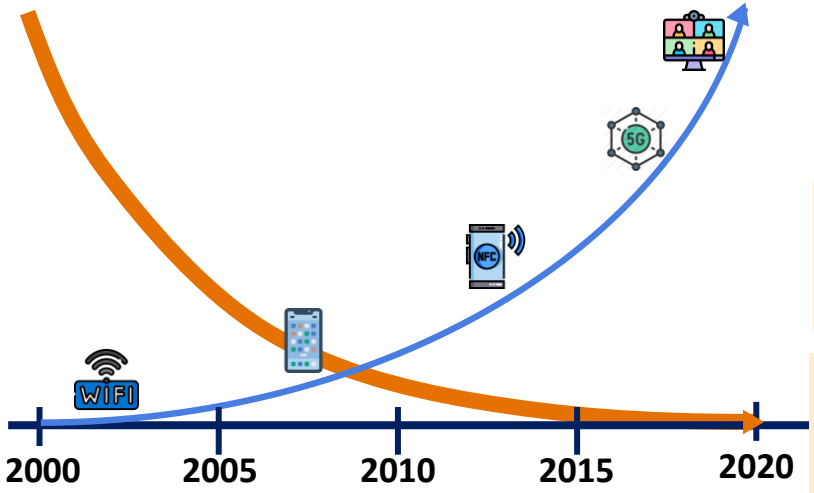
Storage cost
10$ / GB

Bandwidth cost
675$ / Mbps

Data traffic
100 GB / sec

Devices connected to internet
500 million pcs

Amount of data
2 exabyte



Data traffic
151K GB/s

Devices connected to internet
50 billion pcs

Amount of data
44 Zettabyte

Storage cost
0,05$ / GB

Bandwidth cost
0,02$ / Mbps

- **The continuously growing amount of data is becoming cheaper and cheaper to access: decisions will be data-driven and thus information generated from data creates value**
- **Increased data volume also increases data owner responsibility as well as short-term investment and development requirements**

MEGATRENDS IN THE FINANCIAL ECOSYSTEM

Digitalization

Digital transformation reshapes banking habits

FinTech – BigTech, Open banking

Innovative business models reshape the way the financial sector operates

Robotization and AI

Automated solutions play an increasing role in the financial sector

Blockchain, CBDC

Decentralized platforms can revolutionize financial transactions

Sharing economy

Sharing economy also affects the allocation of financial resources

Big data, data strategy & science

Hyper-connectivity and data provide an opportunity to map needs more thoroughly

Environmentally Sustainable Operations

The banking system is also involved in reducing the risks of climate change

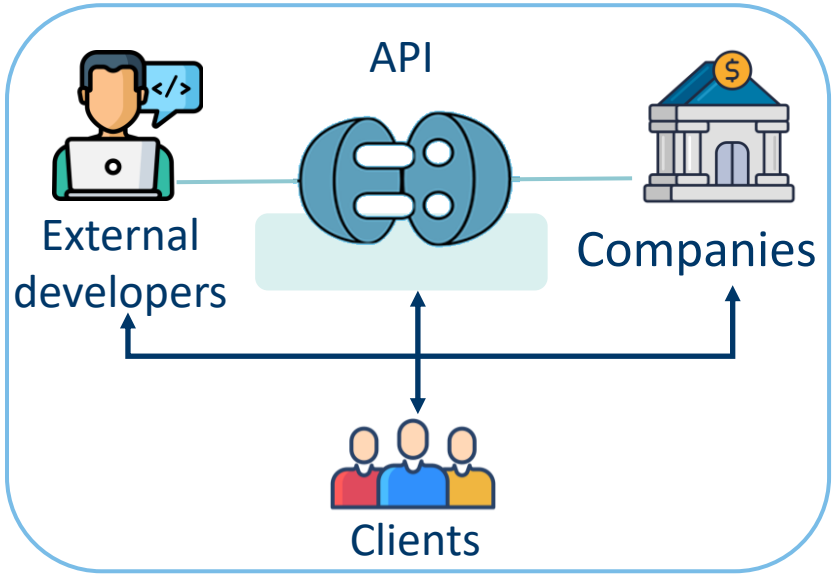
New consumer needs

Banking anytime, anywhere is a basic expectation for young people

MOST OF THE INNOVATIVE SERVICES ARE BUILT ON NEW POSSIBILITIES OF DATA SHARING

API = Application Programming Interface

The API provides digital, automated, controlled access to an economic entity's data assets



API Economy

Companies make their data assets available electronically to third-party service providers to

- leverage additional business value
- by creating new asset classes.

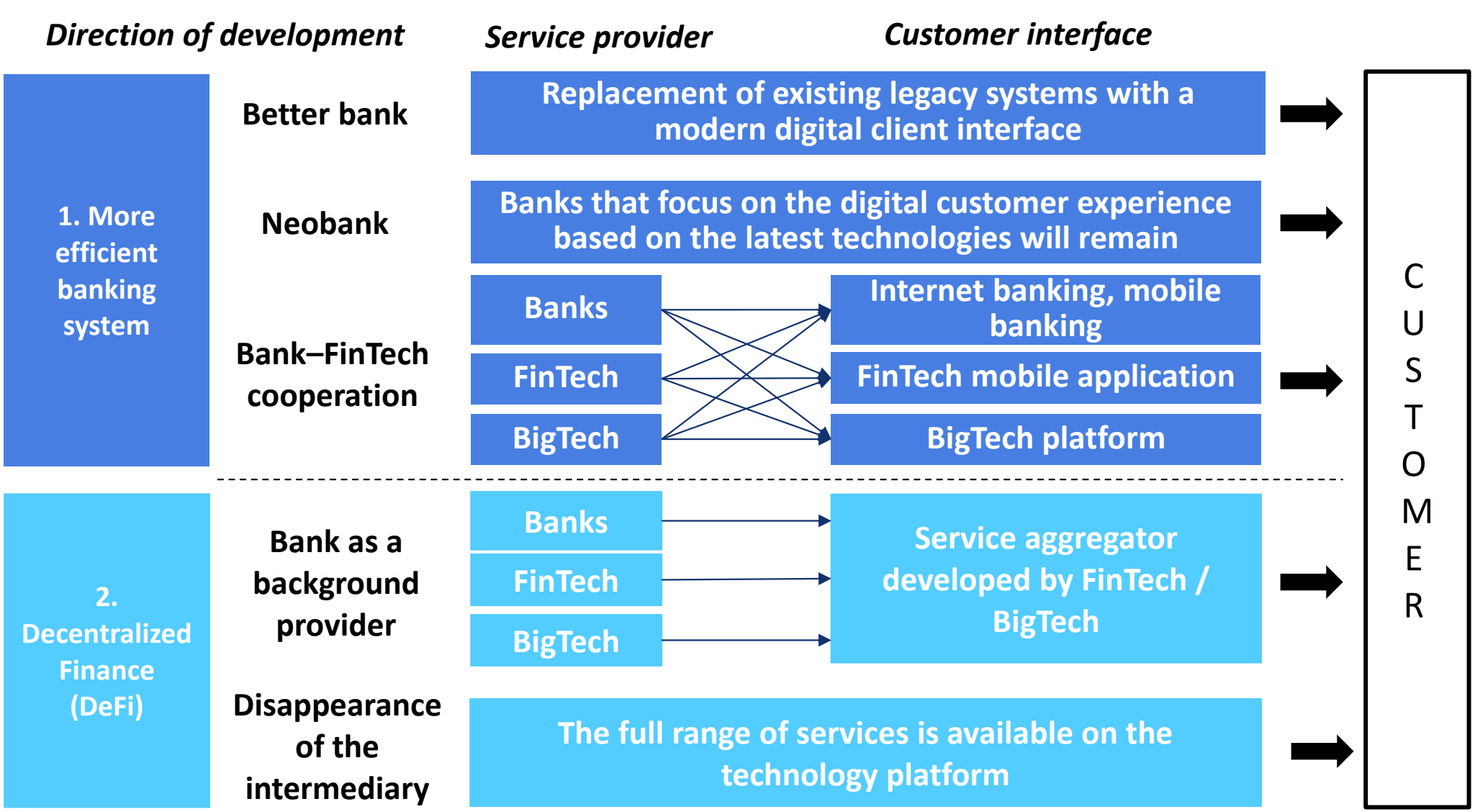
Business value

- ✓ Additional sources of revenue
- ✓ Wider availability
- ✓ Open innovation
- ✓ Increased efficiency
- ✓ Customer experience

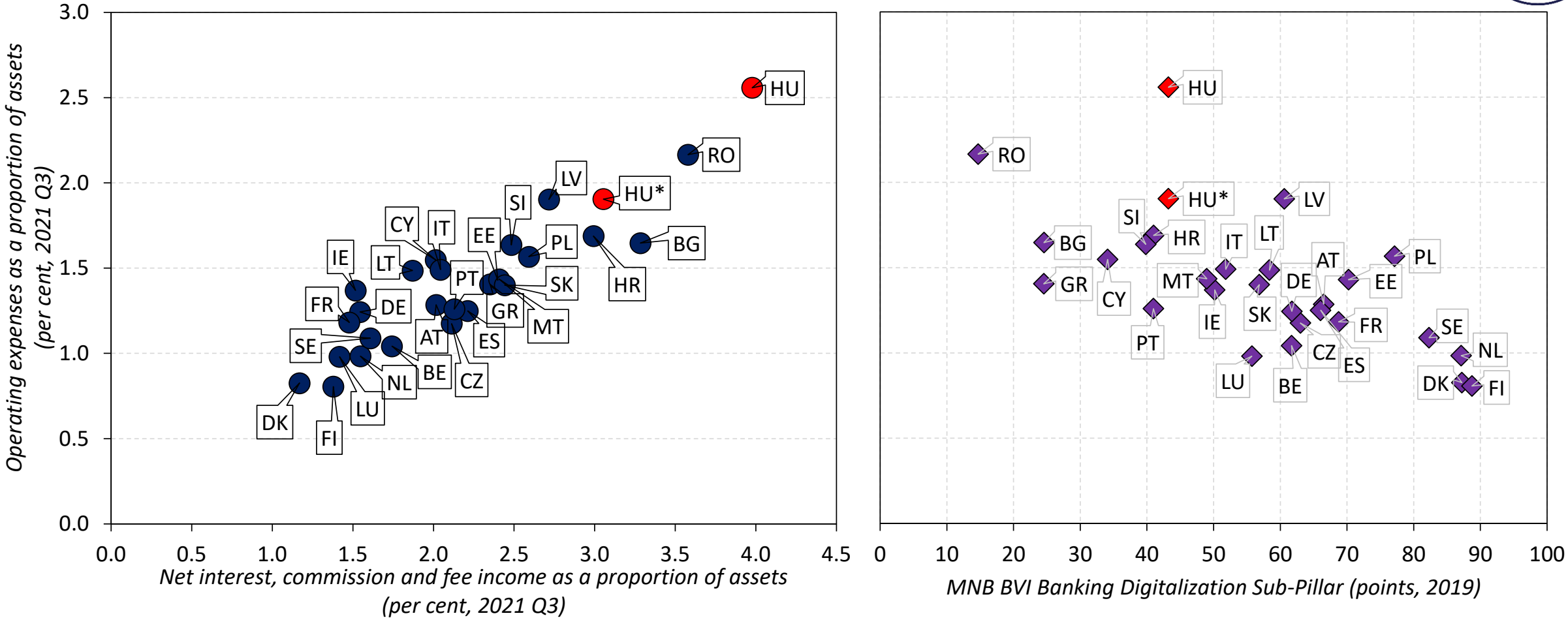
In the financial sector, APIs are mostly used to efficiently share payment data, which has significant value creation potential for the economy as a whole.

Source: Leveraging APIs as Part of Digital Strategy | WIRED

BANKS AND TECHNOLOGY – POSSIBLE FUTURE OUTCOMES



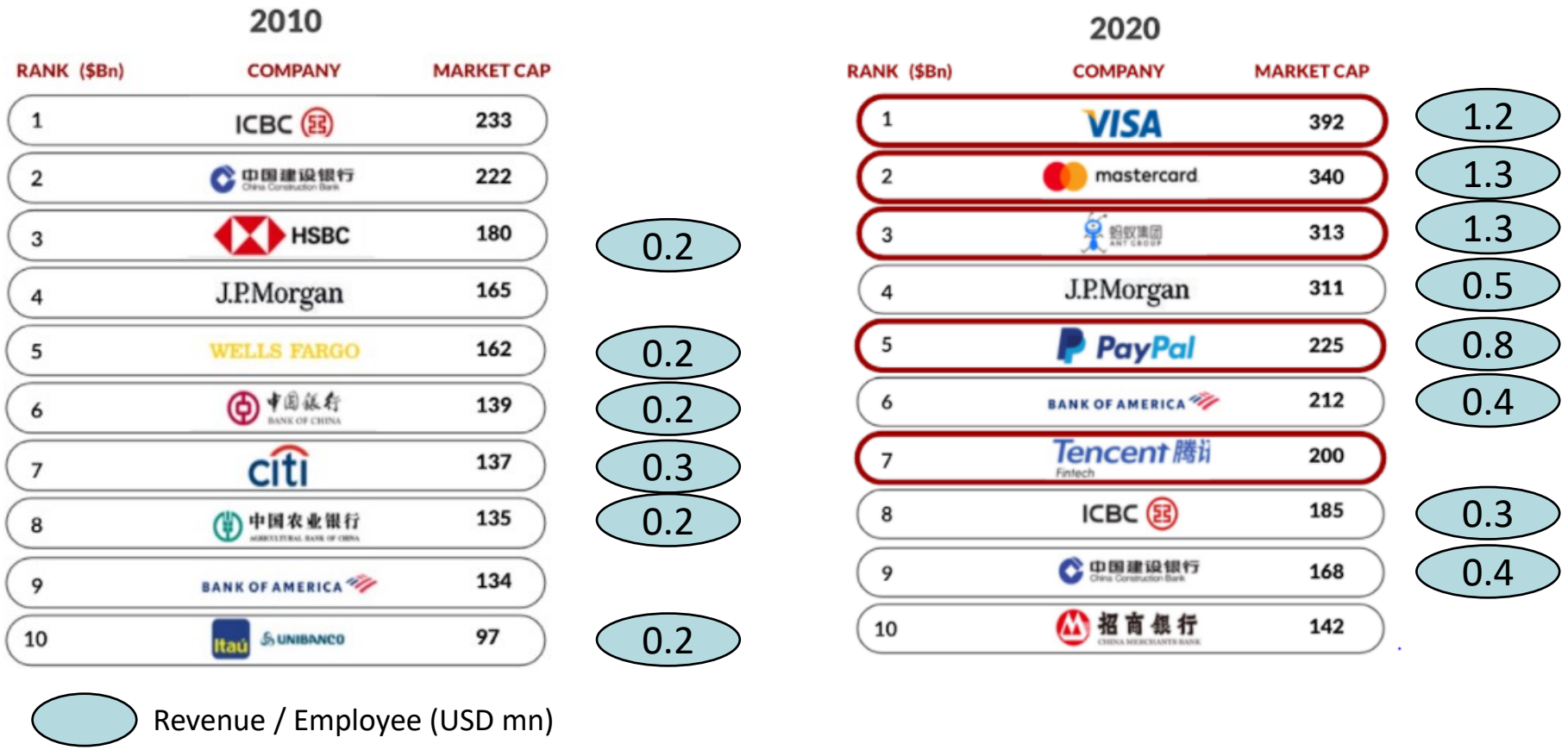
THERE IS A NEED FOR DIGITALIZATION



OPERATING EXPENSES, INTEREST, COMMISSION AND FEE INCOME AS A PROPORTION OF TOTAL ASSETS IN EUROPE, AND BANKS' DIGITAL DEVELOPMENT

Note: HU* shows the value without foreign subsidiaries, and excluding bank tax and transaction fee, which are classified as operating expenses by default. Source: MNB, Deloitte, EKB, Eurostat, World Bank

PLATFORM IS THE FUTURE, OR RATHER: THE PRESENT



- **Five of the ten largest financial institutions in terms of market capitalization are already platforms**
- The valuation of the platform-based financial institutions **per employee** is ten times that of traditional banks
- Financial platforms **generate nearly twice as much revenue and three times as much profit per employee** as traditional institutions

Source: CFTE

TRUST ISSUES AT THE UNDERBANKED?

BIS

BARRIERS TO INCLUSION (BIS)

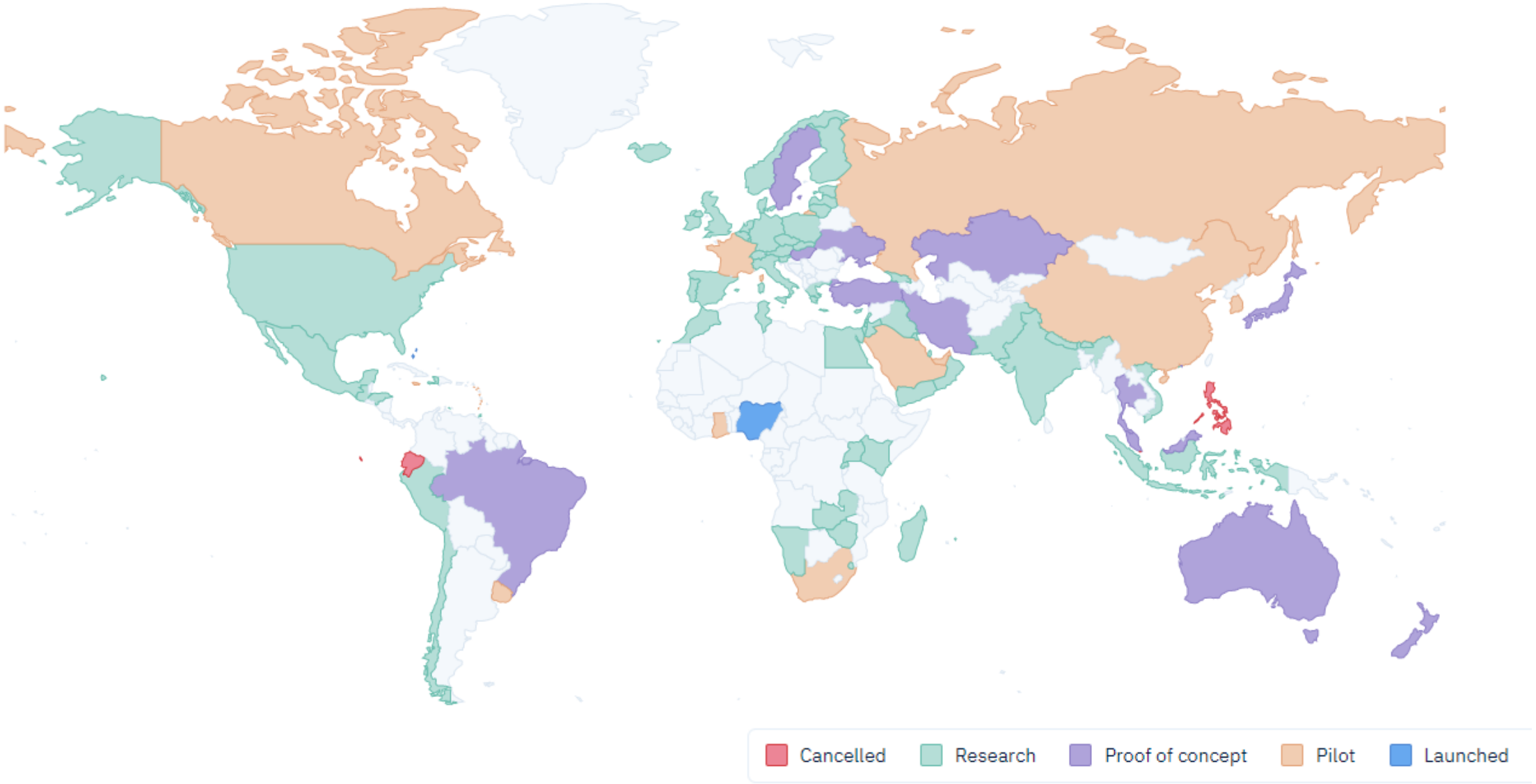
1. Financial illiteracy
2. Lack of access points
3. High costs
4. Insufficient ICT infrastructure
5. Lack of private sector willingness / capacity

EUROPEAN CENTRAL BANK

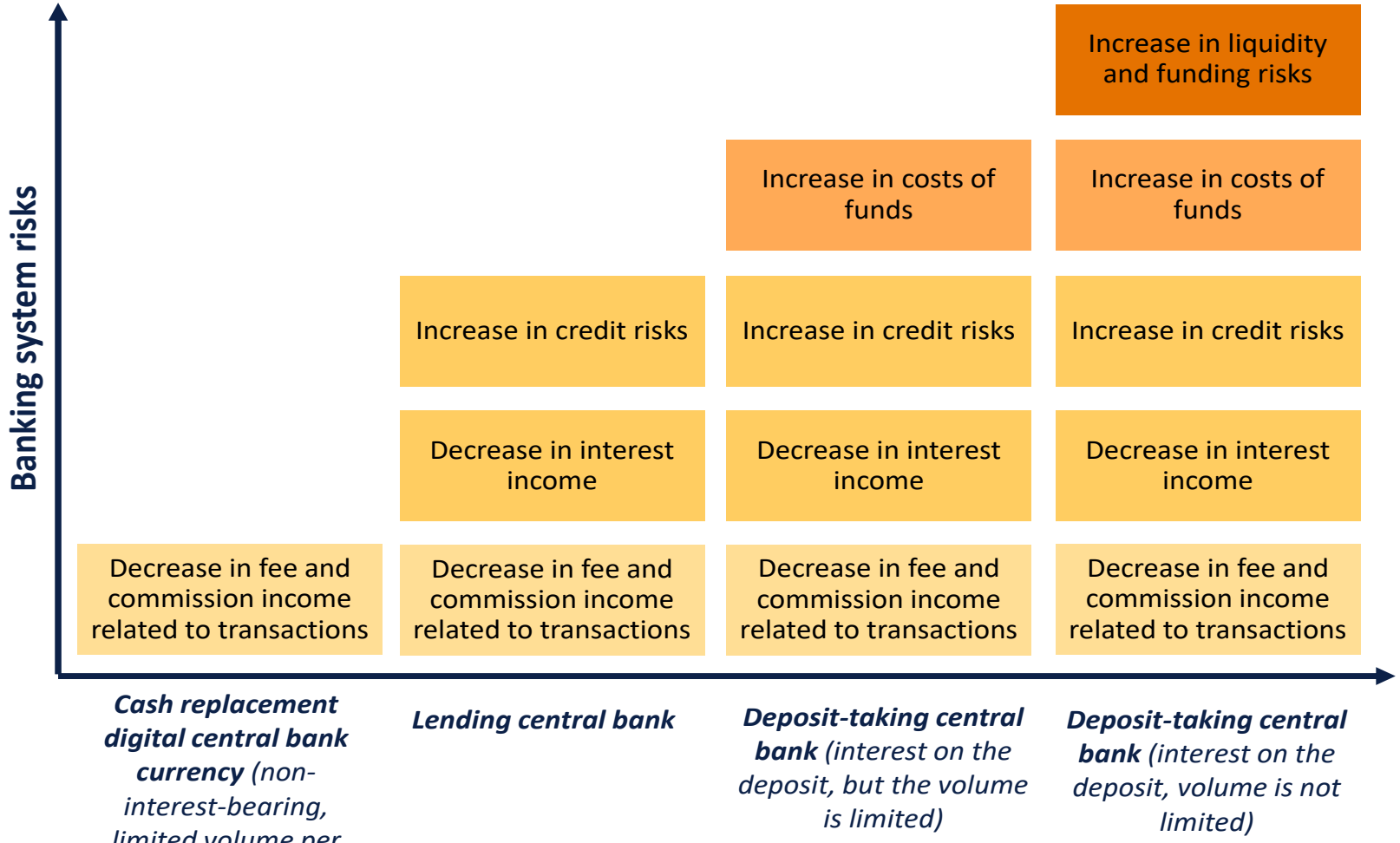
CRITICAL FEATURES OF A NEW PAYMENT METHOD
(ECB SURVEY)

1. Should be **easy to use without requiring technological skills**
2. Need to have the **same features as current payment methods**
3. **Safety and security**: personal information needs to be kept secure, in view of the high level of **mistrust of banks** among the underbanked
4. **Free or low fees**
5. Robust **customer support system**

CBDC: FILLING THE GAP?



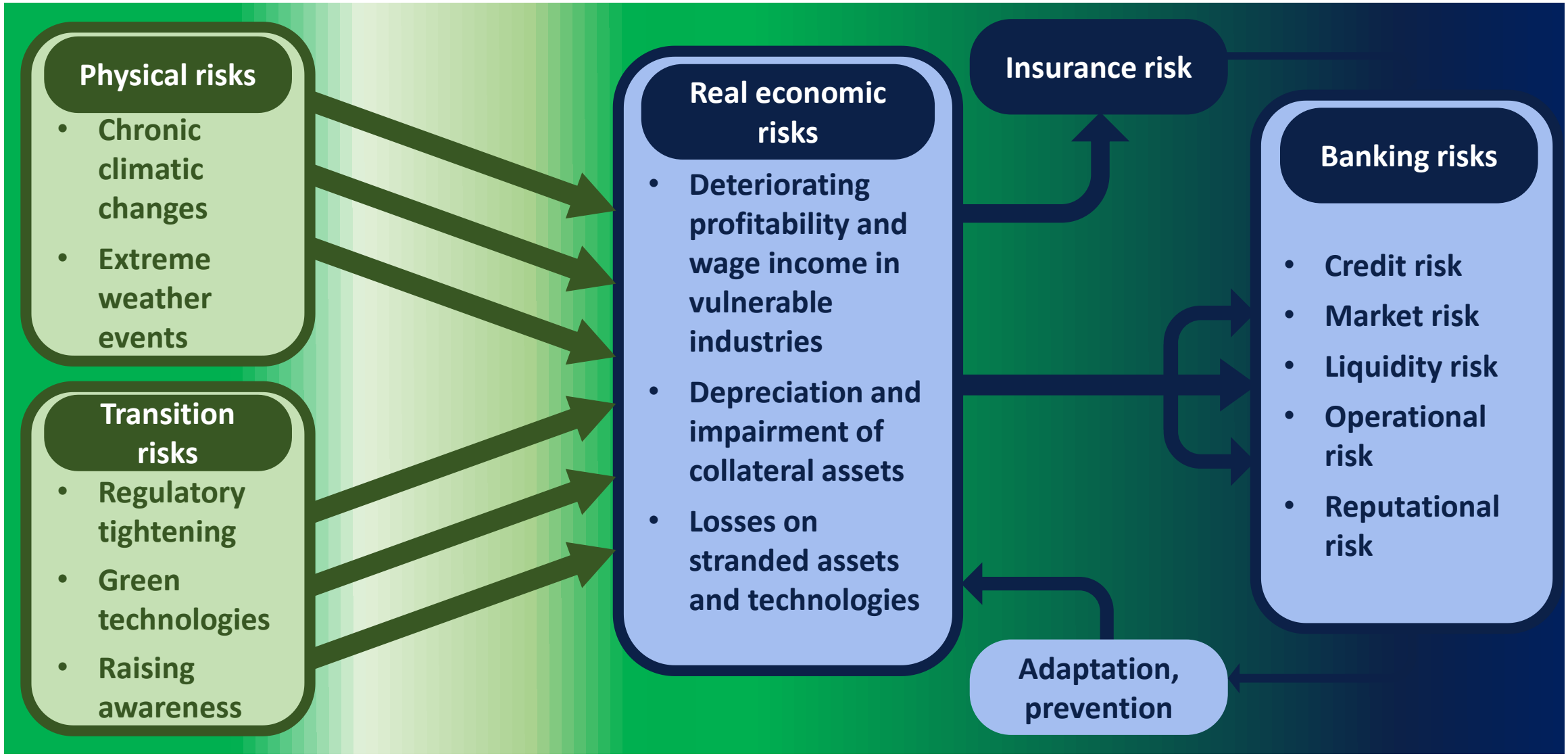
CBDC: SIGNIFICANT CHANGES (RISKS?) FOR BANKS



STABILITY RISKS ASSOCIATED WITH DIFFERENT CBDC CONCEPTS

Source | MNB

NEW RISKS STEMMING FROM CLIMATE (AND POLICY) CHANGES



Source |MNB.

WHERE SHOULD WE BE IN 10 YEARS?

1.
Stable and **efficient** banking system

Sovereign

2.
Banking **anywhere, anytime!**

Digital

3.
Sustainable banking system, sustainable financing

Green

Competitive banking system with **low interest margins**

Support for **financial deepening**

Cost-efficiency

Support for **digital transition**

Support for **green transition**

THERE IS NO SUCCESS WITHOUT THE RAPID, GREEN AND DIGITAL TRANSITION OF FINANCIAL INTERMEDIATION.

Costumers want

- **cheaper,**
- **more efficient and**
- **digital**

banking.

Source | MNB

ALL THE DATA NEEDED FOR QUICK CREDIT APPRAISAL AND DISBURSEMENT IS ALREADY STORED SOMEWHERE (THE HUNGARIAN EXAMPLE)

State data

Personal data
- Age
- Residence
- Marital status
- Nr. of children

Income data
- Employment data
- Earnings data
- Contribution and government transfer data

Collateral data
- Real estate data
- Credit collateral data

Credit history data

Bank data

Financial data (own customer)
- Savings and investments
- Account turnover
- Customer habits
- Own customer' credit history

Financial data (other customer)

Customer data

Device data
- Cellphone, PC, tablet type
- Browsing data

E-purchase data
- Products
- Transaction data
- Consumer habits

They can be obtained through market solutions

Readily accesible

Consent needed

Not accesible

Identification → Loan application → Credit rating → Disbursement

INCREASED USE OF DATA CAN CREATE VALUE FOR ALL ECONOMIC ACTORS

Data collection and use

Data-driven economy (API economy)

Value creation

Improving competitiveness
Better macroeconomic performance
Increasing financial stability

Government

More effective analysis and decision-making (eg. epidemic management, economic policy)

Financial institutions

Lower costs, more effective pricing, decreasing risks

Clients

Higher accessability, lower costs

Up to 1.5 percent higher annual GDP can be achieved by exploiting data assets!

CREDIT RATING, CREDIT RISK: MODELS THAT HANDLE A WIDE RANGE OF DATA ARE BECOMING MORE AND MORE WIDESPREAD

„APPLICATION SCORING”

based on the **information** gathered **when applying for a loan**, such as:

- income,
- workplace,
- negative credit information

„BEHAVIORAL SCORING”

New data sources **analyzed through Big Data and AI**, such as:

- payment transactions,
- card usage,
- mobile usage,
- utility payments, trade payables,
- activity on social media

MORE INFORMATION, MORE FINANCIAL INVOLVEMENT - BUT AT WHAT COST?

USA

- Standardized calculation on centralized data (FICO) - **since 1989**
- Based on **income and wealth**
- Low-income earners can be excluded
- *Typical data:* regular monthly savings, monthly payment of bills

China

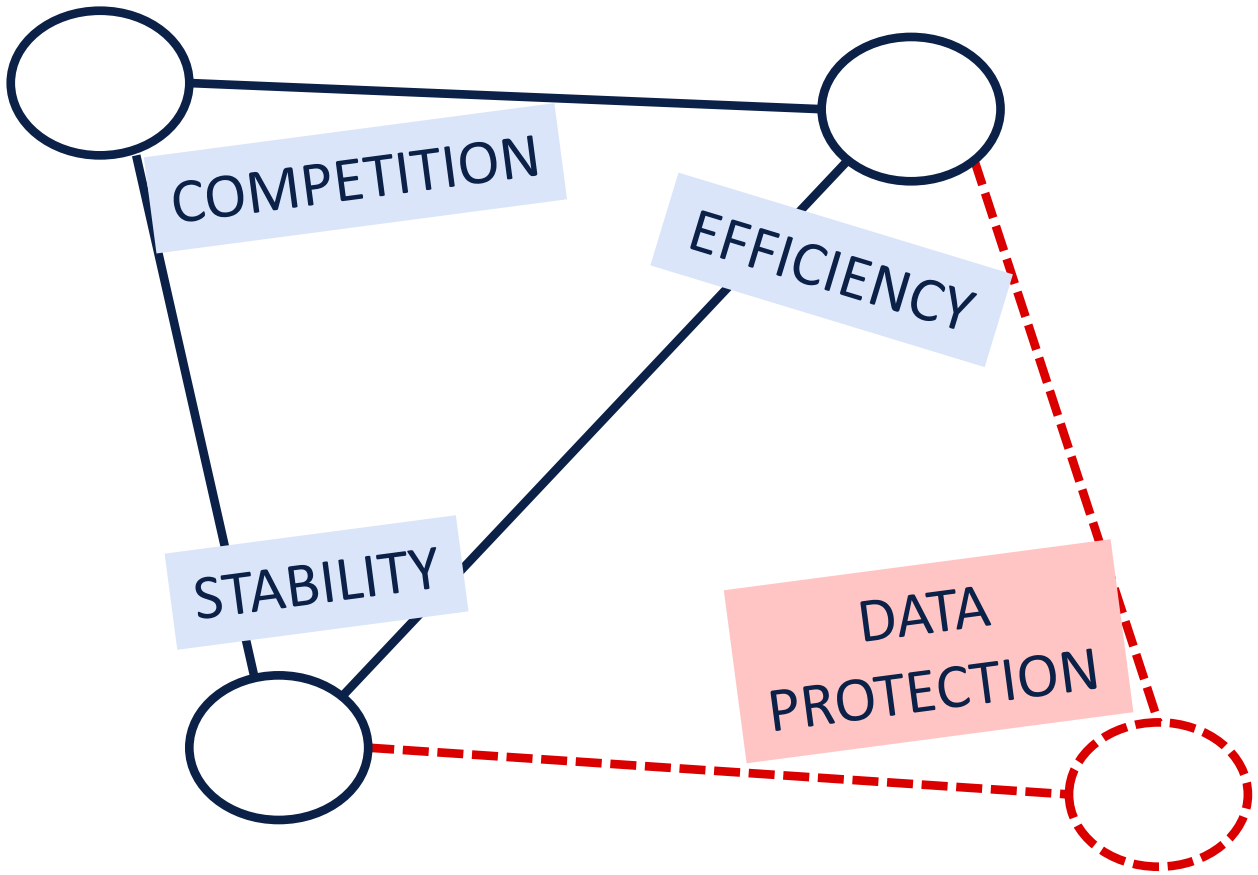
- State centralized, data-intensive database – mandatory **after 2020**
- Based on **social behavior**
- It raises ethical and privacy issues
- *Typical data:* spending habits, charity, violations

Hungary

- The **application scoring** is the prevailing method during credit rating
- The stored data is **not up to date**, the scoring methods are **not innovative**
- **Access to public or market databases is limited**

Source | MNB

NEW TECHNOLOGY, NEW DILEMMAS



More data

Greater financial inclusion: **some people who could not get credit before can also get it**!
(but some may be excluded)

Lower information asymmetry, lower credit risk, lower prices

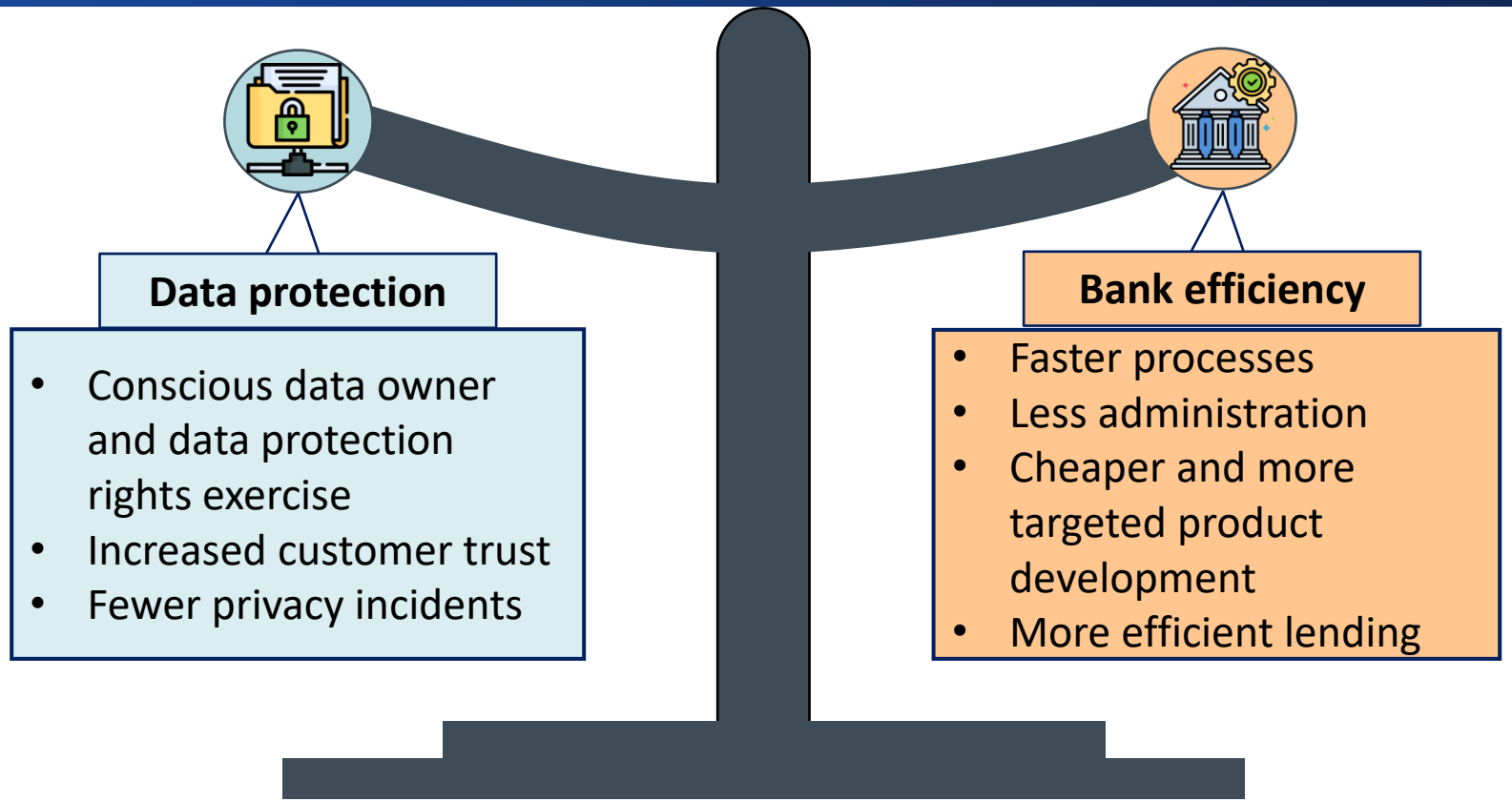
Greater insight into our privacy

!

Where do we draw the line between efficiency and privacy?

Can the financial institution have access to the client's income, overhead accounts, browsing history, email, facebook profile, and friends' finances?

THE BENEFITS OF DATA MUST BE EXPLOITED WHILE ENSURING AN ADEQUATE LEVEL OF DATA PROTECTION



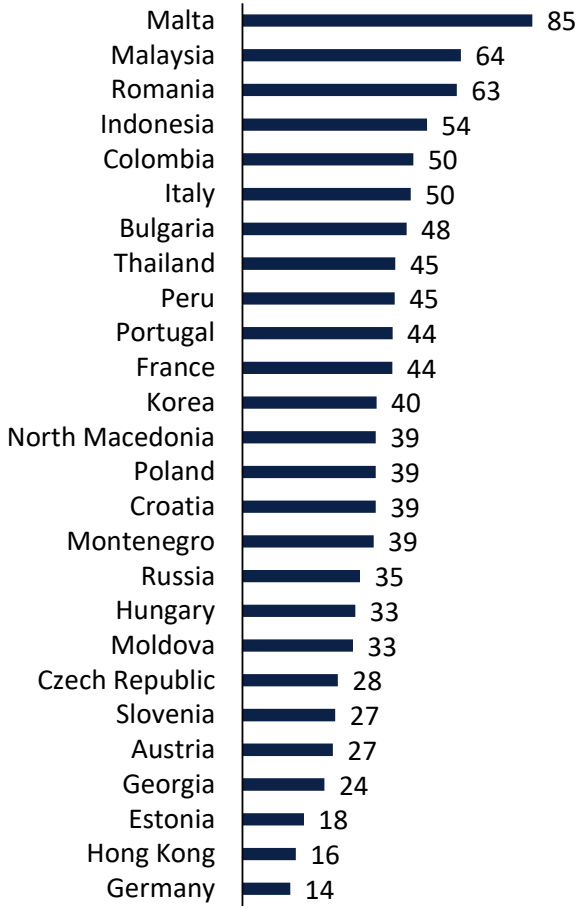
In the future, it will be a regulatory task to determine

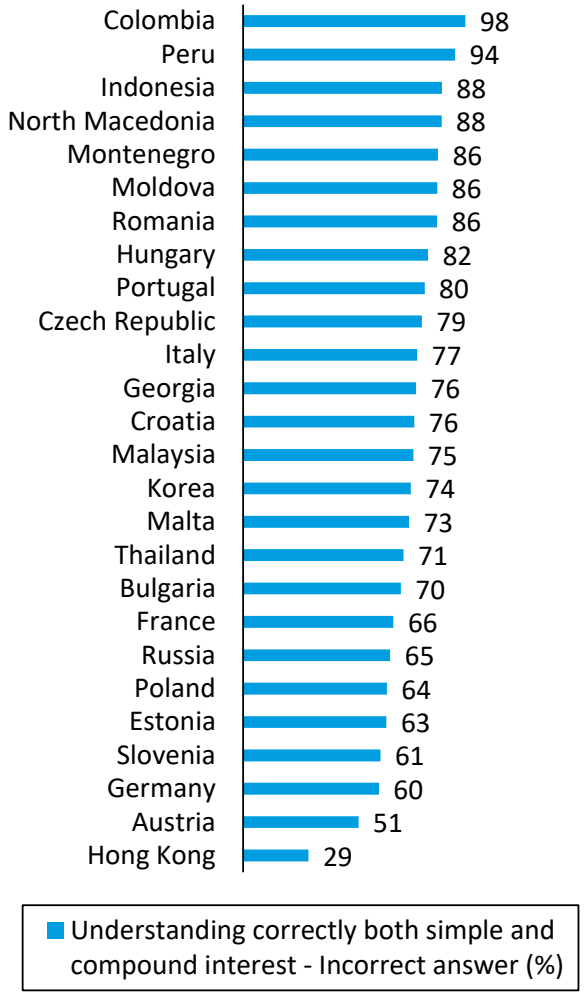
- which data should financial institutions have access to in all cases without the consent of consumers (e.g., positive credit history data of the Central Credit Information System), and
- for which data it is necessary to obtain the consent of the data subject (such as browsing history).

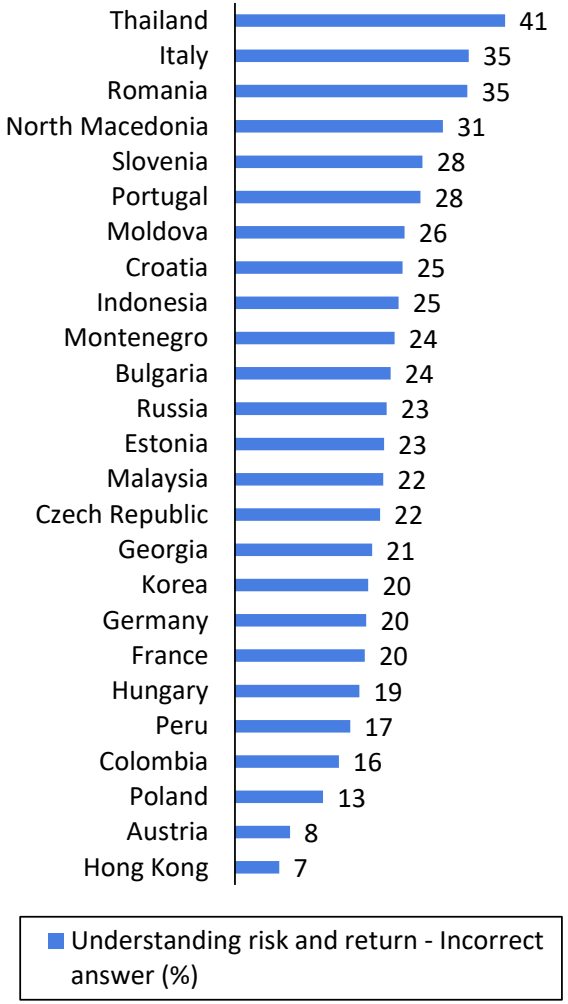
Source: https://www.oecd.org/finance/financial-education/Personal-Data-Use-in-Financial-Services-and-the-Role-of-Financial-Education.pdf

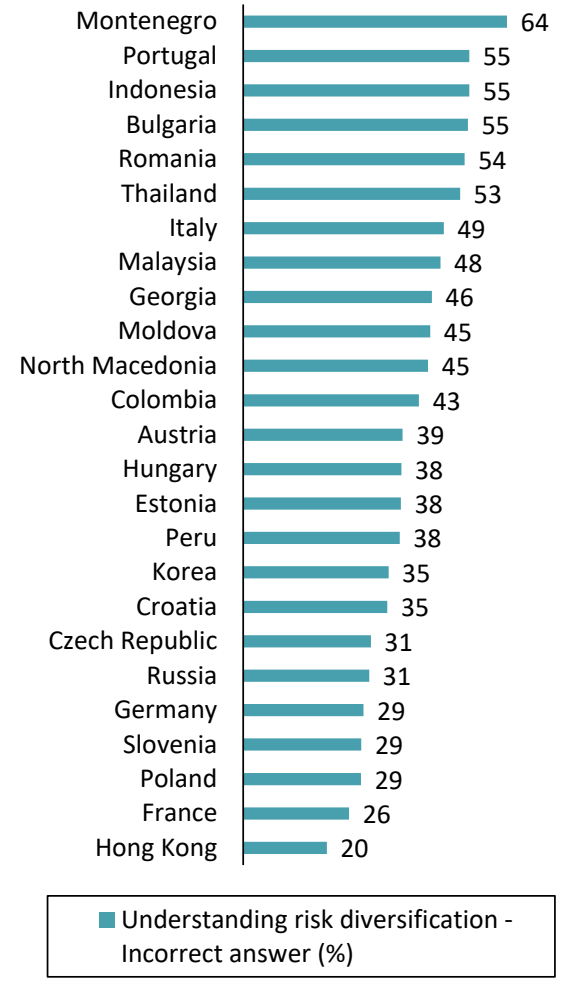
DIGITAL AND FASTER FINANCES REQUIRE LITERATE CUSTOMERS…

…and competent finance professionals!









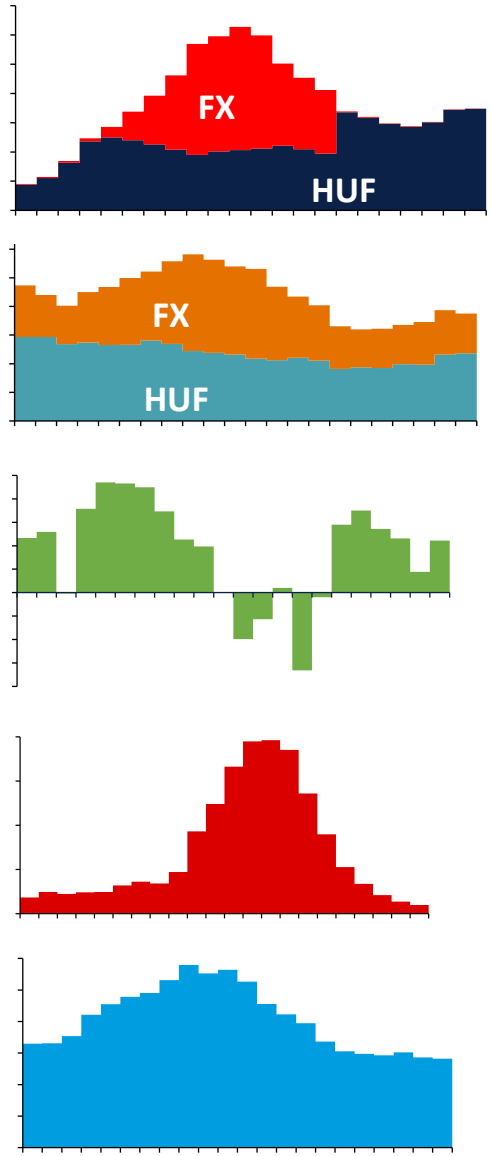
LACK OF FINANCIAL KNOWLEDGE IN 2018

Source | OECD/INFE 2020 International Survey of Adult Financial Literacy

HUNGARIAN BANKING SYSTEM: A CASE STUDY

HUNGARIAN BANKING SECTOR: A SHORT INTRODUCTION

	2000 →	MAX/MIN →	2021
RETAIL LOANS / GDP*	5% →	31% →	17%
CORPORATE LOANS / GDP*	24% →	29% →	19%
RETURN ON EQUITY	12% →	24% →	-17% → 11%
RATE OF LOANS OVERDUE FOR 90+ DAYS	1.8% →	19.6% →	1%
LOAN-TO-DEPOSIT RATIO	82% →	145% →	71%



*Note: *only taking loans received from credit institutions into account*

IN THE PREVIOUS DECADE THE BANKING SECTOR WAS BASICALLY REBUILT FROM RUINED CONDITIONS – WITH CENTRAL BANK GUIDANCE

2014

The MNB published a set of numerical targets for the banking sector, to provide a pathway to a stable system.

[e.g. targets for lending margins, lending dynamics, RoE, loan-to-deposit ratio, liquidity, cost-to-asset]

2020

The banking sector achieved the targets and arrived at a stable state.

2030

It is time to take the banking system to a new level.

THE MNB'S GOALS FOR DIGITALIZATION BY 2030

1. Getting a loan: **in 5 days (mortgage), in 15 minutes (personal loan)**
   (currently: mortgage 3-4 weeks, personal loan 2-3 days)
2. Ratio of online product sales: **min. 50%**
   (currently: online personal loan 18%, online retail account opening 4%)
3. Proportion of services available 7/24: **min. 70%**
   (currently: 30%)
4. Proportion of accounts used digitally: **min. 70-90%**
   (currently: 45-50% residential, 60-65% corporate)
5. Accounts active in electronic payments as a proportion of the adult population: **50%** (currently: 36%)
6. Proportion of electronic payment transactions: **50%**
   (currently: 30.7%)
7. Availability of digital channels: **99.9%**
   (currently: 99.7%)

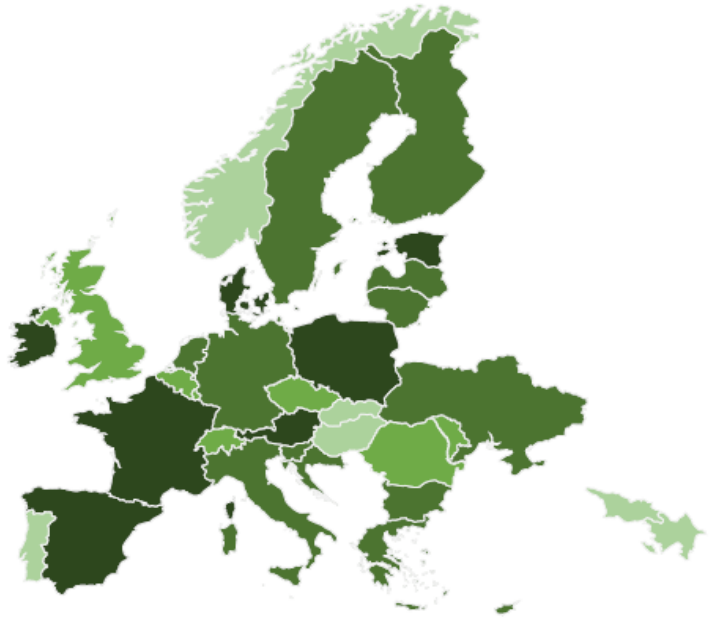
Source | MNB

WITH DATA REFORM IN HUNGARY, THE NEW RAW MATERIAL OF THE 21ST CENTURY CAN BE SUCCESSFULLY EXPLOITED

Open access to data in Europe (2020)

	85.3
	79.9
	78.2
	73.8
	70.2
	69.9
	69.8
	68.7
	66.2
	65.3
	63.8
	58.2

Source: EU Open Data Portal; Open Data Watch



Trend setters

Fast trackers

Followers

Beginners

In terms of data availability, **Hungary is among the "beginner" countries** in Europe according to each of the best-known rankings.

Note: Aggregate data maturity based on evaluation of four dimensions (policy, portal, impact and quality) on a scale of 0-100.

Digital infrastructure

Innovation and skills development

Regulated data sharing

Inexhaustible and unlimited use of data assets

MORE EFFICIENT DATA ACCESS IN THE BANKING SECTOR WOULD HAVE TANGIBLE EFFECTS ON CUSTOMERS ALSO

Central Credit Information System

More than **1 million** retail **loan contracts** annually

Credit information database (positive and negative data) → expansion, development, wide access required

Energy performance certificates

Energy characteristics of 1.5 million homes

The most important energy characteristics of real estate → bank access required

Central statistical valuation database

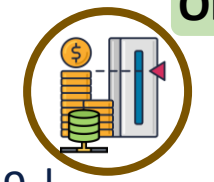
Nearly **100,000 omissible valuations per year**

Data on which statistical valuation is based → a central database is required to access data on a level playing field in mortgage lending

E-Land Register

Nearly **100,000 housing loans** disbursed **annually**

Digitization of Hungarian land registry procedures and access to a wider range of data → introduction recommended as soon as possible



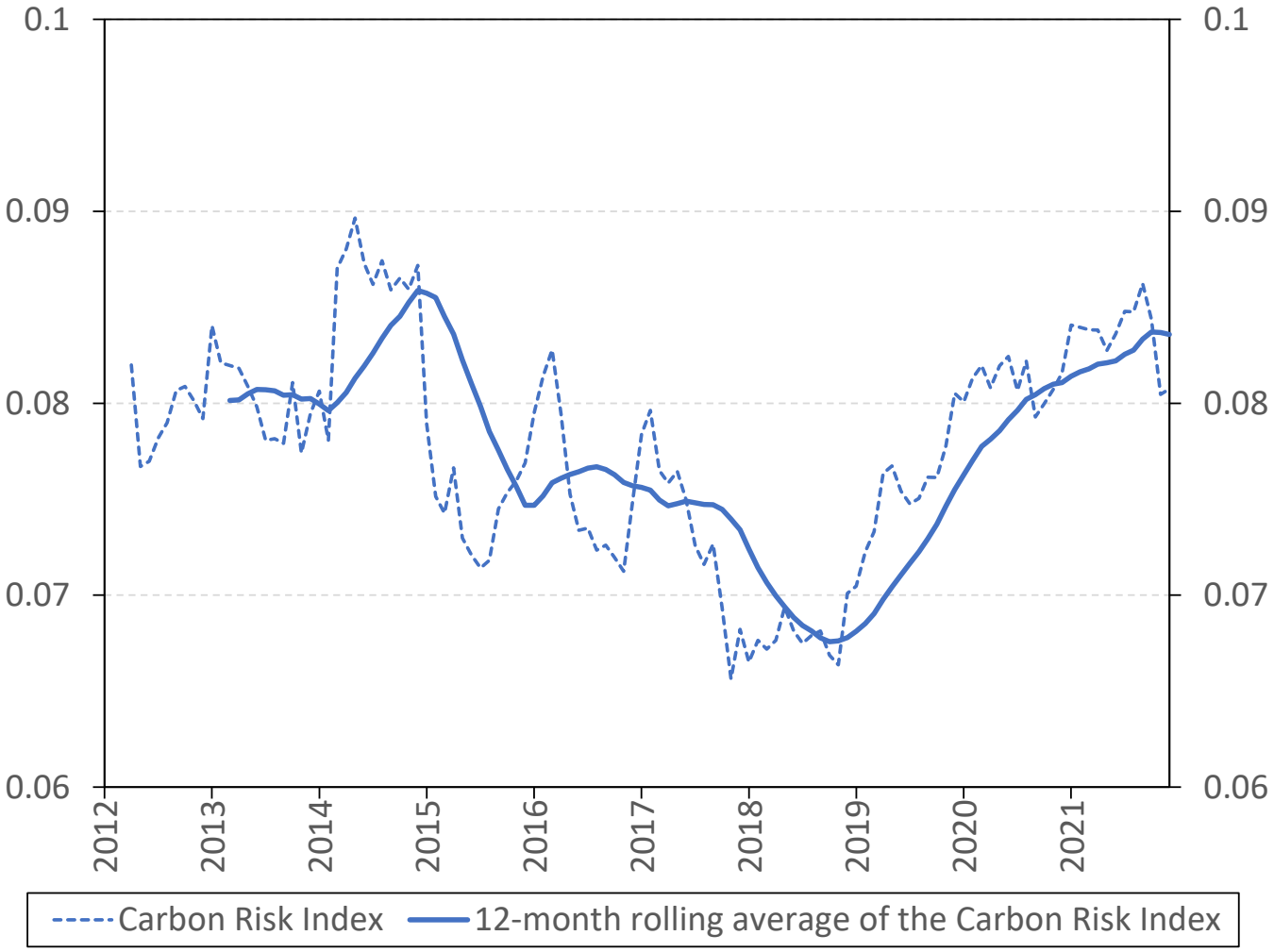
Online earnings statement

More than 1 million income certificates per year

Loan application without personal administration, faster and easier evaluation → expansion and development required

Source: MNB

THE INCREASE IN CARBON INTENSITY NECESSITATES GREATER CONSIDERATION OF GREEN ASPECTS



It is important for the banking system to provide adequate funding for economic actors, but environmental sustainability must also be taken into account.

The increase in corporate loans in recent years has been accompanied by an increase in carbon intensity.

Access to green financing needs to be increased, the transition should also be supported by governmental and central bank incentives.

Monthly value and 12-month moving average of the Carbon Risk Index

Source | MNB, Eurostat

THE MNB CAN PROMOTE THE ACHIEVEMENT OF ENVIRONMENTAL SUSTAINABILITY GOALS IN SEVERAL AREAS

From 2021 the MNB is the first European central bank to have a mandate supporting sustainability!

How can the MNB and the banking system become greener?

Own operational function

Micro-/macro-prudential policy

- Financing and liquidity requirements (e.g. MFAR)
- Debt cap rule (e.g. LTV, DSTI)*
- Capital requirements (e.g. SyRB)*

Supervisory measures and regulations

- Green capital requirements
- Sustainable finance disclosures – investment funds
- Sustainable capital markets strategy
- Green recommendation
- Green financial report
- Climate stress test

Monetary policy

- Considering green aspects without compromising the primary goal
- Green Mortgage Purchase Program
- Green Home Program

**under consideration*

Source | MNB

THANK YOU FOR YOUR ATTENTION!