The Role of Data Assets in the Financial Sector*

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The article presents the anticipated effects of data in the 21st century in the economy, with a special focus on the financial sector. Using successful international examples, it highlights the fact that the transition to a data economy is not merely a measure of efficiency of economic actors but also their key to survival; to ensure this, it is essential that the state assumes a role in making data available, developing competitive digital competences and deepening customer trust.

1. Introduction

As a consequence of the IT revolution in recent years, in addition to traditional production factors, data and the information that can be extracted from data assets have become a major factor in value creation. Unlike capital and workforce, the amount of information is not finite; it is available in continuously increasing volumes, and when used, it is not lost but even promotes the generation of further information. Data can be easily copied and transported, but cannot be easily reproduced once corrupted or destroyed. Since data are not consumed with use, they can be stolen without being lost (*Redman 2011; DAMA 2017*). Compared to already existing production factors, the application of data requires a novel approach and new methods. From a macroeconomic perspective, the economic and social advantages gained from the use of data can be maximised by developing regulated access for third parties, and not by obtaining, possessing and locking data from competitors.

In the age of rapidly increasing volumes of data (big data), developing infrastructure networks (5G) and the Internet of Things (IoT), significantly more data are available in more and more spheres of life; however, human processes are being eliminated in an increasing number of areas by accelerating information processing, through the application of automated decision-making systems. By the end of 2020, global data assets had exceeded 60 zettabytes, and some five billion users and 50 billion devices had been connected to the internet (*Table 1*). With data having the appropriate content and format, automated systems – unlike human resources – are

* The papers in this issue contain the views of the authors which are not necessarily the same as the official views of the Magyar Nemzeti Bank.

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able to generate uninterrupted, error-free responses almost simultaneously with processing. The use of data and the rise of instant decision-making are reflected in several traditional and newly emerged industries, from intelligent self-driving cars and remote health interventions to instant credit decisions and lending by financial service providers.

Table 1
Global data assets and factors promoting their exploitation

	2010	2020	Change
Global data assets (zettabyte)	2	64	3,200%
Data storage costs (USD/gigabyte)	0.1	0.014	–86%
Global internet users (billion)	2	5	250%
Number of devices connected to the internet globally (billion)	5	50	1,000%
Average global internet speed (Mbps)	1.7	25	1,471%

Source: Ali et al. (2015), Statista, Forbes, BBC, Internetworldstats.com

The Covid-19 pandemic has acted as a catalyst for digital transformation, as governments and companies had to immediately find effective responses to massive needs for communication and digitalisation lacking personal contact. In lieu of surveys, questionnaires and theoretical debates, certain data owners have already started to successfully apply forward-looking, innovative solutions to exploit their data assets in a crisis or to promote the recovery from it. The increasing number and speed of online transactions, the appearance of central bank digital currencies make the ubiquity of technology in all branches of the economy more and more obvious.

In the 21st century, due to the emergence of new opportunities and industries built on the exploitation of data assets, data processing and the use of data in economic policy decisions, digital transformation and the promotion of the related economic restructuring are not only an efficiency issue but have become a basic requirement of survival. Ensuring wide access to data improves the efficiency of market and state operations in multiple ways (*European Data Portal 2020*). In particular, this applies to industries such as the financial sector, where operation is based on the availability of the most accurate customer data accessible and their use as effectively as possible. According to international literature, a boost of up to 1.5 per cent to annual GDP may be achieved by creating wider access to available financial data and with stronger use of data in business decision-making (*White et al. 2021*).

In addition to business opportunities, the strategy for using national data assets has gained prominence in most countries from the perspective of the operation of the state as well. Data-driven public administration promotes more targeted state interventions (e.g. epidemic management, benefits) and facilitates more efficient decision-making (transport policy, law enforcement), but even the fiscal space may

expand through effective audits and reduction of the shadow economy (*Van Ooijen et al. 2019*).

2. The role of data assets in the financial sector

One of the cornerstones of the data processing efficiency of competing data-intensive industry actors is what information is available to them and how quickly they are able to use it to generate value-creating results (*OECD 2020*). This in particular applies to the financial and banking sectors, where the analysis of data, the quickest possible extraction of the inherent information and its effective and accurate use have become the most important component of competitive advantage. In the banking sector, increased data processing and use have boosted efficiency in almost all business, competence and back-office areas (*Figure 1*).

- *Client acquisition:* Knowing the demographic characteristics, geographical location, search history and payment history of customers, increased data analytics may result in more efficient customer segmentation, and more targeted marketing offers and cross-sell opportunities may be provided. Advanced identification systems and algorithms allow for online customer identification, providing opportunities for opening accounts online in real-time and expanding the customer base simultaneously, as well as instant selling various banking services (*Chung et al. 2020*).

- *Lending:* Making internal or external banking data as well as state-owned databases accessible allows for comprehensive, automated, online lending. Following the online identification of customers, banks need to obtain information on customers' creditworthiness from several different sources. This information may traditionally include the customers' income situation, wealth or credit history. But creditworthiness can also be predicted by behavioural data such as web search history, shopping habits, geographical location, the type of their device connected to the internet, etc. Through the automated accessibility and analysis of a wide range of data, a wider range of customers become creditworthy, and it also provides the opportunity for real-time credit scoring and loan disbursement. As the time to approval is shortened and access to data is automated, unit costs per customer may be reduced, which may contribute to a reduction in interest rates or to the financing of further developments (*Peterson 2018*).

- *Risk management:* Significant credit losses may be prevented by more advanced risk management systems using a wide range of open data. Most of the data used by advanced risk management systems extend beyond conventional sources as well as traditional, structured ones. Thus, among other things, they use data extractable from information on customers' public utility payments, the use of their loyalty cards, geospatial information, chat and voice transcripts, customers'

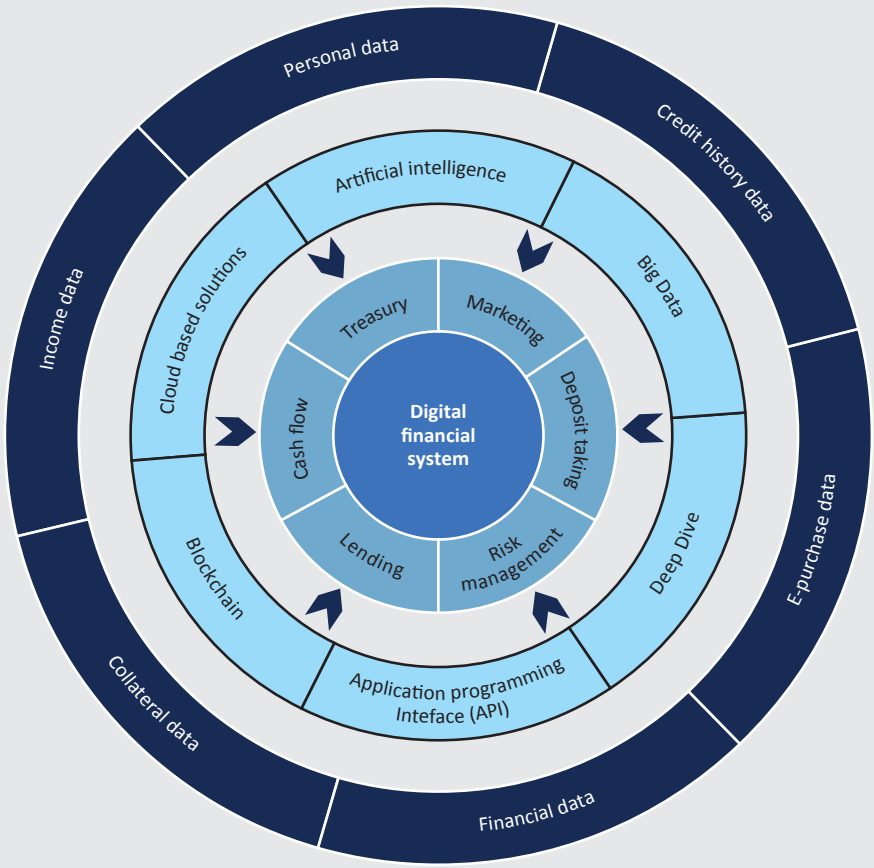
ratings, website visits and social media. By combining data sets in unique ways and with the help of machine-learning techniques, risk management methods can be further improved. Through a better segmentation of customers, the group of profitable loan customers and their related risk costs can be more accurately identified, and therefore customised offers can be created; furthermore, the total potential interest income might also rise. A more accurate identification of credit risk, by improving the portfolio, reduces the potential loan loss provisioning requirement, the capital requirement of lending and the loss given default (*Dash et. al. 2017*).

- *Fraud prevention:* With the advance of digitalisation and payments via online channels banking fraud and abuse has also increased:[1] On the basis of a survey by PwC in 2020, half of the responding institutions had experienced at least one fraud event over the past 24 months, which is the highest figure in the last twenty years. With the introduction of instant payment systems, financial institutions have less time to identify suspicious transactions and take appropriate measures. Finally, in recent years fraudulent incidents have become more complex, sophisticated and harder to detect (*Hasham et. al. 2018*). Parallel to increasing risks, it is important to develop the algorithms capable of preventing fraud and the data used by them, and put these on a 21st-century footing. With a targeted use of data and data analytics, by applying various developed, AI-based deep-learning algorithms, suspected fraud events can be more easily identified, and therefore trust in the financial system may increase and the operating risk of banks and their losses related to fraud may be mitigated.

Wide access to the data required for the digitalisation of banking processes may result in positive effects in terms of government and economic governance as well. Storing the income, employment and land registry data used most frequently by the financial system in a well-structured, widely accessible manner would contribute greatly to the simpler development and easier use of electronic government services. Digital data access may ease the workload of public customer services (e.g., tax office customer centres, government agencies, land registry offices), and the utilisation of data assets would even mean a new source of income for the state.

[1] https://www.pwc.com/gx/en/forensics/gecs-2020/pdf/global-economic-crime-and-fraud-survey-2020.pdf. Downloaded: 26 November 2021.

Figure 1
Technologies and data used by the digital financial system, and business areas using them



Source: MNB

3. International good practices

The financial sector is a typically data-dependent industry (*Nguyen – Paczos 2020*), with as yet untapped added value potential. Using and analysing customer data, data-driven business management affects practically all aspects of financial activities (lending, risk management, investment, fundraising, payments, etc.). Although these solutions are still rudimentary in the domestic banking sector, several successful business applications can be found at the global level.[2]

[2] https://thefinancialtechnologyreport.com/the-top-100-financial-technology-companies-of-2021/. Downloaded: 26 November 2021.

- *Buying insurance online:* Getsafe, a digital insurance company based in Germany, offers a wide range of insurance products – e.g. car liability insurance, dog liability insurance, drone liability insurance – in one single flexible application providing outstanding customer experience. The firm replaces complex, manual administrative tasks with solutions that also use artificial intelligence (smart bots) after transferring data available in the German car registry, allowing customers to file claims or change their coverage in real-time with just a few clicks.

- *Online SME lending platform***:** In Mexico, Konfio is the largest online lending platform in the country for SMEs. The firm uses the electronically accessible data of Mexico's tax office in their comprehensive digital lending processes. The fintech company provides online corporate loans of values between USD 100,000 and 3 million within 72 hours with the help of a proprietary algorithm, which carries out creditworthiness assessments within minutes.

- *Online lending and shopping platform:* Klarna[3] is a Swedish online e-commerce payment platform, which also offers instalment plans. Based on the account information available pursuant to the Second EU Payment Services Directive (PSD2) and customers' shopping and transaction history on Klarna's platform, Klarna immediately provides instalment plans for customer purchases (buy-now-pay-later, BNPL). As opposed to traditional consumer loans and credit cards, it offers free, immediately available financing to customers. The rise of online lending processes is also promoted by governmental initiatives which allow for online, electronic validation of borrowers' income. The Income Verification Express Service (IVES), operated by the tax office of Ireland, is a good example: with the consent of the borrower, the lender can submit a query to validate the income of the borrower in several different, electronically processable file formats.[4] Another example is the Canadian tax office, which provides also proof of net income of customers.[5]

- *Fraud detection:* Simultaneously with the expansion of instant payment systems, the fraud detection systems of banks also require development. As the speed of transactions has increased, the data volume to be processed immediately has also increased significantly, and it can no longer be managed and processed with the analytic methods applied in the past. The application of distributed file systems and computational solutions may help analyse very large volumes of data, for

[3] https://www.klarna.com/international/about-us/. Downloaded: 26 November 2021.
[4] https://www.irs.gov/individuals/international-taxpayers/income-verification-express-service. Downloaded: 26 November 2021.
[5] https://www.canada.ca/en/revenue-agency/services/e-services/e-services-individuals/a-proof-income-statement-option-print.html. Downloaded: 26 November 2021.

which for example Profinit,[6] a company based in the Czech Republic, offers fraud detection solutions developed for the financial sector.

According to a survey by McKinsey (*White et al. 2021*), wide-scale transition to data-based business models, increased access to data – in particular, financial data – may increase the credit-to-GDP ratio by some 20 basis points, via financial inclusion and supporting SME financing. In addition, the development of sales channels, a reduction in operating costs and more efficient allocation of capital may generate efficiencies of 5 to 50 per cent for banks, depending on their clientele, the data available and the composition of their portfolios (*Dash et al. 2017*). Thus, developing controlled, simple, electronic access to potentially available data assets can have a significant, direct positive impact on banking processes, which may be further enhanced by positive synergies (e.g. increased digital competencies and trust in digital services, etc.) affecting the economy as a whole.

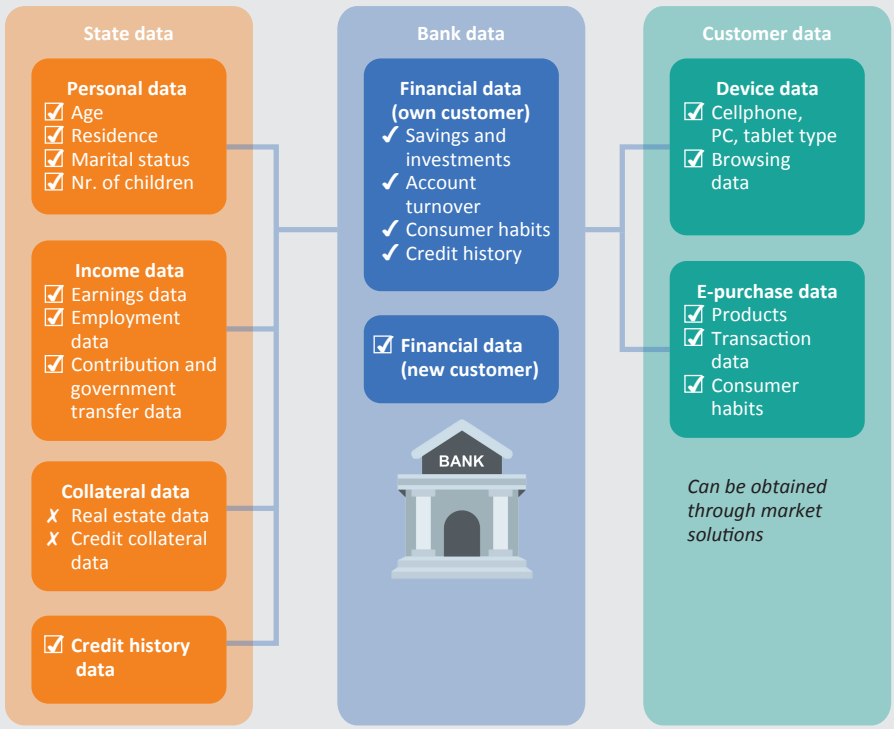
4. Situation in Hungary

In addition to data from their own customer bases, banks also heavily rely on customers' income and employment data, credit history data and collateral data. In connection with the green transition, the energy performance data of buildings and data on properties offered as collateral are also becoming increasingly important. However, the scopes of data required for the expansion of digital services are currently available from various data sources, are often fragmented, have different structures and island-like operation, and in many cases, electronic access is unavailable (*Figure 2*). The expansion of digital services is also hindered on the customer side by a still typical lack of trust in digital services and a lack of digital competences. Development of the digitalisation of the financial sector would be greatly promoted by creating access to electronic databases managed by the state. On the basis of their importance and international good practices, it is crucial to extend the range of data stored in the Central Credit Information System (CCIS) and ensure their availability irrespectively of client consent, to expand the clientele covered by the online earnings statements of the National Tax and Customs Administration (sole proprietors, licensed traditional small-scale producers and pensioners), and to ensure the up-to-date nature of data and the simplification of client consent. Furthermore, the efficiency of time-consuming and costly appraisal processes related to mortgage lending would be improved by the creation of a central database promoting the availability of automated, statistical property appraisal, while the expansion of green mortgage lending and the appearance of green mortgage bonds would be facilitated by banks' automatic access to the energy performance certificates of properties offered as collateral for the loans, stored by

[6] https://bigdataforbanking.com/success-stories/computing-anti-fraud-predictors/. Downloaded: 26 November 2021.

the Lechner Knowledge Centre (*MNB 2021*). Nevertheless, it is also essential that banks make their own databases available for external parties, and that the digital and financial education of clients, banking and public employees occurs.

Figure 2
Key data sources used by banks



Note: Based on current practice in Hungary, the data used by banks according to the availability of electronic access to them: ✓ – available; ☑ – subject to customer consent; ✗ – not available

Source: MNB

5. Conclusion

Connecting data comprehensively and a successful digital transition of financial service providers may significantly improve macroeconomic performance. With access to a wider range of data, banks can also increase the efficiency of their own business processes. This may increase the availability of financial services and enhance financial inclusion, and – at the same time – lower the costs incurred by both banks and customers. The state has a significant role in all this, on the one hand, as the manager of most data assets, and, on the other hand, as the entity responsible for the education that is required for the success of digitalisation processes.

References

Ali, A. – Hamouda, W. – Uysal, M. (2015): *Next Generation M2M Cellular Networks: Challenges and Practical Considerations*. IEEE Communications Magazine, 53(9): 18–24. https://doi.org/10.1109/MCOM.2015.7263368

Chung, V. – Gomes, M. – Rane, S. – Singh, S. – Thomas, R. (2020): *Reimagining customer engagement for the AI bank of the future*. McKinsey, 13 October. https://mckinsey.com/industries/financial-services/our-insights/reimagining-customer-engagement-for-the-ai-bank-of-the-future. Downloaded: 26 November 2021.

DAMA (2017): *DAMA-DMBOK: Data management body of knowledge*. Second edition, Technics Publications, LLC.

Dash, R. – Kremer, A. – Nario, L. – Waldron, D. (2017): *Risk analytics enters its prime.* McKinsey, 6 June. https://www.mckinsey.com/business-functions/risk-and-resilience/our-insights/risk-analytics-enters-its-prime. Downloaded: 26 November 2021.

European Data Portal (2020): *Analytical Report 9: The Economic Benefits of Open Data*. https://data.europa.eu/sites/default/files/analytical_report_n9_economic_benefits_of_open_data.pdf. Downloaded: 26 November 2021.

Hasham, S. – Hayden, R. – Wavra, R. (2018): *Combating payments fraud and enhancing customer experience*. McKinsey, 26 September. https://www.mckinsey.com/industries/financial-services/our-insights/combating-payments-fraud-and-enhancing-customer-experience. Downloaded: 26 November 2021.

MNB (2021): *Macroprudential report, 2021.* Magyar Nemzeti Bank. https://www.mnb.hu/letoltes/mnb-macroprudential-report-2021.pdf

Nguyen, D. – Paczos, M. (2020): *Measuring the economic value of data*. Voxeu, 6 October. https://voxeu.org/article/measuring-economic-value-data. Downloaded: 26 November 2021.

OECD (2020): *Implications of the Digital Transformation for the Business Sector*. Conference summary, Organisation for Economic Cooperation and Development, Paris. https://www.oecd.org/sti/ind/digital-transformation-business-sector-summary.pdf. Downloaded: 29 August 2021.

Peterson, D. (2018): *Maximize Efficiency: How Automation Can Improve Your Loan Origination Process?* Moody's Analytics, November. https://www.moodysanalytics.com/articles/2018/maximize-efficiency-how-automation-can-improve-your-loan-origination-process. Downloaded: 3 December 2021.

Redman, T.C. (2011): *The Wondrous and Perilous Properties of Data and Information in Organizations*. IDQ Newsletter, 7(3). https://www.iqint.org/publication2011/doc2/redman-2011-07.shtml. Downloaded: 26 November 2021.

Van Ooijen, C. – Ubaldi, B. – Welby, B. (2019): *A data-driven public sector – Enabling the strategic use of data for productive, inclusive and trustworthy governance*, OECD Working Papers on Public Governance, No. 33, OECD Publishing, Paris. https://doi.org/10.1787/09ab162c-en

White, O. – Madgavkar, A. – Townsend, Z. – Manyika, J. – Olanrewaju, T. – Sibanda, T. – Kaufman, S. (2021): *Financial data unbound: The value of open data for individuals and institutions*. McKinsey, June 24. https://www.mckinsey.com/industries/financial-services/our-insights/financial-data-unbound-the-value-of-open-data-for-individuals-and-institutions. Downloaded: 26 November 2021.