Expert Forum

Introduction of the payment infrastructure in Hungary with a strong focus on the domestic instant payment system

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MOVING FORWARD TOGETHER

Twinning Project UA 19 ENI FI 01 19

Strengthening the institutional and regulatory capacity of the National Bank of Ukraine to implement EU-Ukraine Association Agreement

TWINNING

Financial infrastructures and payment systems in Hungary and the role of the MNB in terms of payments

The MNB's role in terms of payments in general and the importance of its Payment Strategy

2 strategic goals

- To provide electronic payment alternative in all payment situations (e.g. P2P money transfers, bill payments, purchase transactions at the POI, online shopping)
- To encourage the use of electronic payment methods among end-users

3 tools

- Regulation (MNB Decree on the execution of payment transactions)
- Ownership (acquisition in terms of critical infrastructures)
- Initiation and coordination

4 key areas to facilitate

- Increased competition
- Easier market entry and access to payment systems
- Cheap, fast, convenient and secure services
- Supporting innovation

Critical financial infrastructures and payment systems in Hungary

In 2019, critical financial infrastructures in Hungary altogether processed transactions in a value which is approximately 40 times the domestic GDP

MNB's RTGS (VIBER)

HUF 1 515 trillion (fewer high value transactions)

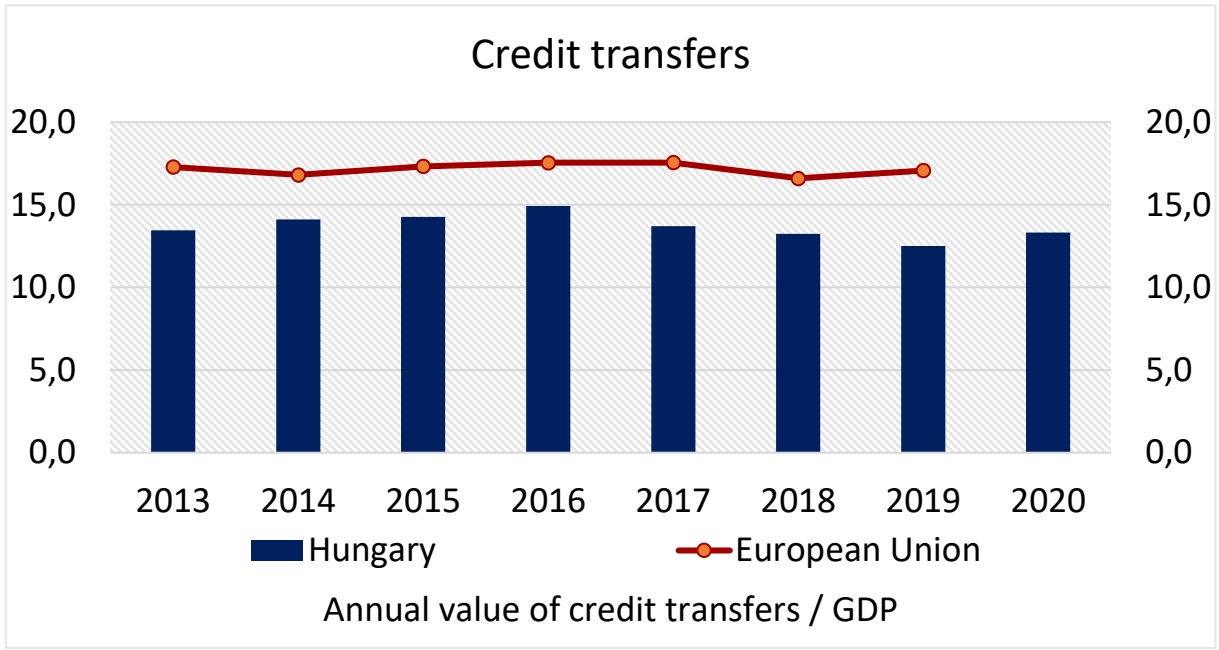
Interbank Clearing System (BKR) operated by the Hungarian ACH (GIRO)

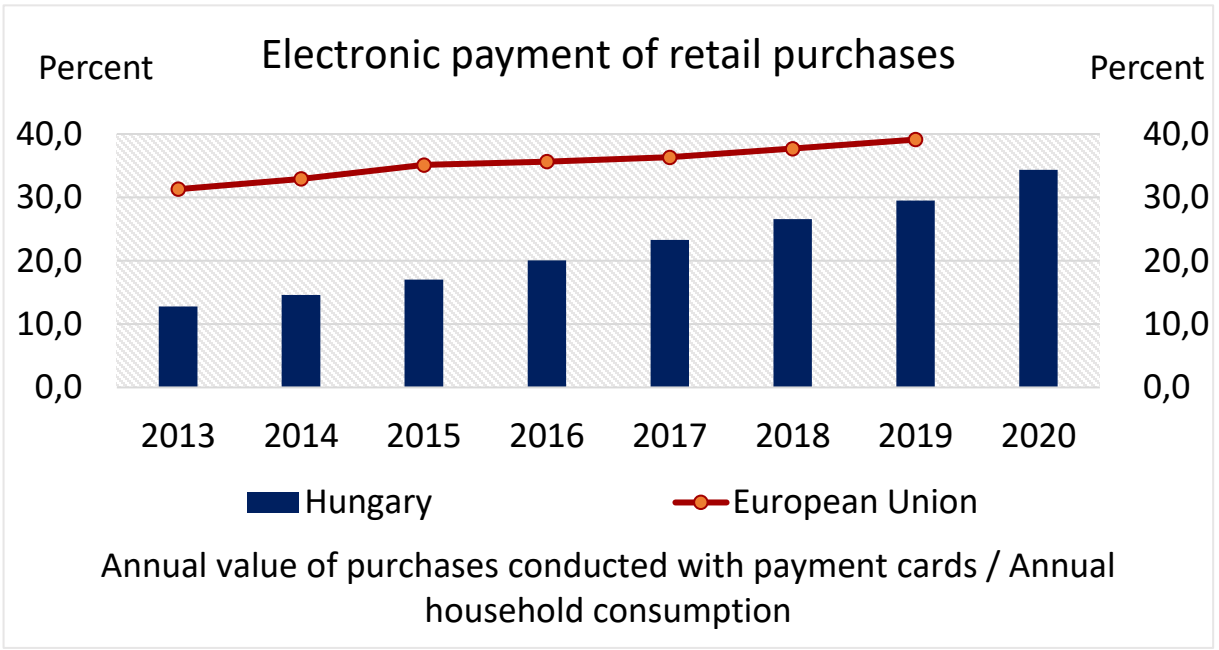
HUF 127 trillion (outstanding number of mainly small value transactions)

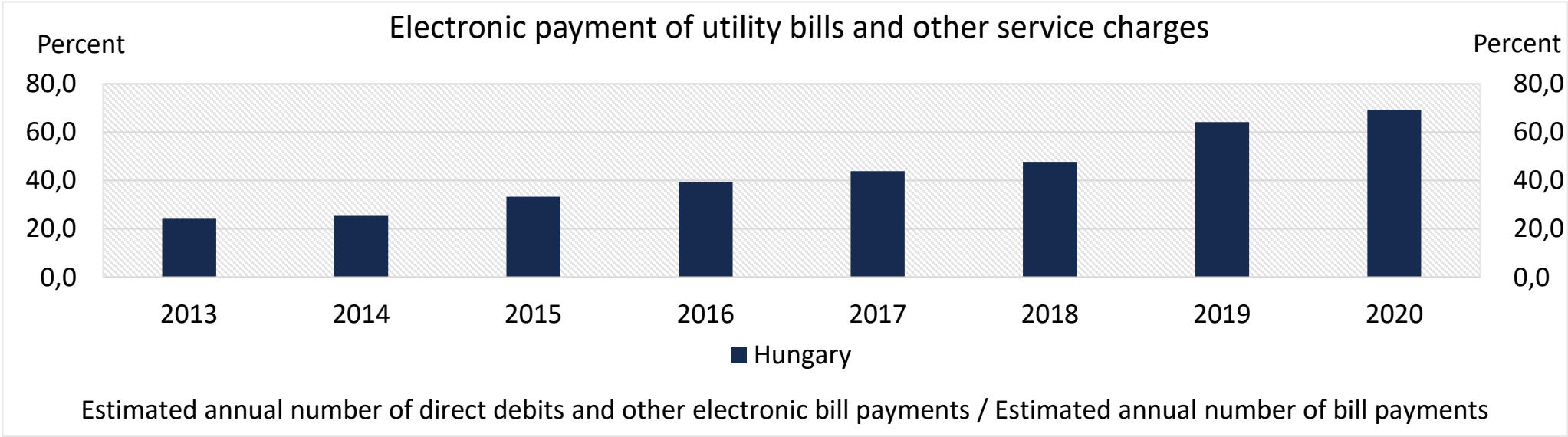
Hungarian central securities depository and central counterparty (KELER Group)

HUF 230 trillion

The development of domestic payments is continuous







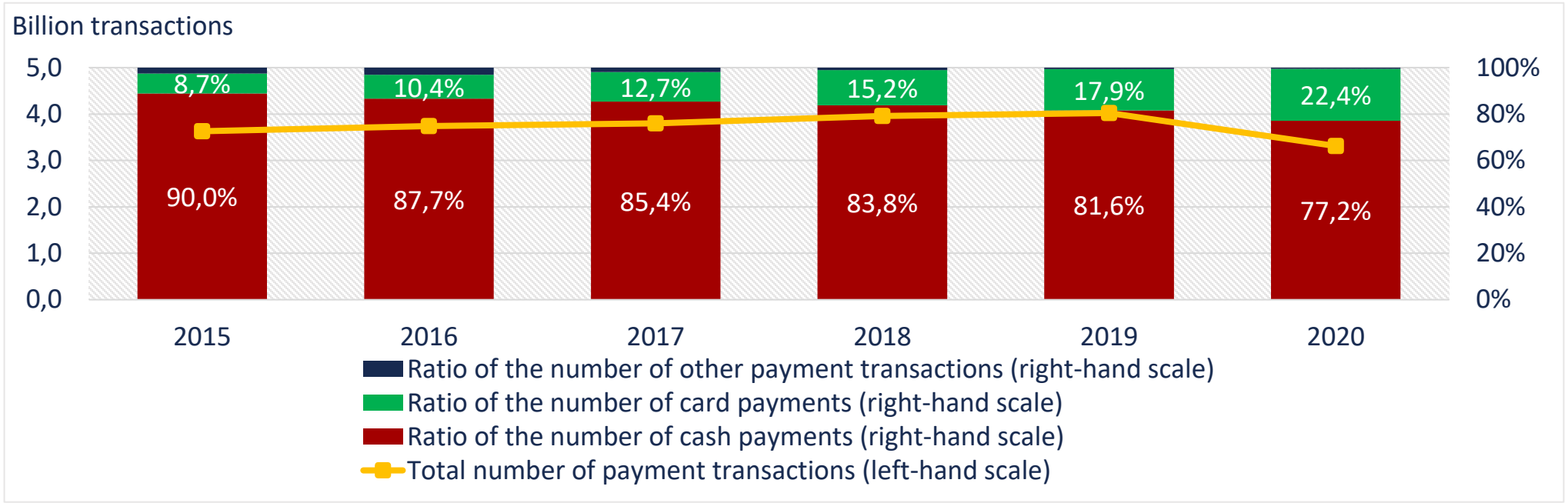
At the same time, high cash usage is a significant problem

The average monthly cash in circulation has been increasing rapidly

- The amount increased by more than 160 percent between January 2013 and August 2020
- The total value exceeded HUF 7,000 billion

However, there are several components of cash demand

- Transactional purposes
- Savings purposes
- Hidden economy



Based on the online cash register database, representing the retail sector quite well, the share of electronic payments is gradually increasing, but further development is needed

Why is high cash usage problematic?

3 critical areas

- There is a positive relationship between electronic payments and economic growth
- Reducing cash usage and, in parallel, the size of the hidden economy could lead to increased tax revenues
- Issue of social costs (e.g. costs of cash production and cash logistics)

Due to the problems of high cash usage and the limits of the payments card infrastructure, a new source was needed to further support development

Hungarian model of instant payments

Basic operational rules of the Hungarian model

Message standards and payment process based on SCT Inst scheme with Hungarian specialties

Main rules appear in legislation or in standards

Mandatory by regulation for credit transfers under approx. EUR 28.000 (optional: corporate batches, value date and standing order transactions)

Continuous operation (24/7/365) with no planned downtime

5 seconds maximum execution time

Instant clearing and settlement on a per-transaction basis

Prefunding at the MNB by system members
&
Automated credit line during night and weekend

Mandatory negative and optional positive responses

Additional services based on the core infrastructure (secondary IDs and request-to-pay messages)

Requirements in terms of open standards and interoperability in order to foster development

INSTANT PAYMENTS COULD BE USED WIDELY DUE TO THE BASIC RULES OF THE SERVICE

Most important liquidity management features in the Hungarian model

Continuous and immediate clearing and settlement

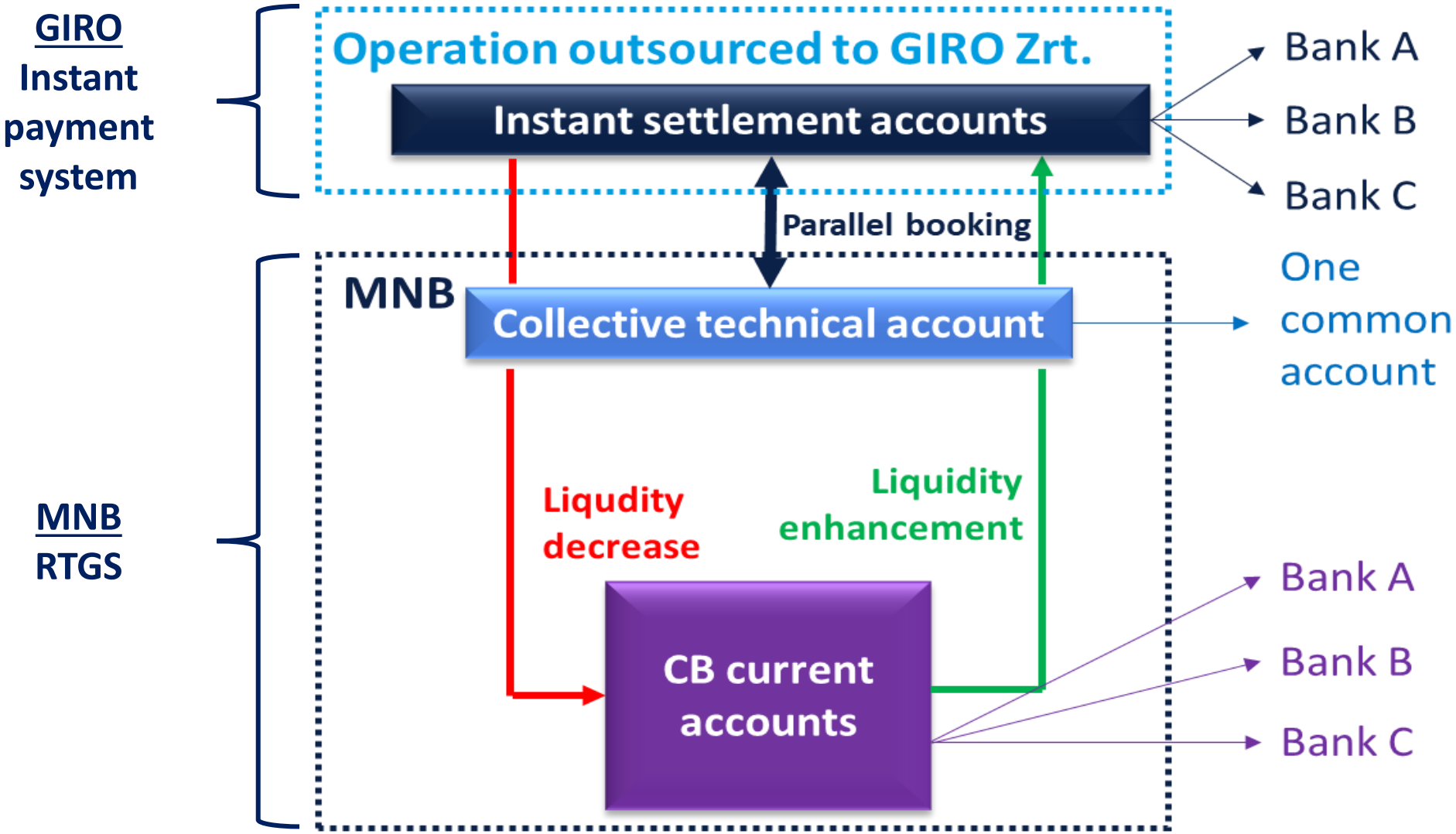
Banks prefund their estimated liquidity needs for instant payments to a main account in MNB's RTGS (VIBER)

Legally MNB is responsible for settlement, however technically this task is done by the ACH (GIRO) on behalf of the MNB

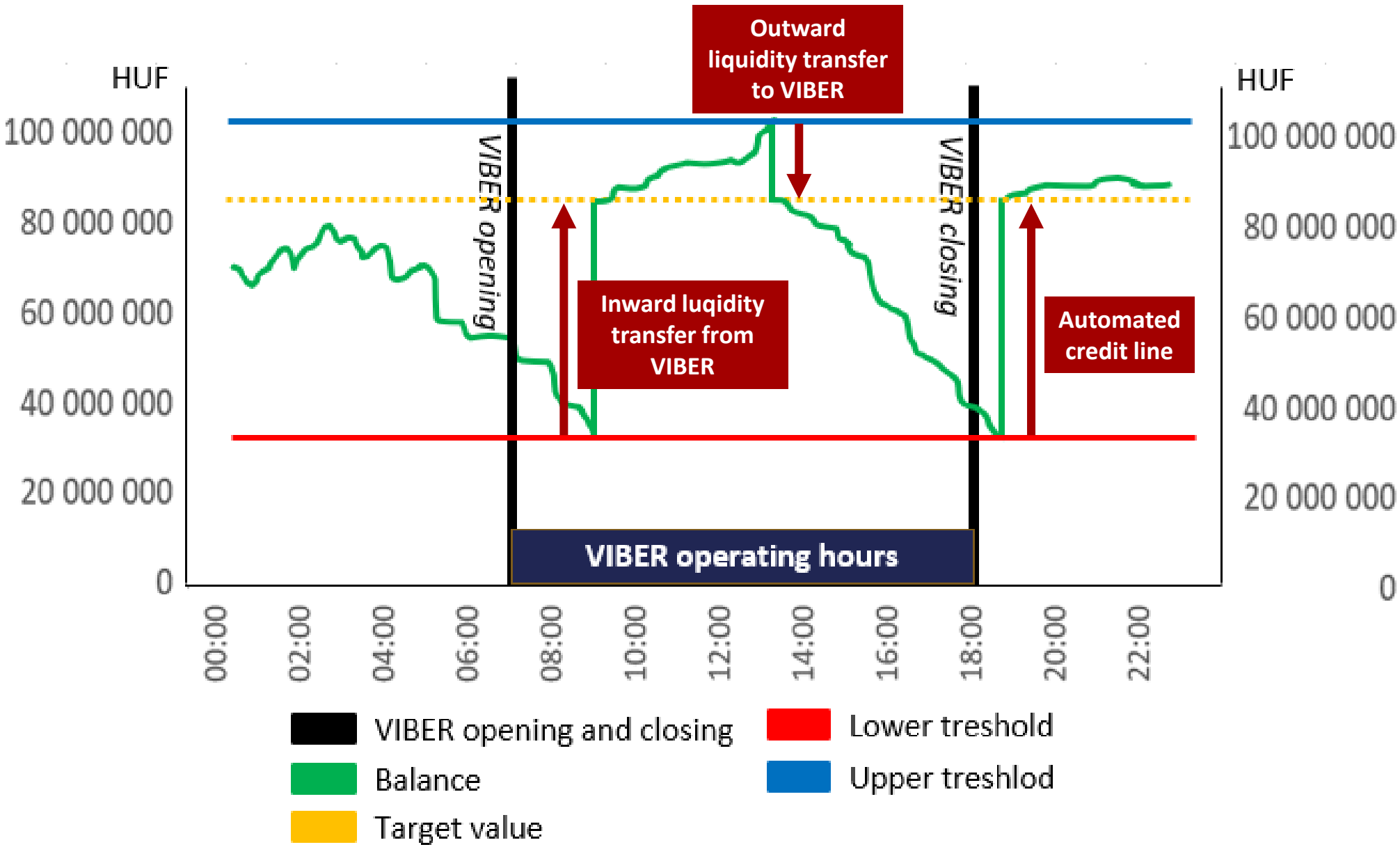
For the periods outside the operating hours of VIBER (i.e. night, weekend, bank holiday) automated collateralised credit is available to banks

The prefunded liquidity in IPS can be included in the fulfilment of the credit institutions' minimum reserve requirement

Participating accounts and the connection between the MNB's RTGS and the instant payment system



Liquidity management in practice



Features of the central infrastructure

500 TPS capacity for all types of messages

System delivered by Nets Denmark

The communication network is provided by GIRO

Overnight and intraday clearing platforms remain in operation

Transaction types of instant payments

2 March 2020

Mandatory

- P2P transactions
- Bill payments (C2B transactions)
- Individual B2C transactions
- Individual B2B transactions under HUF 10 million

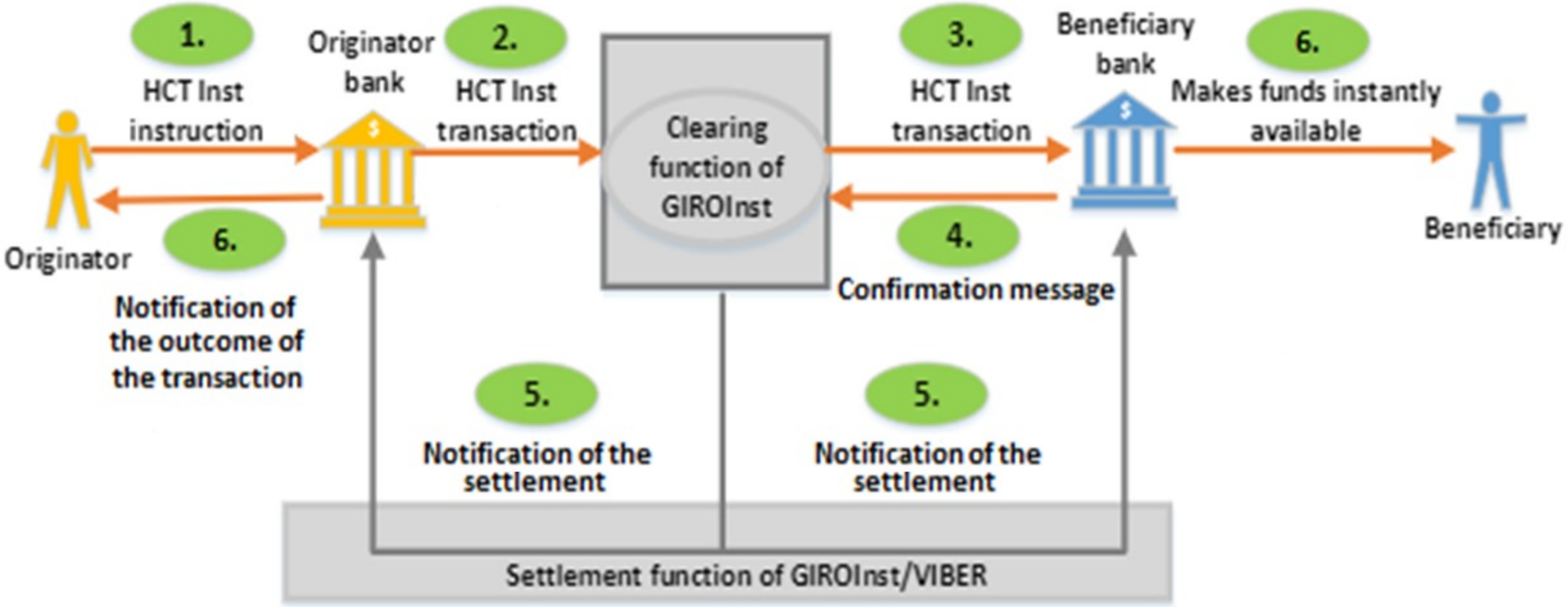
Optional

- Corporate batch transactions
- Value date and standing order consumer transactions (e.g. condominium fee)
- Mass request-to-pay messages of billing institutions

1 September 2020

Potential risks in terms of overloading the beneficiary side are minimized by the fact that corporate batch transactions can only be sent at a rate of 1 transaction per second per beneficiary payment service provider according to the respective regulation

Payment cycle and message flow



Main message types

The message content is fundamentally based on the ISO 20022 standard, at the same time there are some specific Hungarian features (e.g. character set, rejection codes not included in the ISO 20022 code list, extra data content)

Payment clearing and settlement

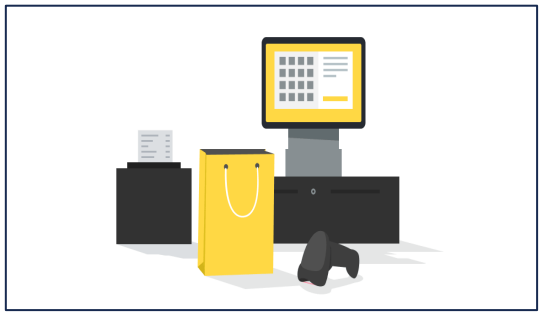
- pacs.008 (CT – Credit Transfer)
- pacs.004 (RCT – Returned Credit Transfer – recall fulfilment, return of funds)
- pacs.002 (positive or negative final status message)
- pacs.028 (INV – Investigation)

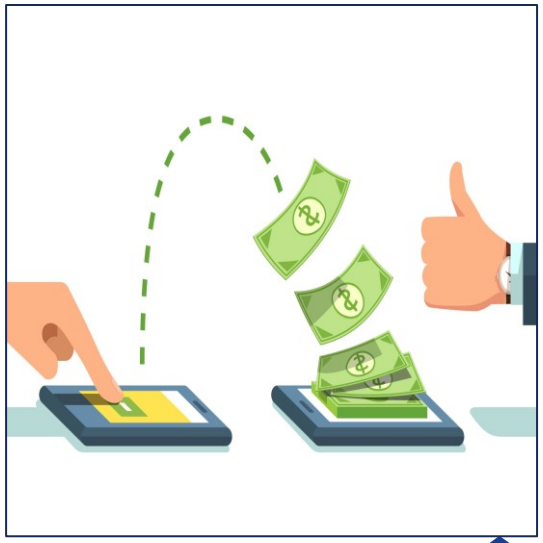
Cash management (not clearing type messages)

- camt.056 (REC – Recall)
- camt.029 (RNK – Recall Not Acknowledged)

Special data content in order to support the handling of instant payments in every payment situation

- CustomerID
- CredTranID
- InvoiceID
- LoyaltyID
- MerchDevID
- NAVCheckID
- ShopID





Main challenges

35 participants with different infrastructures had to finish their developments by the same deadline

Core systems cannot be changed so quickly (integration of a middleware, or implementation of a shadow balance layer)

Main challenge was to ensure continuous (24/7/365) operation with no planned downtime

The lack of available IT-development resources could be a bottleneck

The handling of corporate batch transactions was a challenge (regulation or central load-balancer is needed)

Project timeline with the key milestones

12/2016

MNB FSB decision about the main rules and the national scope of the project

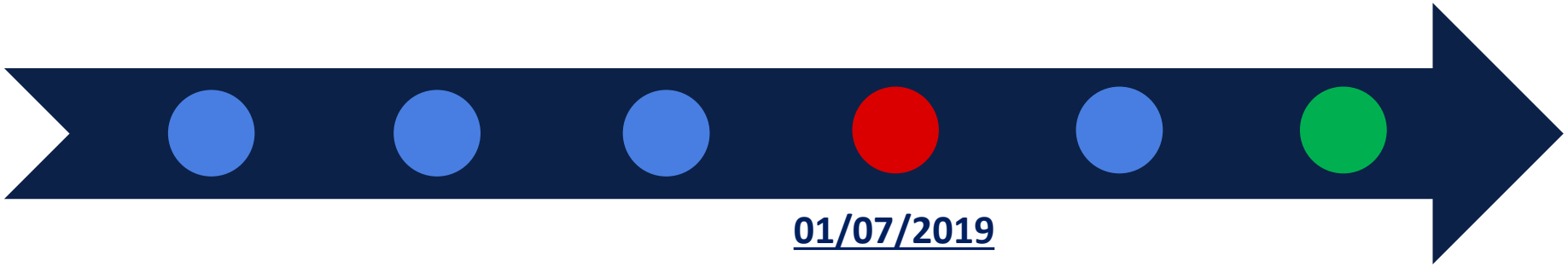
12/2017

Publication of the related modifications of the MNB Decree on the Execution of Payment Transactions

07/2019

Test run on the live core infrastructure

Mandatory participation from 09/2019 with high requirements



07/2017

Country-wide project was started and the project timeline was announced

01/07/2019

Original go-live date

MNB FSB, in line with the request of the Hungarian Banking Association, announced an 8-month delay due to some participants' inadequate preparation

02/03/2020

Successful launch of the service with the participation of all Hungarian PSPs

Service level developments in the instant payment system

Effective competitor to cash payments

Car or real estate purchases

Time-critical transactions

Point of sale purchases

Instant payments could be used widely due to the basic rules of the service

Instant payments will provide electronic alternative in almost every payment situation where only cash payment was previously possible

On-site payments of services

P2P money transfers

Online purchases

Bill payments

Multi-layered model

MNB and GIRO:

- secondary IDs (mobile number, e-mail, tax number) instead of bank account number
- request-to-pay messages as new features beside the basic service

Market participants:

- strong requirements to develop innovative payment services (e.g. mobile payments)
- the core infrastructure enables the flexible development

Facilitation of innovative end-user services

GIRO prepared rulebooks for HCT Inst

(available in English as well)

Detailed guideline on instant payment processes and data-entry solutions

(available in English as well)

Definition of additional optional data fields (e.g. POS ID, loyalty ID, customer ID, purpose code)

Domestic QR-code standard

(available in English as well)

Restructuring of GIRO pricing: annual fees (package-based pricing), free RTP and proxy messages

Why is data-entry a key issue?

Interoperability and open standards are crucially important in order to avoid parallel operation of closed solutions, and the inconvenience arising from using different services in different situations

For the sake of interoperability, payment service providers are required to use open data-entry solutions

This may prompt service providers to define their own open data-entry solutions because of the extra need for development

The MNB has decided to develop guidelines and a QR-code standard, as well as to define uniform data content

Why QR-codes?

QR-codes give an obvious solution for efficient and simple data-entry in terms of payments even without extensive developments

- **The payee can generate a QR-code to transmit to the payer the data required for the submission of the payment order**
- **The payer can generate a QR-code to transmit the data to the payee who, in turn, can launch a request to pay with the data received**

Field name	Length	Fixed length
ID code (HCT or RTP)	3	Y
Version number	3	Y
Character set	1	Y
Payer’s or Payee’s BIC/BEI	11	Y
Payer’s or Payee’s name	70	N
Payer’s or Payee’s IBAN	28	Y
Amount (HUF & 12 number)	15	N
Validity period	16	Y
Payment situation identifier	4	Y
Remittance information (unstructured)	70	N
Retail unit, shop identifier	35	N
Merchant device (POS, cash register) identifier	35	N
Invoice or receipt identifier	35	N
Customer identifier	35	N
Payee’s internal transaction identifier	35	N
Loyalty or discount scheme identifier	35	N
NAV verification code	35	N
Space required for separators	17	Y
Total field length	345	-

Hungarian QR-code standrad in details

Key features in terms of proxies

Unique identifiers for the unambiguous identification of the account holder's payment account

Types for now:

– EEA-country mobile phone number

– e-mail address

– Hungarian tax ID

Key role of a central database and strict rules in terms of access to proxies

More than one proxy may be linked to a payment account

At the same time, a given proxy is to be assigned only to one payment account

Payment order with proxies (just like in the case of using a name and a payment account number)

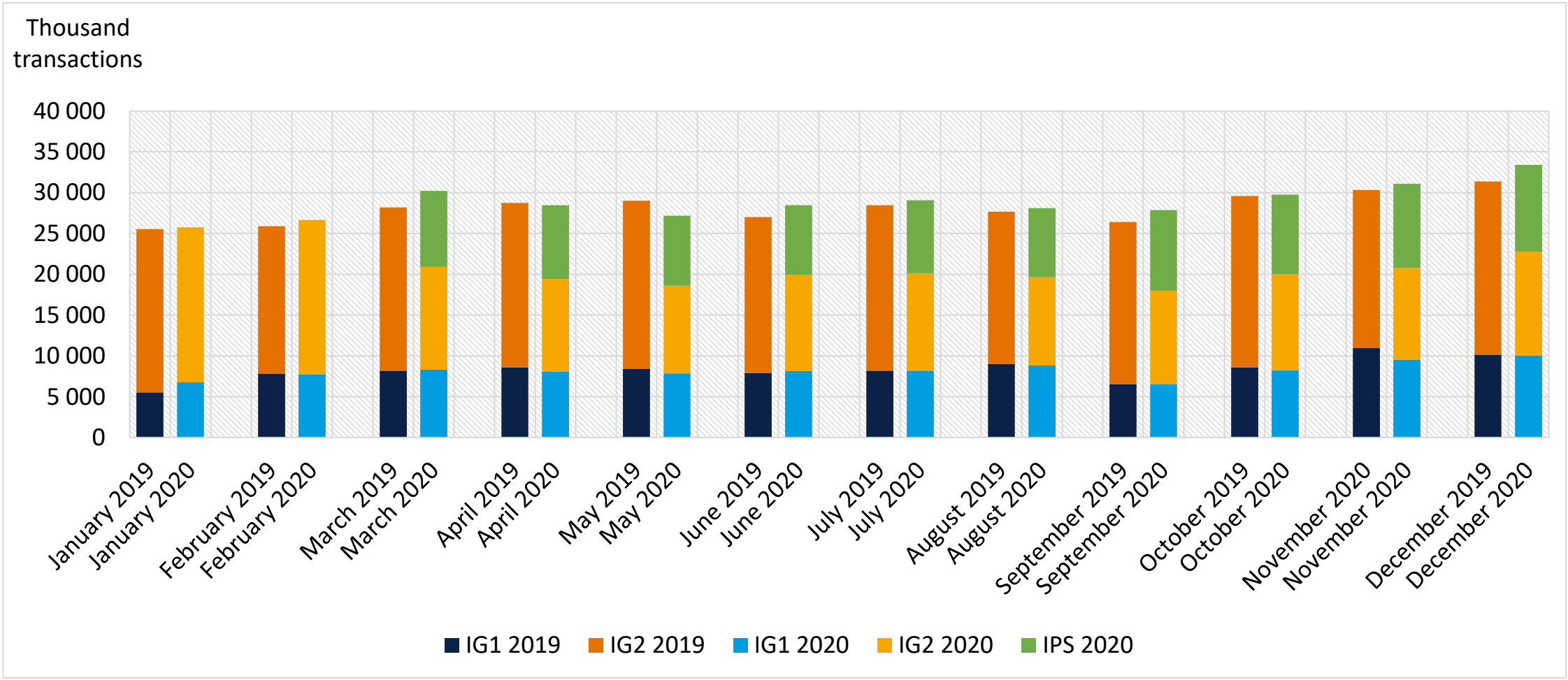
HCT Inst transactions only with the name and the account number of the beneficiary

Annual reconciliation is important in order to prevent malfunction

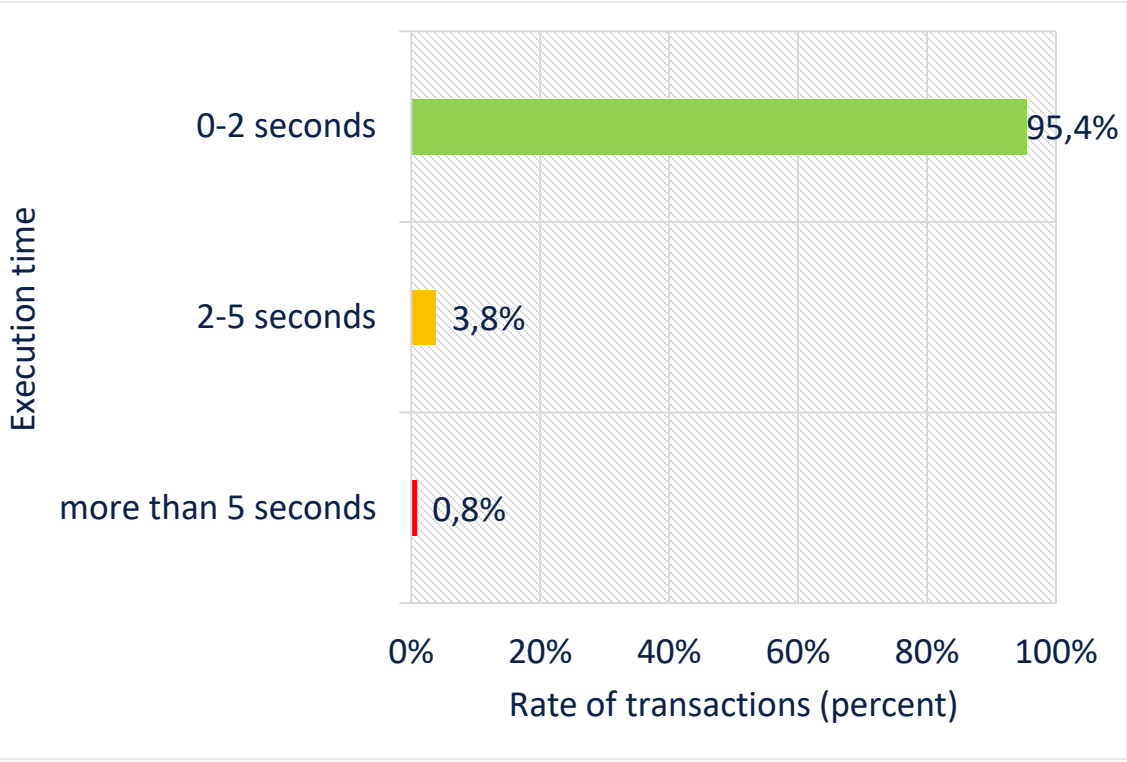
Experiences of the operation and the future of instant payment

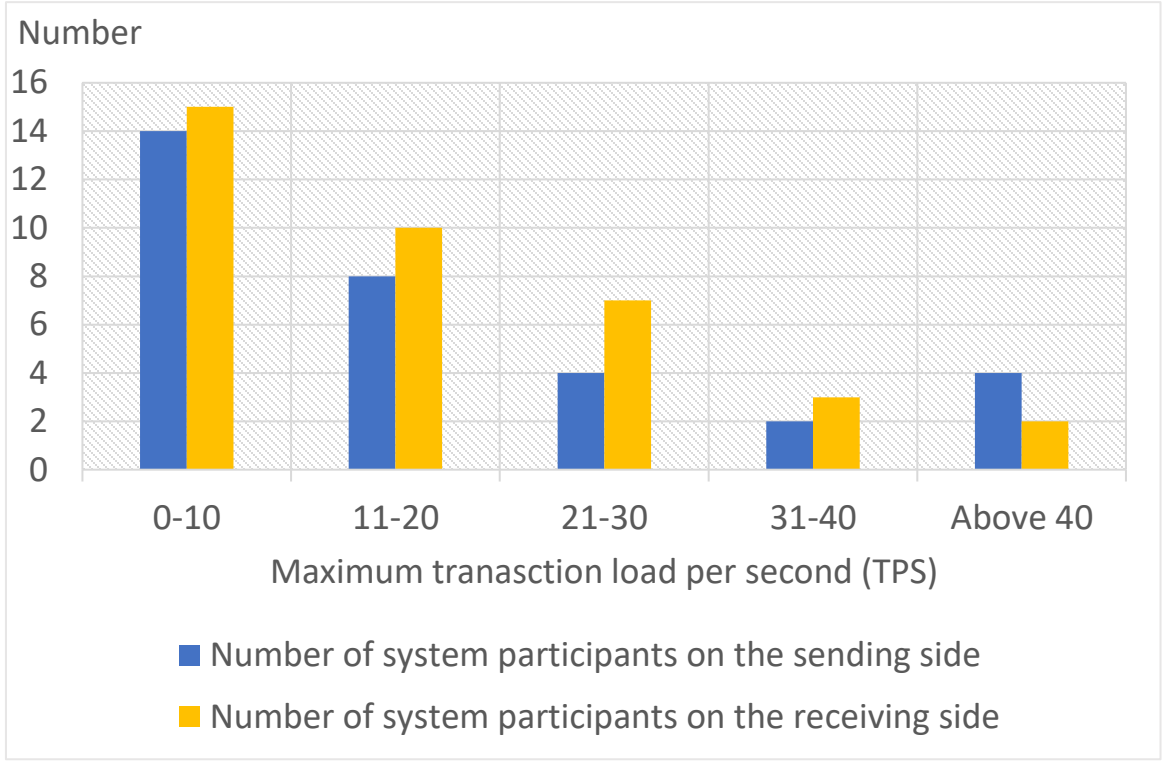
After 2 March 2020 more than 40 percent of all interbank credit transfer transactions are executed in the instant payment system

Transactions processed in the overnight (IG1), intraday (IG2) and instant (IPS) clearing platforms of the Interbank Clearing System



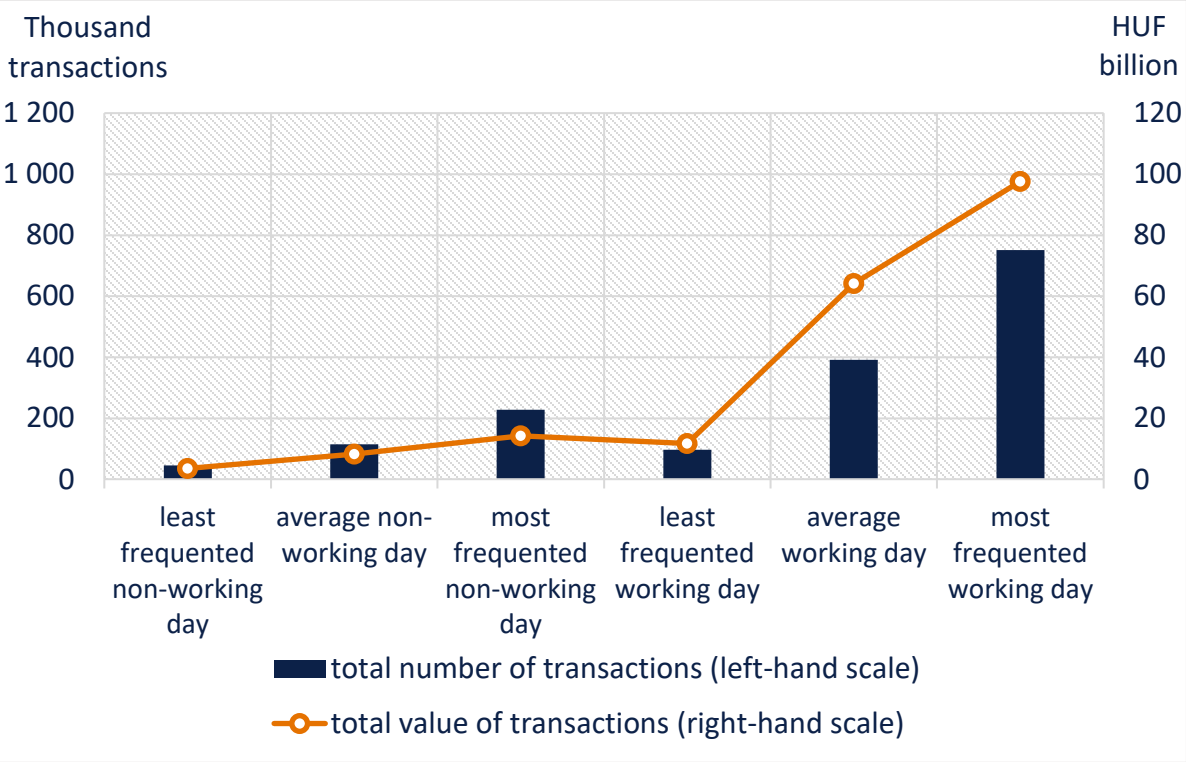
Main achievements of the new service as of 31 December 2020

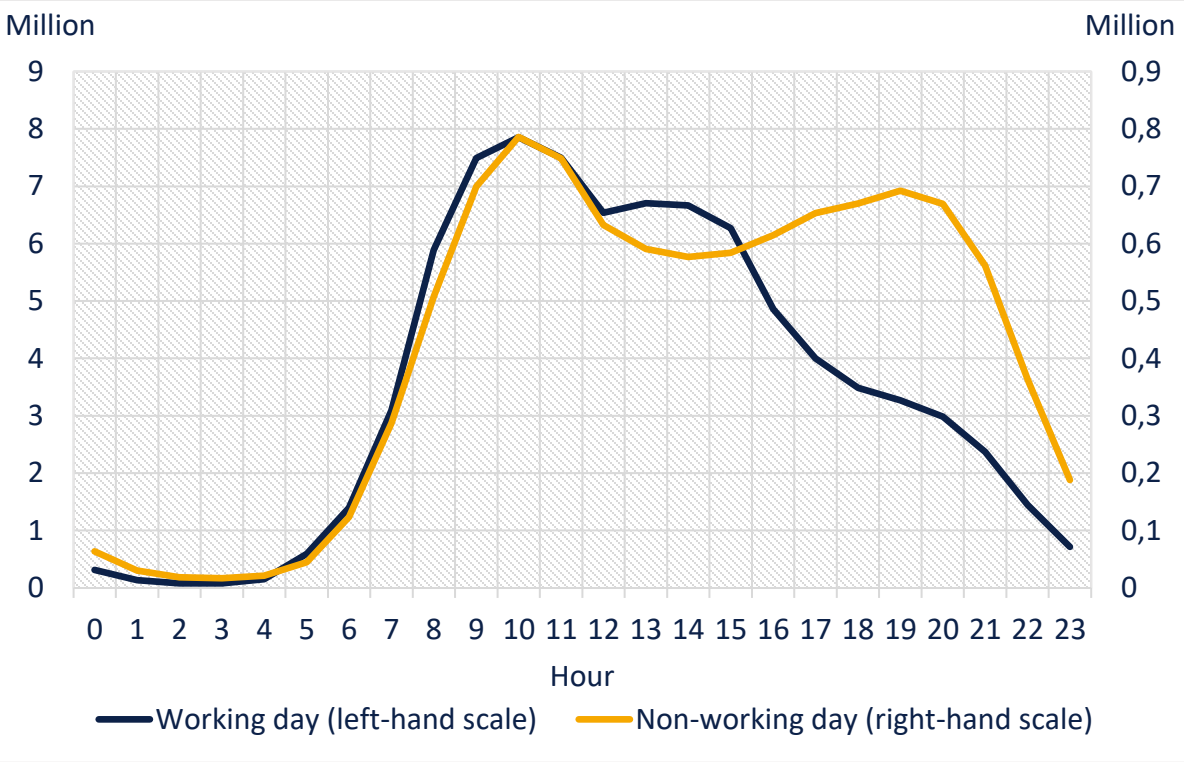




- **114 million** IP transactions altogether with on-us transactions
- **93 million** IP transactions (mostly interbank, but a few on-us as well) in the central system
- **99,2 percent** of the transactions processed in the central system were executed within 5 and **95,4 percent** within 2 seconds
- The majority of system members are smaller credit institutions with a relatively smaller customer base; therefore, the majority of players are concentrated in categories with smaller TPS values; however, there are also some larger players where the maximum transaction load is around or above 100 TPS

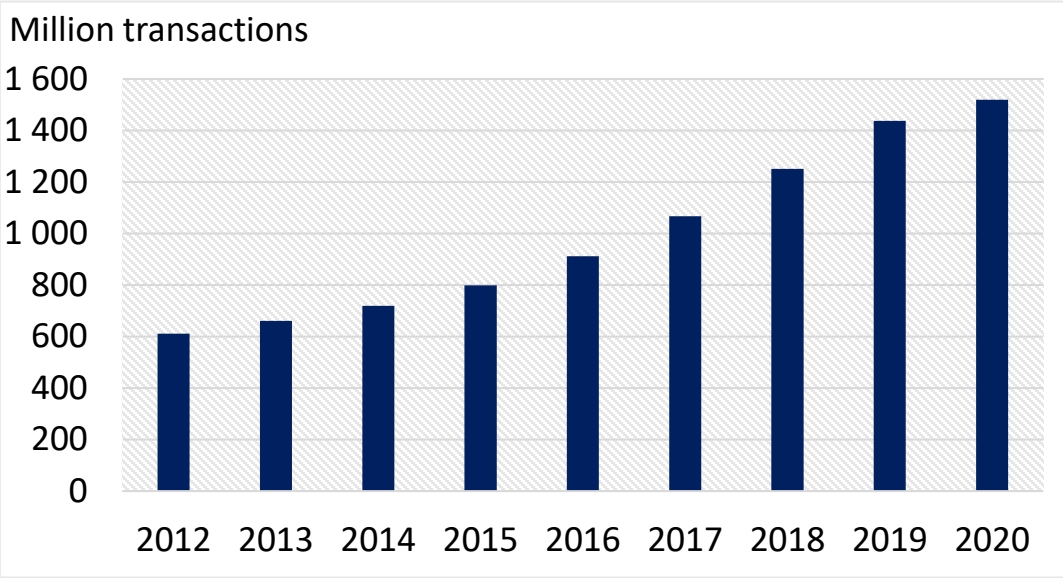
Changing customer habits in terms of payments



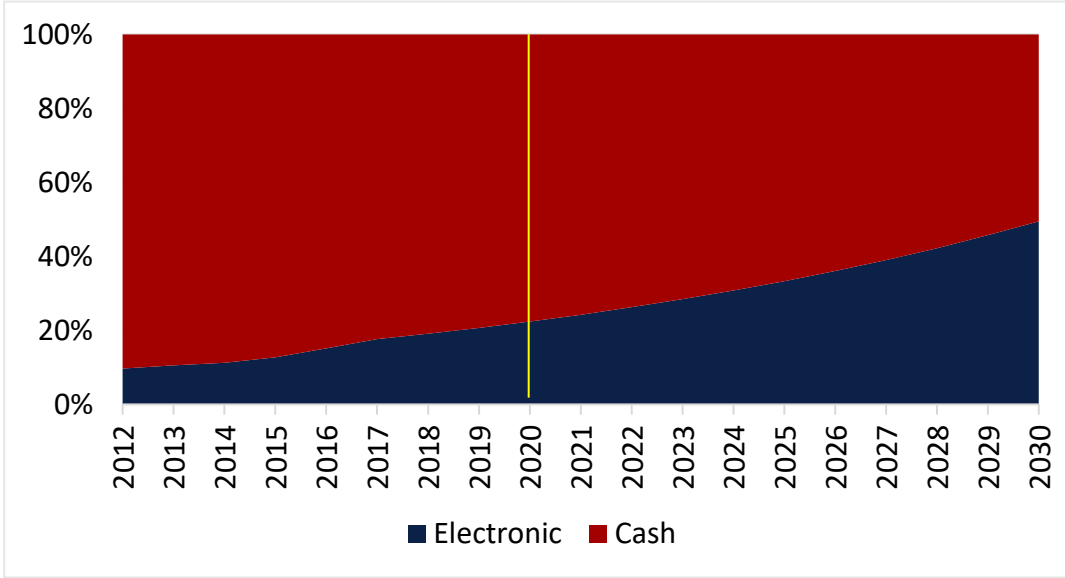


- On the most frequented day **more than 751 thousand** transactions in a value of **nearly HUF 98 billion** were processed in the central system
- An average non-working day is quite busy also with **more than 114 thousand** transactions in a value of **more than HUF 8 billion**
- Nearly 30 percent of the transactions processed in the central system were executed during weekends, holidays and at night (outside the normal banking operating hours)
- More than 92 thousand registered secondary IDs

Electronic payments in the next few years



Number of electronic payment transactions in Hungary (credit transfers, direct debits and card payments altogether)



The aim is to get close to the average of developed European countries in the share of electronic payments within 10 years (45-50%)

The MNB and GIRO have provided:

- The central infrastructure
- Database for secondary IDs
- The processing of request-to-pay messages (+ GIROFix service)
- Operational guidelines
- Domestic QR-code standard

Additional developments of market players are needed and they are already underway:

- Easy-to-use mobile banking applications
- Innovative end-user payment solutions (e.g. bill payments, online and physical purchase transactions)

Thank you for your attention!

Q&A