

Magyar Nemzeti Bank



**INSTANT
PAYMENT**

2020

**New Dimensions
in Payments:
The History of the
Introduction of Instant
Payments in Hungary**

**NEW DIMENSIONS IN PAYMENTS:
THE HISTORY OF THE INTRODUCTION OF INSTANT PAYMENTS
IN HUNGARY**

New Dimensions in Payments: The History of the Introduction of Instant Payments in Hungary

MAGYAR NEMZETI BANK

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Dr György Matolcsy

Governor, Magyar Nemzeti Bank

Foreword

Undoubtedly, money is a revolutionary invention in the history of mankind that has shaped commercial and economic relations among people and influenced their everyday lives since its earliest appearance. Yet, this groundbreaking invention has changed and progressed a great deal over the centuries to meet the expectations created by evolving economic circumstances. The history of the successive forms of money can be seen as a series of innovations, and continuous innovation has been instrumental in ensuring that the different solutions increasingly fulfilled the functions of money (standard of value, means of circulation, means of payment, means of hoarding) while the supporting institutions and the infrastructure continued to advance.

We have come a long way since the emergence of the first types of commodity money, and the process of development has accelerated further as globalisation and the technological, as well as the information and communication revolution has gathered pace. Accordingly, we can see that since the appearance of the first forms of money, the revolutionary changes now come in quick succession. However, the constant development can be divided into innovations in content and technology. Innovations in content occur when a change affecting the central features of money happens (e.g. monopolisation of minting, the appearance of fiat money without intrinsic value). Technological innovations include changes that do not modify money's main characteristics from the perspective of its functions yet trigger some, perhaps even landmark, advances (e.g. the emergence of electronic records instead of paper-based account balances).

I believe that the introduction of the instant payment system in Hungary was precisely such a landmark technological innovation, as money can now be transferred electronically

in real time, 365 days a year, allowing the transferred amount to be immediately used by the beneficiary.

Although various forms of instant payment systems have been present internationally for some time, mainly in response to the pressure exerted on the payment sector by the rise of innovative service providers and the self-contained and often not interoperable systems created by them (e.g. e-money systems, virtual means of payment). Still, the Hungarian solution is unique. Hungary was the only country in the world where all domestic bank customers were simultaneously granted access to a service opening up new dimensions in finance. This is a noteworthy achievement not least because the payment market is networked, so if a solution raising the quality of the service, and creating real added value, is to be used widely, it is necessary that the developments related to the given service are implemented by all the stakeholders, or at least most of the payment service providers. This creates the necessary link between the different elements of the network, and the service in question can be accessed across all the participants.

It also has to be noted that payment services are increasingly like utilities, in that they are vital to modern life. However, until 2 March 2020, state-of-the-art electronic payment solutions meeting consumers' legitimate needs could not necessarily be used in all payment situations in Hungary. The instant payment system laid the groundwork for this. It facilitated an electronic alternative in the payment situations where until then only cash could be used. Until 2 March 2020, the traditional financial infrastructures had several shortcomings in Hungary. One only needs to think of the limited communication options between the key elements of different infrastructures, the relatively slow message processing or the scarce capacities.

However, technological progress has changed the role of space and time in recent years, as consumers became accustomed to using simple, convenient and highly efficient services in several areas of life. Payments could be no exception; that is why the decision on the compulsory introduction of the system was made, which was regarded by many as bold or even audacious. However, events have proven us right. What is more, the timing could not have been any more perfect, since the service was launched at the onset of a crisis where remote electronic payments were crucial in mitigating risks.

Major strides have been made in improving Hungary's competitiveness in several areas, and these achievements have now been complemented by a solution that not only expedites payments, makes credit transfers available at all times, allows funds to be transferred in a simpler and more convenient form, helps liquidity turn around as much as possible and

indirectly supports the reduction of the shadow economy, but also includes an entire paradigm shift. As I have already noted in my earlier works, I am convinced that our convergence to advanced countries hinges partly on the establishment of a renewable financial model, and the modernisation of payments forms an integral part of that. Hungary has recognised early on that the future of money is not paper-based, that is why the country dared to open a window to digitalisation, and all the players affected by the introduction of the instant payment system were partners in this. Thanks to this, a technological revolution of payments, and indirectly of money itself, got underway in Hungary. The new service is expected to provide significant contribution to break out from the situation in which many people in Hungary still do not take advantage of the opportunities offered by digitalisation in terms of managing finances. However, putting payment transactions on a new footing is only the beginning, the dawn of a new era characterised, as we hope, by an unprecedented advance and development in electronic payments.

We wish to commemorate this monumental paradigm shift in payments, in the hope of encouraging others to introduce similar innovations. This is how this book was conceived, offering a platform for our partners and colleagues who took part in the implementation to share their experiences about the hard and successful work delivered in the past three years.

I. Where the key decisions were made



Dr Mihály Patai

Deputy Governor (International Relations, Cash Logistics, Financial Infrastructures, Digitalisation and Lending Incentives),
Magyar Nemzeti Bank

The same project from three different perspectives

During the joint work on the introduction of the instant payment service in Hungary, I was fortunate enough to obtain first-hand experience about the most important development in the history of Hungarian electronic payments to date from several vantage points. When I first heard about the Magyar Nemzeti Bank's idea of introducing the system as the chairman and CEO of UniCredit Bank Hungary Zrt. and the president of the Hungarian Banking Association, I had no inkling that I would be switching seats to sit at the table where the key decisions influencing the design of the central system, the introduction of the service provided to end-users and the participants' preparations were being made, at the most critical stage of the project.

I welcomed and supported the initiative since its inception, but it was clear to me that a major challenge would have to be overcome by all the players involved in the process of implementation. I am sure that the overwhelming majority of the stakeholders had completed large-scale and complex development projects before, one only needs to think of the introduction of the Hungarian intraday credit transfer system, but I believe that we had never been involved in a project of this magnitude. This is because ensuring 24/7 access to a service optimised for normal working days required most operational banking processes to be revisited and restructured in some way and also significantly enhanced.

At the same time, as the banking sector had been experiencing increasing pressure as a result of digitisation processes and the increasing presence of new service providers

who sought to obtain some share from payment services, new blood was required to promote continued competitiveness. This revitalising force manifested itself in the MNB's decision to make the introduction of the instant payment service obligatory. I think this was a bold move in the right direction that shifted the Hungarian banking sector, which had been known in the past to have responded relatively slowly and clumsily to challenges. This was also confirmed by events, as the customers of all payment service providers in Hungary simultaneously gained access to a service that took credit transfers to a new level, a feat unparalleled internationally. In my opinion, despite the looming challenges, all future system participants knew right from the beginning that this development was necessary and important, therefore everybody took the implementation seriously and acted responsibly to keep pace with the intense competition from the new players.

While banks started working almost immediately after the official decision was made: project teams were set up, the first steps were taken in drawing up a timetable, processing the available technical documents, establishing the specific development needs and preparing the expert specifications. It soon became clear that all the stakeholders, the MNB, GIRO Zrt. that developed the central system, as well as the future system participants, have to work in close cooperation and consultation to ensure that all aspects of the project remained on track. We vigorously represented this requirement in the Hungarian Banking Association throughout the project, which led to numerous interactions among the central agencies and the other players within the sector. This joint work led to common ground and the establishment of a common platform for the stakeholders, even regarding the technical details of implementation. Meanwhile, countless unresolved issues had to be tackled: matters that had been settled before cropped up anew, along with others.

Even during UniCredit's own internal project and the consultations in the Hungarian Banking Association, the complexity of this ambitious endeavour was evident to me. Nonetheless, after 22 April 2019, when I was appointed deputy governor of the MNB, my views on the introduction of instant payments in Hungary shifted somewhat. The insight I gained into the internal operation of GIRO that designed and operated the central clearing platform, which lies at the heart of the instant payment system, as well as the cooperation spanning multiple areas within the MNB regarding the developments related to the central system, its supplementary features and clearing membership, and the coordination of the nationwide project offered me a vast reservoir of new experiences. What is more, I joined the work in the MNB at a critical moment when major decisions had to be made in connection with the planned go-live date of the system. Taking this step and finding the right rhythm was greatly facilitated by the fact that my predecessor Dr Ferenc Gerhardt left behind a professional staff of experts in both the MNB and GIRO. I was happy and relieved to see day after day

the robust professional and human qualities of my colleagues at the Directorate Financial Infrastructures and the Directorate Banking Operations of the MNB as well as at GIRO. Making extraordinary efforts, they contributed to the achievement of our ambitious goal by various means, by developing the basic concept, designing the related regulation, establishing the technical details, coordinating the project and monitoring the processes.

Although the central infrastructure was absolutely ready to accept and process customer transactions by the originally planned deadline of 1 July 2019, some players that joined the system experienced risks in connection with smooth transition and a fully balanced service. Taking all the factors known at that time into account, in order to ensure secure operation and attain the original objective, namely that all Hungarian customers should experience a uniform system and a mature service from the first seconds following the launch, it was decided that a longer test period would be integrated into the process, which, in my opinion, was quite right. The success achieved jointly on 2 March 2020 confirmed this, proving that the intensive testing across the whole sector in the preceding eight months was necessary.

Overall, during the preparation, the factor that helped most in opening up the service to customers at the same time and without any glitches by the 35 system participants, who in many cases had fundamentally different backgrounds and technological solutions, was the compulsory live test run in the six months from 1 September 2019 to 1 March 2020. The importance and complexity of this period is attested by the fact that a very tight schedule was drawn up, along which system participants conducted numerous tests in close cooperation with GIRO and the MNB, to allow all stakeholders to prepare for 2 March 2020 as best as possible.

The project was a top priority not only for GIRO that implemented and operated the central system and the system participants who sought to fully prepare for opening up the service to customers by the new deadline, but also for the MNB. Preparedness monitoring was stepped up during the test run, progress was analysed and evaluated through biweekly or monthly surveys, regular consultation with banks and the banking sector as a whole as well as at executive forums. Regular follow-up consultations were held among senior managers of the MNB to adjust processes and take any necessary measures as soon as possible. Our efforts bore fruit, so apart from some minor fine-tuning, no major intervention was needed.

The night of 1 March 2020 arrived and we stood ready for the go-live of the service if not completely relaxed, but relatively calm. System participants had pending tasks even in the last minutes, because, depending on the technological solutions used, the go-live of

the instant credit transfer service and the related systems and system elements could not always be performed automatically everywhere and in every case. Naturally, based on the regular reports of the system participants and the consultations with the designated points of contact, the processes were also monitored in real time by the MNB's project team.

In view of the information processed by the team, my fellow executives and I continuously assessed the progress, and although smaller risks arose, no major intervention was necessary. Apart from one-off and short-lived issues, which often did not even affect the service level experienced by customers, no serious shortcomings were registered. All players handled the difficulties in connection with the transition well, and any errors were eliminated as soon as possible. At 00:00 on 2 March 2020, transactions started to flow, and, as expected, sizable volumes of customers started testing the system even in the first seconds. We followed suit, and several small customer transactions were conducted by the project team. The first secondary identifiers were also registered. In the first days and weeks, the special focus on closely monitoring the central infrastructure and system participants was maintained, and we were relieved to find that the service was operating properly. This is best exemplified by the millions of payment transactions conducted in the first weeks, in a value of around HUF one trillion.

However, the work did not end there. A new era started in Hungarian payments, but this was only the first step on a long journey. The launching of the basic service is definitely a huge milestone, but if instant payments are to live up to their promise and provide a truly relevant alternative to cash in as many payment situations as possible, innovative payment solutions based on the central infrastructure are needed. Nevertheless, I am happy to report that headway is being made in this regard, too. By the end of the year, most banks will offer the request-to-pay service, and many of them will follow the MNB's guideline and integrate QR code-based solutions into their mobile banking applications. Therefore, the incorporation of the instant payment method in bill payments and the establishment of merchant acceptance may be faster, whether in physical or online shopping.

I personally would like to thank all the players who participated in the project and contributed in some form to the achievement of our goals, for their extensive cooperation, the joint work and the exceptional performance. I am especially grateful to bank executives for mobilising all necessary resources to ensure success, providing guarantees with their presence at the right times and places. In closing, let me mention three colleagues to whom we owe this success, and who can be rightfully proud of their enduring professional and executive performance: Dr Ferenc Gerhardt, Lajos Bartha and Dr Zsolt Selmeczi-Kovács.



Barnabás Virág

Deputy Governor (Monetary Policy and Financial Stability),
Magyar Nemzeti Bank

Faster, safer, sleeker: A giant leap in the age of the digitalisation of money

It is no coincidence that the above title mirrors the motto of the modern Olympic movement attributed to Pierre de Coubertin: ‘faster, higher, stronger’. Taking and maintaining the lead can only be achieved through continuously improving performance. A ten-year-old world record may not even qualify one for the finals. We can only stay in the game if we are able to surpass ourselves and all of our earlier attainments. The instant payment system was introduced in precisely this spirit. It has merely been a few years since intraday credit transfers were laid at the proposal of the Magyar Nemzeti Bank. This was a huge breakthrough back then, and it seemed to be enough for the years to come. However, competition did not stop, expectations increased and technology developed. Hungary needed an even bigger innovation to get to the top once again. This is what sparked the ambitious idea of instant payments, which went live in the spring of 2020, at the best possible time in some respects, thanks to the exemplary cooperation between state actors and market participants.

The introduction of the system of instant credit transfers reflects the change in how the MNB sees its own role. Prior to the financial crisis, the widespread view had been that central banks should interpret their mandate fairly narrowly and remain more or less passive observers of economic developments. The term coined for such narrowing of state engagement was ‘night-watchman state’, and with regard to central banks the most frequently used expression was ‘ivory tower’. However, the financial crisis showed how flawed this notion was, how dangerous it was to leave the economy to its own devices,

and also that any intervention in the complex system of the economy can and should only be made with a more holistic approach. Some central banks had responded earlier and the MNB joined them in 2013, after the monetary policy turnaround, all the more quickly and firmly.

The introduction of the instant payment system is part of the series of MNB initiatives launched to boost the economy. The first significant step was the beginning of the Funding for Growth Scheme in 2013, followed by the Self-Financing Programme, and the forint conversion of foreign currency loans was also a historic milestone. The programmes also included the introduction of the Certified Consumer-Friendly Housing Loans and the Bond Funding for Growth Scheme. These are similar to the instant payment system because they were launched with the cooperation of the central bank and the banking system, as well as the government in the case of the forint conversion. The vision, the tools, the technology, the funds and the regulatory instruments were in different hands, but efficient cooperation helped in coordinating them, to be benefit of the Hungarian economy and society.

Also part of the wider engagement is that the MNB uses all available means to improve the competitiveness of the Hungarian economy. Economic competitiveness and long-term sustainable growth are key in enhancing the quality of life. To enable Hungary to harness its untapped potential, the MNB uses its economic analysis tools to prepare assessments and proposals for the economy as a whole. What is even more important, however, is that the central bank should do everything in its power to reinforce competitiveness in the areas where it has direct (or indirect) influence. Such measures include the introduction of the instant payment system, which strengthens the competitiveness of the entire economy and helps maintain the speed of economic convergence to more advanced European countries. We can be especially proud of the fact that Hungary was among the first to introduce the system of instant credit transfers, therefore it does not simply follow international best practices but shapes them.

Why can we say that in certain respects the instant payment system was launched at the best time? Because it coincided with the onset of the restrictions introduced due to the coronavirus pandemic. These restrictions were practically unprecedented for most of the generations living today in Hungary. They demanded adjustments in all walks of life, including payments. While cash and card payments declined in shops, online card payments surged, just like the number of credit transfers thanks to the new options. In my personal experience, most of the restaurants that switched to home delivery found it much easier if the necessary amount was transferred in advance, together with the order. This way, they did not have to offer online card payment and no POS terminal had to be provided with

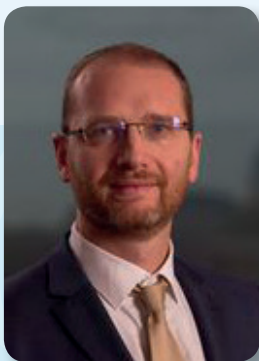
the home delivery. But this is not the only reason why I believe that the new technology, by facilitating contactless payments, helped in the successful management of the first wave of the pandemic.

From an IT perspective, enabling the instant execution of credit transfers was an enormous challenge. Of course, there had already been IT developments that required the cooperation of the MNB and the actors in the financial intermediary system. Out of these, I would like to point out the establishment of the technical conditions necessary for launching the Funding for Growth Scheme. This required the successful management of intensive IT projects from both the MNB and commercial banks to ensure prudent collateral valuation. In this sense, the instant payment endeavour was not unprecedented, some of the experiences from earlier projects could be used. At the same time, the instant payment system requires large amounts of information to flow in real time between the systems of financial institutions, GIRO Zrt. and the MNB, which produced challenges of a whole new dimension compared to earlier projects. Thus the implementation of the project called for tremendous efforts from all participants. At the same time, it has to be underlined that during the implementation all participating institutions, including the MNB, built a knowledge base that will serve as a firm footing for other ambitious projects in the future.

The introduction of the new payment system also shows the complexity of the modern financial infrastructure. At first sight, the introduction of the instant payment system may seem like an IT project in essence, but it became clear early on during the planning that certain elements of the monetary policy and financial stability toolkit had to be modified so that the MNB could perform its duties without any disruptions. In connection with the rollout of the instant payment system, the system of minimum reserves, a key monetary policy instrument, was overhauled to boost liquidity security and support the uninterrupted flow of payments. According to earlier rules, the participants in the instant payment system would not have been allowed to use the liquidity serving as collateral for the instant transactions for meeting the minimum reserve requirement. Maintaining this regulation would have raised the costs of banks' liquidity management after the introduction of instant credit transfers, entailing a rise in the fees for financial services on account of the deterioration in commercial banks' cost-effectiveness. To prevent this, the MNB allowed banks to use the liquidity set apart for instant payments for meeting the minimum reserve requirement. The success of this new reserve option is attested by the fact that from March 2020 credit institutions allocated around HUF 130 billion for instant payments on average, three-quarters of which were used for minimum reserves. The importance of careful preparation is confirmed by the fact that even though the introduction of instant payments coincided with the start of the crisis caused by the coronavirus pandemic, there

were no signs of liquidity strains, and the liquidity necessary for clearing was available to banks all the time, without interruptions.

I believe that the introduction of the instant payment system is already among the MNB's immensely successful projects, and it is an endeavour that we can be proud of when looking back on it years or even decades later. However, the project is not finished yet. Building on the new technology, a series of new related projects have already begun and will begin in the state and the private sector, which will continue to raise the quality of financial services, support the elimination of cash payments and help in the digital transformation of the Hungarian economy. There will definitely be considerable challenges on the road ahead, but we can draw on our achievements and press ahead with confidence.



Dr Csaba Kandrács

Deputy Governor (Financial Institutions Supervision and Consumer Protection), Magyar Nemzeti Bank

Hungarian payments on a new footing: Regulatory recollection of the instant payment project

Through the Financial Stability Council, the deputy governor's office at the Magyar Nemzeti Bank, including myself, familiarised itself with the concept of the instant payment system at the inception stage of this unparalleled project. The idea was not only ambitious but also futuristic. The goal was to establish a new payments infrastructure that could transfer up to HUF 10 million from one customer to another in five seconds. What is more, this was envisaged to be available on a 24/7/365 basis. Joining the scheme was foreseen as compulsory rather than voluntary. It was clear that this decision would lay new foundations for Hungarian payments, foundations that we can proudly look back on all our lives.

For supervisory areas, the focus on the instant payment system started at a well-defined moment, when, on 10 June 2018, Executive Director Lajos Bartha introduced the plans and tasks related to the introduction of the system at a Supervisory Workshop. In front of an audience that filled the entire large conference room on Krisztina körút, he spoke about the importance and progressive nature of the project from the perspective of Hungarian payments. In addition to the aim of establishing instant payments, he mentioned the issues related to monitoring the preparations and the planned implementation of liquidity management. The Supervisory Workshop raised numerous questions, and then more and more expert consultations were held among the colleagues working at the Szabadság tér headquarters and at the regulatory area in the Krisztina körút building, at the level

of experts and executives, too. The areas in charge of IT supervision, credit institution supervision and money laundering inspections became involved in the work gradually, then as the go-live date approached, the area in charge of customer relations also joined in.

The joint work gathered pace when, in its Decision No. 18/2019 (02. 08.), the Executive Board of the Magyar Nemzeti Bank decided to establish an ad hoc Project Coordination Committee in charge of monitoring the MNB's tasks in the instant payment implementation project (AFPKB for short); the committee's inaugural meeting was held on 13 February 2019. The Committee included delegates from all three deputy governor's offices and the director general, enabling an even broader based professional dialogue. The AFPKB meetings were mostly held in the prestigious Popovics Room, which has hosted several important events in the history of Hungarian finance. I attended the meetings in my capacity as executive director. As the deadline for the long-awaited launch neared, everyone was increasingly anxious. It was clear that the stakes were high and no mistakes could be made, because if large swathes of society had seen that their credit transfers were suddenly not executed, or only much slower than in five seconds, we would have practically failed. To avoid this, an executive decision was made to extend the test period and defer the go-live date to March 2020. In retrospect, this was a wise decision, since all players got some extra leeway to fully prepare for the launch.

I can recall several concrete memories and interesting anecdotes about the preparation. For example on 17 October 2019 the MNB's colleagues in charge of financial infrastructures supervision and control, as well as IT supervision observed the scheduled IPS tests as part of the comprehensive inspection held at that time at GIRO. The tests were regularly run in the evening, after normal working hours, which made it quite a sight that the supervisor and overseer colleagues spent the night next to GIRO operators sitting in front of monitors covering the entire wall. The MNB's inspection team was sometimes joined by GIRO CEO Dr Zsolt Selmeczi-Kovács at around 10 p.m.

Partly owing to the work of the AFPKB, as the go-live date of the instant payment system approached, the project received increasing attention from senior managers, and the Senior Management Committee supervising the IPS project was created with the participation of three deputy governors and the director general on 22 October 2019, and it held its meetings every week from January 2020. At that time, I had the chance to support the preparation in my capacity as deputy governor, which made the experience especially personal for me, since I felt a strong connection to this important project as a participant in the earlier preparations. Senior managers usually met Tuesday mornings, and the policy

documents prepared for the committee's meeting arrived on Mondays, so our colleagues prepared the expert summaries on very tight deadlines, but they always managed to put together detailed materials reflecting the most up-to-date status and information. At every meeting, Lajos Bartha and Dr Zsolt Selmeczi-Kovács were barraged with questions, but they stood their ground. Another concrete memory is that the level of the players' preparedness was colour-coded in the documents to be discussed, with red marking the laggards and dark green indicating those that were essentially ready. Everyone was more and more confident ahead of the launch date, because the table containing the institutions gradually turned dark green.

The development and implementation of the instant payment system's concept posed new challenges to the supervisory authority from many respects. First, the supervisory risks inherent in a real-time credit transfer system, unprecedented in Hungary and most of the world, and those arising from its operation had to be identified and the relevant solutions developed. Second, special attention had to be paid to ensuring that the institutions taking part in the project complete the development jobs and the preparation for the period following the system's launch as scheduled and to the highest quality standards. To launch the system while any institution was still unable to use the infrastructure was not an option. Last but not least, another important aspect was to find a way to offer the possibilities and services of the new system to customers as simply as possible, within the limits of the legal framework.

However, these challenges did not hinder the process, in fact, they provided an opportunity for reviewing these issues from the standpoint of the fast-moving world of the 21st century. It is commonplace to say that progress cannot be stopped, and indeed, if regulated institutions do not evolve, they lose market share to unregulated players, which may endanger financial stability and consumer protection.

Taking into account market competition, broad-based cooperation and coordination was necessary for assessing risks and developing risk management, as well as for discussing operational and liquidity issues and establishing the appropriate structural and technological background. This is because besides the central pillars of instant payments, the IPS contains several other elements that are far from being merely supplementary. One of them is the night-time and weekend operation, along with the introduction of secondary account identifiers and the request-to-pay service, all of which demand considerable attention by themselves. Furthermore, in our capacity as the supervisory authority, we not only needed to ensure that the operation meets the highest standards under normal conditions, but also that the system can withstand stress, and we need to be prepared for various problems.

In parallel with the traditional supervisory tasks, anti-money laundering measures and fraud prevention were also high on our agenda. With the involvement of the MNB areas concerned, several in-house and off-site consultations were held with partner authorities, and, through the Hungarian Banking Association, also with banks. The most important such meeting, organised by the Hungarian National Police Headquarters, took place on 7 January 2020 in Teve utca. One of the modern office building's ground-floor meeting rooms was filled with experts from the MNB, GIRO and partner authorities. It was a long and pleasant meeting, where everyone contributed to the best of their knowledge and expertise to familiarise the participants with the potential risks of the new system and the viable, realistic risk-reducing measures. Based on this discussion and drawing on the feedback collected there, the area in charge of the development of the financial infrastructure and payments drafted a policy document to inform the MNB's senior managers. Relying on this document and acting in my capacity as the deputy governor in charge of supervision, I sent out an executive circular on 18 March 2020 to Hungarian payment service providers on mitigating the potential fraud risks related to instant payments.

As the IPS project progressed, IT supervisors had a recurring commitment to attend as observers at the IPS test forum meetings held under the auspices of the Hungarian Banking Association. This provided an insight into the details of the process from the users' perspective, and an opportunity to get to know bank delegates who returned more or less regularly, and to witness the achievements, examine the issues and problems as they transpired. The IPS test forums were held in the large conference room of the Hungarian Banking Association, and often extra chairs had to be brought in to accommodate the large number of attendees. Most banks delegated system engineers and process managers, who knew the ins and outs of payment systems and were also familiar with the developments, the progress of the tests. A very honest and meaningful professional dialogue was held at these forums, containing a plethora of interesting information from a supervisory perspective. Of course, the MNB always let the organiser, the Hungarian Banking Association, know in advance that the supervisory authority would attend, and sometimes the sector's players discussed issues with each other in the absence of MNB colleagues.

Besides the personal consultations, the MNB continuously monitored the preparation for the introduction of the instant payment service through special reports to obtain an up-to-date and comprehensive picture about the status of the institutions' preparedness leading up to the launch, and to ensure instant management of any issues arising and the smooth implementation of the go-live. Based on the detailed biweekly reports sent by the institutions and the monthly surveys, as well as the status reports on the nationwide

project for introducing instant payments and the signals from the participating banks, the Senior Management Committee supervising the IPS project stipulated that inspecting the status and development of the IT systems underlying instant payments at some major players in Hungarian payment transactions was a top priority. At institutions where the aforementioned red or orange colour indicated an insufficient level of preparedness, on-site inspections were ordered. The failure of any major player in payments to launch on the announced day on March was not an option. The deputy governor's office in charge of supervision chose the fastest possible inspection method in such cases, supervisory proceedings, to conduct the audit. The inspectors assessed the progress of the projects at the institutions, further comments were made on the risk factors of the related processes, and certain risk-reducing measures were required from the institutions until the launch on 2 March 2020. The inspections were carried out at an accelerated pace, in a matter of days. This called for extraordinary attention and expertise from colleagues, who had already been working under stressed conditions. The task was also unconventional because the systems inspected had not gone live, and the legal requirements to be met in the future had to be taken into account. Yet the process provided a sense of security and reassurance, because the supervisory experts pointed out aspects that the institutions may have considered less important in that particular situation.

One of my most cherished memories about the last weeks before the launch is when a personal trainer friend of mine asked me what we were up to at the MNB, because he had been unable to train with his clients working in IT, as everyone had disappeared, claiming to work on a large project for the Magyar Nemzeti Bank. I told him in confidence that he would find out soon, because sending money would be revolutionised in Hungary. Everyone was indeed doing their utmost to ensure the success of the system's launch. After the long preparation and the stressful days of the final stretch, the instant payment system went live in Hungary on 2 March 2020. In the early morning of 2 March, my colleagues at the supervisory authority were eagerly testing the new credit transfer methods, and they kept reporting on the successful small transfers among each other. I also tested the system on the very first day. I clearly remember when I sent my first credit transfer and it was executed in a matter of seconds. This was the moment when I definitively knew that we succeeded in creating something truly special. Quite a few of my colleagues registered secondary identifiers at their banks, and there were payment service providers where requests to pay could be initiated right from the moment of the launch. In the first days and weeks, everyone at the deputy governor's office in charge of supervision paid close attention to the statistics related to the launch. A daily summary was provided by the Customer Relations Information Centre on consumer protection complaints, of which, thankfully, there were only a few. The Senior Management Committee supervising the IPS

project held its last meeting on 31 March 2020, and the AFPKB terminated its operation on 18 May 2020; after that work returned to normal. Nevertheless, the job has not been finished, as the further enhancement and optimisation of the system will remain on the agenda for a long time, but the most important milestone has been reached, and everyone who contributed to the success can be rightly proud of this.

All the colleagues of the deputy governor's office in charge of supervision working on the project considered the launching of the instant payment system a personal concern and supported the efforts to the best of their professional abilities. This may have sometimes been perceived differently by the colleagues and institutions concerned, because the supervisory perspective has to focus on the tasks to be completed and the inadequately managed risks rather than the completed tasks and the properly managed risks. Still, the hard joint work bore fruit, and we have successfully laid the foundations for 21st century payments, which is a tribute to us all. I hereby wish to congratulate everyone on this especially huge achievement, and I am proud to have been part of the team that established one of the most important core infrastructures of future payments.



Dr Ferenc Gerhardt

Deputy Governor of the Magyar Nemzeti Bank in charge of the project coordinating the introduction of the instant payment system until 22 April 2019

If it does not move around, money is worth nothing

All the players in economic and social life are interested in money, the consideration received for their activities and work, being exchanged as fast and at as low a cost as possible.

The state is the largest payer and collector of payments, and it relies heavily on the steady, reliable and time-bound flow of payments.

The two keywords are therefore speed and infallibility. From a technical perspective, we can do almost anything, but we cannot create time, only use the existing amount as fully as possible.

Having acquired GIRO Rt. from the banks that owned it in the spring of 2014, the Magyar Nemzeti Bank requested the company to acquire these two qualities as soon and as fully as possible.

First, from September 2015, in the context of steadily diminishing prices, there were ten cycles when money could be transferred. The necessity and possibility of a payment system available on 24/7/365 basis was already mooted back then. After looking at international examples and taking into account the potential solutions in Hungary, it was decided that the central infrastructure for instant payments should be established in GIRO Zrt. The decision enabled the attainment of the MNB's strategic objectives: keeping the most important

infrastructures in national hands, increasing the efficiency of Hungarian payment services and financial services, and finally reducing the costs of all these.

It is very important to note that all the players involved in payments were obligated to participate in the project. This enabled everyone to use the services of the instant payment system. The close and daily cooperation between the market participants concerned and GIRO became one of the most important, if not the most important, elements of the project. In this spirit, a national project committee comprising the Hungarian Banking Association, the Hungarian State Treasury and the Hungarian Chamber of Commerce and Industry was established to coordinate the introduction of the system.

The central infrastructure purchased from and deployed by Danish-based Nets proved to be a good choice: the various users employing different proprietary IT systems successfully completed the most complex and expensive task of the Hungarian financial sector to date, facilitated by hard work, intensive information exchange and the occasional bump on the road. One has to applaud the dedication, mutual tolerance and support, without which the strategic objectives set by the MNB would not have been fulfilled.

The conditions augured well: there was a need and an intention, we had the technology at our hands, and the dedicated and qualified teams were set up. It was time for implementation.

As the go-live date set for 2 March 2020 approached, the frequency of (load) tests and local and central coordination and adjustment needs increased. The experiences of the go-live and the period following that exceeded our wildest expectations: only a negligible number of interruptions were registered, and no errors prohibiting continuous operation occurred. And we can still say that about the instant payment system. Users were very receptive to the introduction and use of secondary identifiers—the number of such identifiers continues to grow rapidly. Requests to pay are also increasingly used.

The deployed system offers several novel opportunities that facilitate payments and the purchase of goods and reduce cash use. The MNB attaches strong importance to reducing cash use, due to its high social costs and the need to combat the shadow economy.

It is impossible to overestimate the significance of instant payments as part of the digitalisation of the financial sector. The currently available uses have already enabled reliable, cheap and fast payments that have produced tangible financial benefits in the

economy. Market participants have clearly recognised this, and the transactions completed in a couple of seconds are used more and more each day.

Finally, I would like to thank the banking sector and our Danish partner once more for their very positive and helpful cooperation. The internationally endorsed success of the instant payment system was only possible as a result of our common efforts and interests and close cooperation.

We can say that money now moves around in Hungary on a 24/7/365 basis, elevating it from a simple means of payment to a major instrument in increasing productivity and profitability.

Movement is life itself.



Dr Barna Fömötör

Director General, Magyar Nemzeti Bank

Challenges during the rollout of the instant payment system in a nutshell

I feel that I am in a special position because during the introduction of the instant payment system in Hungary, by virtue of my role in the operational control of project implementation, I took part in creating a new solution that is not only interesting from a professional standpoint but also has a direct effect on all our lives. A few years ago, it was merely a utopian dream that by the time it takes for the reader to reach the end of this sentence, a credit transfer of HUF 10 million can be settled on a 24/7/365 basis, without any difficulties. However, these transactions have become integral elements in economic life, thanks to the emergence of the solutions facilitating instant payments.

The instant payment system is a natural consequence of technological progress. Payments, which had been conducted by our ancestors with post-carts and ships laden with treasures for centuries, were fundamentally transformed by the boom in technology, telecommunications and IT in the 20th century. Sending payments over the phone and telefax became available in the 1960s and 1970s, with processing times of one or two weeks, then the 1980s saw the introduction of the clearing house solution enabling one-day net clearing, and from the 1990s RTGS systems for intraday, minute-based, gross settlement was used, then we arrived at the second-based, immediate clearing system of the 2010s aimed at cost-effectiveness. The increasingly fast technological changes in modern society, the Internet, Web 2.0, the appearance and rise of social media, the proliferation of fintech start-ups generated a pace of development that posed a fundamental challenge to the traditional standards of banking operations. In this technologically advanced environment and our fast-paced world, both society and individuals see it as essential that services are

accelerated, simplified and immediately available. Moving money around in the blink of an eye was sought after all over the world. 'Time is money', and today's people do not like to wait, especially when it comes to finance, and the banking sector had to realise this. In response to the challenge, the development and implementation of the instant transfer systems started in various countries, independently from each other.

Just like elsewhere in the world, in Hungary the central bank spearheaded the process to achieve instant payments. 'Be there or be square', as the saying goes, and the importance and gravity of the instant payment project in terms of the national economy, the banking profession and innovative technologies was evident right from the outset. The project was surrounded by heightened expectations from day one, even amid the many concerns and uncertainties that arose during the implementation. This was very motivating for those participating in the implementation, and it also placed a heavy burden on them, because they had to meet all the professional requirements by the deadline.

The Executive Board of the Magyar Nemzeti Bank issued a decision on 24 March 2017, requesting GIRO Zrt., a subsidiary of the MNB, to establish the central infrastructure of the instant payment system. At its meeting on 5 December 2017, the Monetary Council agreed in a decision to incorporate a collateral assessment module into the instant payment system, thereby reducing the operational risks arising from temporary liquidity shortages and ensuring the uninterrupted flow of payment transactions in the instant payment system.

Various organisational units of the Magyar Nemzeti Bank worked in close cooperation with GIRO Zrt. on planning and implementation. Based on the concept of the Directorate Financial of Infrastructures, the Directorate of Banking Operations and the Directorate of IT Services headed by me were entrusted with the critical objective of exploring the tasks to be performed by the Magyar Nemzeti Bank related to the establishment of the instant payment system's central infrastructure, based on the specification developed by GIRO Zrt., indicating any operational risks that may arise, the cost of the necessary developments and the related human resources requirements. While assessing the central bank's tasks, the units determined the operational model for the collateral assessment module ensuring the uninterrupted flow of transactions in the instant payment system. Within the MNB, committees at the senior and middle management levels held weekly meetings to supervise the process of implementation as a priority. The highly complex and multifaceted project called for constant monitoring and regular consultations.

The planning was based on the experiences gained from the operation of instant credit transfer systems that had already gone live in some countries and the detailed standards describing the already existing instant systems. The initial interviews and professional surveys showed early on that something new had to be created to enable the instant payment system and the related collateral assessment module, since the existing infrastructures were unsuited for second-based processing. The colleagues working at the designated organisational units performed groundbreaking work, which meant a great professional challenge for them, but it was also scary to venture into uncharted territory.

During my career, I had the opportunity to take part in the introduction of many complex, innovative IT projects, however, none of them came close to the instant payment system. The rollout of the instant payment system involved a huge number of players, and, due to the diversity and amount of tasks and actors, coordinating the project was much more of a challenge than a job requiring 'in-house' resources only. During the implementation, we had to realise that the participants could be divided into three groups: dedicated players, participants and controllers. The difference between them can be best grasped by observing how ham and eggs are made for breakfast. In this example, the role of the pig who sacrifices itself for the sake of the ham can be seen as dedicated, the hen can be referred to as a mere participant as it merely produces an egg, which is nonetheless important for the breakfast, without any effort, and the ingredients are mixed into a tasty dish under the control of the cook, who makes sure not to overheat the oil, and to place the egg in the pan at the ideal moment when the ham is sufficiently crispy. The IT content, structure, and smooth operation of the system were in the hands of the dedicated areas, in close cooperation with GIRO Zrt., which provided the collateral assessment module, however, the project could not have been completed without the helpful involvement of the participating organisational units, such as the public procurement and legal areas. Among the dedicated, the professional pressure and the frequency of progress checks were greater than in the case of the participants, who mostly performed routine tasks while their control had to be focused to attain the desired results by deadline.

The details and method of technical implementation as well as the organisational place of implementation were discussed at great length and the outcome confirms the decisions that were reached in the end. At the beginning of the implementation, an idea was floated to establish the system within the MNB under the VIBER system used for the settlement of large and urgent payments, by transforming it. The response to this question presented colleagues with diverse tasks requiring a tremendous amount of planning and thinking, since this solution would have entailed the expansion of the existing VIBER service, the acceleration of its processing and the establishment of a third branch office due to the need

for high availability. In the end, the central IT implementation of the project was carried out within GIRO Zrt., which provides the central infrastructure of the instant payment system, therefore the details, where the proverbial devil is, often remained within the walls of GIRO Zrt. While GIRO Zrt. was engaged in picking the right service provider, the Magyar Nemzeti Bank was concerned with detailed planning. One crucial question was how, in terms of extent and content, the instant credit transfers would change Hungarian clearing transactions and the MNB's processes and systems. The project participants found it extremely unusual that the Magyar Nemzeti Bank appeared in multiple capacities in connection with the system. Although a system capable of completely independent operation had to be created within GIRO Zrt., its incorporation into the clearing transactions coordinated by the MNB also had to be taken into account. Therefore previously non-existent processing workflows, interfaces and message types had to be created, thereby assisting the planning at GIRO Zrt. The MNB's preparatory tasks included the support provided for the countrywide tests. In its special role, as the provider of VIBER, it created the test VIBER service's copy set apart for the instant system. This was an unusual request on the part of SWIFT, because the operation of RTGS systems does not require more than one test system in addition to the live one. Unexpected situations and new challenges arose for the operator during the countrywide tests. The availability of test systems became essential, therefore the usual progress of standard changes was interrupted for around a year. The shutdown and management of the test environment and the test environment deployments required very careful planning.

During the discussions and meetings in the course of the project, our colleagues often jokingly compared our endeavours to events in the Wild West, asking 'How can you recognise pioneers in the Wild West?', and the answer, causing general laughter mixed with anxiety, was 'By the arrows sticking out of their chests'. The comparison is indeed a vivid one, as despite the many arrows, in the end the pioneers did establish themselves in the New World and laid the foundations of the United States of America; just as the instant payment system, having survived its initial teething problems, started its operations on time. The first go-live date was set for 1 July 2019, which was later postponed, but only partly, for a few functions. The VIBER integration of instant credit transfers was completed by the deadline, and the VIBER-side credit transfer orders could be executed from June 2019. Due to its pilot nature, the operation fell short of full operational readiness in a live environment in terms of quantities, but within the VIBER service instant credit transfers were available from July 2019. In view of this, the actual launch of the instant credit transfer platform was merely a minor milestone in the history of VIBER.

With the motivating transaction statistics in our hands and thanks to the commitment and perseverance of our colleagues, after much planning, customisation, testing, consultation and coordination with the commercial banks concerned, the instant payment system was rolled out almost without any hiccoughs, taking Hungary's financial infrastructure to a new level. The period since the launch has reinforced trust in the system, showing that in both the wider economy and in smaller retail environments the system will in the future be seen as indispensable. The established core infrastructure entails several opportunities for progress and development, and, based on previous experience, I trust that these opportunities will no doubt be turned into successful achievements.



Lajos Bartha

Executive Director (Financial Infrastructures and Banking Operations),
Magyar Nemzeti Bank

One hundred fifty-seven million eight hundred and fifty-two thousand eight hundred

From a historical perspective, five years represent a small dot on the timeline. Working for five years on the same task can be tedious, demanding, depressing, demotivating, but it can also be exciting, challenging, fraught with ups and downs, tensions and adrenaline jolts, in other words, it can be special. This story is about the latter experience. This is my story of instant payments.

BACKGROUND

I first entered the Magyar Nemzeti Bank as an employee on 1 October 1998. I like the special atmosphere emanating from the institution and the building, just like the tasks that, by nature, cannot be found elsewhere. We can, and also need to, escape from the humdrum of daily routine tasks sometimes, break free from the present's conditions and constraints and pivot away from short-term goals towards finding ways how the financial system could work better in the long run. One can call this daydreaming, but it sounds more professional if we refer to it as creating a vision. The proposals and decisions of the MNB's experts affect not only their own institution but also the economy of the whole country, which is not only a privilege but also a responsibility.

The MNB's responsibilities are extremely diverse. Some colleagues operate machines and perform manual work, ensuring the steady cash supply of the economy. Others use the most sophisticated economic models to forecast the changes in the economy, estimating the expected values of inflation, GDP and other important indicators.

I like payment services because it is a strong blend of theory and practice. For instance the first half of the five years it took to establish the instant payment system was spent almost entirely with theoretical work. The road to the creation of the first document, presenting on 138 pages the outlines of a Hungarian instant payment system, led through analyses and studies. Following the subsequent extensive professional consultations, discussions and debates, the concept evolved further and more analyses were prepared, this time providing much more detail on the various topics, such as processing capabilities, liquidity management and regulatory and communication issues.

The project's second phase, practical implementation, started after the detailed groundwork had been laid and most of the theoretical questions been resolved. At this stage, IT developers, testers, process managers, regulation drafters took the helm, and communication experts joined them pre-launch.

On 2 March 2020, everything that had only existed in concepts, specifications, developer documentation or rules of procedure, appeared as part of everyday reality in the lives of all bank customers in Hungary. Experience shows that the systems works in practice, we can transfer money from one bank account to another in five seconds, even during weekends. Moreover, we do not even have to know the beneficiary's bank account number if we know their mobile phone number because we can send the money by simply using that number.

A BRIEF HISTORY

It is an interesting question when this massive project began, which enables people to make transfers in seconds now.

Off the top of my head, I would say it started at 11 a.m. on 30 June 2015, when we gathered with a small group of experts in my office to discuss how to set about implementing instant payments.

But in fact the idea originates much farther back, the dice had already been cast, and we merely made the first tentative steps on that day in June. I will show my readers how.

First, in 2014, when the MNB purchased GIRO Zrt. from the banking sector, we had to prepare the company's long-term development concept. This already included the establishment of the instant payment system's central infrastructure, which was approved by the company's board of directors when they adopted the medium-term strategy of their firm. Second, we first gave a public indication to the Hungarian financial players in April 2015 that the MNB had a new vision in mind for domestic payments. At a Hungarian financial IT conference, my presentation was enigmatically entitled: 'Great changes in terms of credit transfers – What is the MNB planning to do?'. This was where we first proclaimed that the biggest development of the period ahead was expected to be the introduction of instant payments, but back then this was merely a slide in a long presentation. The details of the master plan outlined in the evolving concept were first presented to the public in November 2015.

THE VISION

Of course, one might wonder why we began implementing instant payments, and why we picked that particular time to do so.

Hungarian payments had been conducted through one of the world's most advanced systems since 1994, when the overnight process of credit transfers were made available, but then no major progress was made for almost 20 years and consequently Hungary fell behind in global terms. In 2012, the introduction of intraday clearing helped the country catch up again, but by that time a new avenue for development was already on the horizon facilitated by the technological boom, namely the appearance of instant payment systems, albeit in only a handful of countries at that time.

One of the core statutory mandates of the MNB is to promote the safe and efficient operation of payments. In 2010, a thorough analysis was carried out on Hungarian payment volumes. The study confirmed our hypothesis that Hungary was a heavily cash-intensive country, with close to 90% of all payments conducted in cash. It also turned out that this entailed considerable direct and indirect social costs. The analysis mooted the idea of using the various payment options in Hungary as they are used in Sweden, a country with one of the most advanced payment systems in the world. Predictably, it was found that the widespread use of electronic payments offers major savings. The conclusion was used to formulate our current payment strategy, resting on two pillars: i) electronic payments should be offered in all payment situations (infrastructure development); ii) users should choose electronic payment solutions as often as possible (encouraging use).

Following from the above, the actual goals could be fairly easily determined. All the technical and infrastructural obstacles that prevented Hungarian bank customers from using their money anytime, immediately and electronically had to be eliminated.

We first thought that it would be enough to improve and accelerate the intraday clearing system that had been operating for three years, introducing 15-minute clearing cycles instead of the hourly cycles. But it was soon realised that in terms of the current technological level, this would be a very small step ahead, because banks would still only be available to customers on working days between 7 a.m. and 5 p.m.

A new project motto was then coined: New dimensions in payments.

Change can be traced in two dimensions. One of them is time, and the other is the quality and scope of the services.

At the time of intraday clearing, credit transfers could only be initiated on working days, typically between 7 a.m. and 5 p.m., and then the money arrived to the beneficiary in a couple of hours. But, for example, if an order was initiated at 6 p.m. on Friday, it was only executed on Monday morning. We had to know the beneficiary's 16 or 24 digit account number, and the success of the transaction could be checked in the transaction history after a few hours. By contrast, the instant payment system was foreseen to allow orders to be executed on a 24/7/365 basis in maximum 5 seconds, with instant confirmation.

Earlier, credit transfers could typically be used for payments between distant parties due to the above-mentioned constraints. However, the instant core infrastructure was designed to allow the payment players to introduce new products and services in cooperation or competition with each other. Even we did not appreciate its full potential, but were confident that numerous innovations would appear on the market.

We sought to find the best blend based on the experiences of other countries. We wanted QR code payments, requests to pay, the option to make transfers to a mobile number, email address or tax number, and we also wanted new mobile banking apps, and to allow not only domestic players but also new foreign service providers, not only banks, to enter the instant ecosystem. Credit transfers were envisioned to be used in practically all payment situations thanks to the newly developed auxiliary services. Such situations include sending pocket money instantly to our children, sharing the costs of drinking beer with our friends, pay at the counter of physical merchant acceptance points or online stores, pay for urgently

required high value products and services, pay utility bills conveniently instead of using payment slips, and so on.

This vision has been realised, the new dimension has been achieved, Hungarian payments have entered on a path of major development and consequent transformation.

THE JOURNEY

It was a long journey from the inception of the idea to the implementation. When people set out somewhere, they usually know where they want to arrive. This was our vision. People also normally plan the way leading to their destination. We also did so. Sometimes adjustments are necessary along the way - we made those adjustments.

Of course, we knew from day one that we had our work cut out for us, but we did not expect such a Herculean task. Even if we had expected it, we would have started it, because we were convinced that the Hungarian banking sector, Hungarian companies, retail customers and state players, in other words the entire Hungarian economy needed a development that opens up new dimensions in payments, thereby also helping the country remain competitive.

We thought that the project that enabled intraday credit transfers and was successfully completed on 1 July 2012 would serve as a good reference point for assessing the development tasks related to the instant system and for preparing the schedule. We also suspected that a system that operates 24/7 and offers participants seconds rather than hours to act would be different, so the milestones were planned with some tolerance.

However, we quickly realised along the way that all the players taking part in the development, from the smallest to the largest, found it a great challenge to meet both of the two main expectations, i.e. non-stop operation and execution in maximum 5 seconds. Everyone had to modify almost all of their internal systems, and revisit and then transform a fair number of their processes, often their entire operation.

This was sought to be facilitated by organising a nationwide project, in which high-quality cooperation and the free flow of information was ensured by several working groups, at many meetings and at various levels. By the time the system went live, I think we got to a point where senior management in individual banks across the board became as involved transforming the system with its medium and long-term implications as the middle managers who had already been taking part in the everyday tasks of the project.

Perhaps this was why we received much support from the outset, and earned praise from the Hungarian Banking Association and its members after the successful launch.

To me personally, it is a great honour that, after having played a proactive role in the long-drawn out interbank development requiring massive resources, the Hungarian Banking Association expressed its gratitude by presenting me with their Golden Beehive Award in the summer of 2020.

I can also say that considerable excitement and attention surrounded the project within the MNB, because we had to progress in four different roles at the same time. We coordinated the nationwide project, we joined the instant system as clearing members, we had to establish the system's settlement model and solve the issue of liquidity management. While we were working on these in-house together with several areas, we received the full support of the MNB's senior managers during the entire project, and they also helped us in efficient communication when it was necessary.

CLOSING REMARKS

There is no denying that the instant payment project had its difficult moments. There were internal and external debates, there was constant pressure on us, unexpected problems arose even at the end of the process, the regulation was changed along the way, and on one occasion the go-live date had to be postponed.

I still have to say that it feels good to think back on the past five years. I am happy that we made this decision and finished what we had started. It was a pleasure to work together with the hundreds of participants, but the best part was to see the system we dreamt about and worked hard to achieve operate smoothly, to everyone's satisfaction, propelling payments in Hungary to a new level of efficiency.

I am grateful to everyone who spent even a single one of the past 157,852,800 seconds with implementing the instant payment system.



Lóránt Varga

Head of Financial Infrastructures and Payments Policy Department,
Magyar Nemzeti Bank

We dared to dream big

I am not particularly good when it comes to naming the best of the best, or at least I can rarely give a swift and straightforward answer when people ask me about the best film I ever saw or my favourite dish and so on. But if someone asks me about the most influential decision and greatest merit of the Magyar Nemzeti Bank in connection with the instant payment system project in Hungary and its introduction, I reply, without hesitation or even a hint of doubt, that it was making it mandatory by regulation. In other words the fact that the system had to be joined by all Hungarian banks and other payment service providers right from the start, and since then all customers with accounts held in Hungary can automatically enjoy all the benefits of this modern service, exceptional even by international standards. It is hardly an overstatement that mandatory status had a major impact on everything and everyone right from the beginning, playing a central role in eventual success. However, the decision on legally binding character was not self-evident at the outset.

If I had to capture in a single word what this required from the MNB, I would opt for 'courage'. If I were allowed to summarise my thoughts in more detail, I would say that we had to be brave because we knew right from the beginning that mandatory status would set the bar very high for all the other stakeholders. Yet we could be courageous, because our determination was based on professional considerations. This trust in our judgement gave us strength to uphold our decision even amidst the greatest difficulties. Perseverance was indispensable, because it became clearer by the day as the project progressed that legally binding character increased the complexity and difficulty of the task to an extent that we could not have imagined at the beginning.

THE BEGINNINGS

On Tuesday, 30 June 2015, not long after 11 a.m., six of us sat in Room 424 of the MNB's Szabadság tér premises. The sun shone through the window, it was hot, and we discussed a four-page note prepared in the days before, entitled: 'The concept for establishing the instant payment service – Draft'. The draft was amended at some places in view of the discussion. This brief policy document was eventually expanded into a 160-page concept and a shorter document published in December 2016 on the operational model of instant payments. But I am getting ahead of myself here, because by then we had already completed the details of the concept with painstaking work, as well as the several rounds of discussions with GIRO Zrt. and the banks, the consultations with the operators of the already functioning instant payment systems abroad, liquidity management simulations, the development of the regulatory concept and, last but not least, the meeting of the Financial Stability Council on 6 December 2016 had also been held, where the operational model of Hungarian instant payments was approved and a decision was taken on establishing the central clearing and settlement system.

However, at our meeting in June 2015, all we had was the four-page draft. Most of the changes were made to the bullet point on regulatory issues, and the discussion ended with the determination that instant payments would be made compulsory in Hungary. The end of the draft also contained an outline of the major milestones of the projected schedule, and the last line read: 1 March 2018 – Rollout of the instant payment service. That was where we started. At the end of the meeting, Lajos Bartha said that we should make a note about that day because if we were to look back years later, after the successful launch of instant payments, thinking about when and how everything started, we should remember that day and meeting. I made a note.

THE SIGNIFICANCE OF THE UNIQUE HUNGARIAN CONCEPT

The regulatory requirement was not based on a fleeting idea, it was the result of a well-established concept. Those who participated in the project know our arguments because we had many long discussions about this with banks and the other players, and others can look them up in the MNB's relevant publications. I only wish to mention here that according to our analyses and the monitoring of international developments, in 2015 we were convinced in the MNB that the efficiency of Hungarian payments can only be considerably enhanced with an electronic payment solution that can be used anywhere and anytime, in any payment situation, just like cash. Back then, the international trends clearly showed that such an electronic payment solution should ideally be based on instant

credit transfers. At that time, the UK, Poland, Sweden and Denmark had already used an instant transfer system.

While we did not have to begin from square one, an innovative rethinking was clearly necessary. The early international examples showed that an electronic payment solution can only provide the above-mentioned features of cash favourable to customers if every single customer with a bank account is part of the system, and if the established model enables (or, better yet, encourages) the development of auxiliary services that make payments convenient in various situations, and that these are not marketed as self-contained solutions but as mutually interoperable and compatible services. The MNB responded to this massive challenge by creating the infrastructure for instant payments and stipulating stringent requirements for banks and other payment service providers in law. First, all electronically initiated credit transfers of under HUF 10 million must be executed as instant payments, in maximum 5 seconds, on a 24/7/365 basis. Second, any data entry and other technical protocols used for submitting and initiating instant payments should be open, in other words no-one can hinder competition by using closed source protocols.

The significance of these decisions is attested by the fact that five years later, in 2020, when the Hungarian instant payment system started operating, and when this book is published, the European Commission and the European Central Bank are increasingly minded to implement general euro-based instant payments, if necessary, by enforcing regulations. Because even if several European countries introduced their own instant payment systems ahead of Hungary, it became clear to everyone in the meantime that a model based on voluntary participation by individual banks does not ensure appropriate dissemination of the new service. I believe that our innovation and true merit is that we recognised this in 2015 and developed the Hungarian system accordingly.

CHALLENGES

Considerable difficulties lay ahead at the time. Obligatoriness elevated the project to a whole new level, also entailing a series of challenges right from the start. Defending the concept was not an easy task either. Today it may seem strange, but in 2015–2016 we had to join numerous debates as to whether customers needed credit transfers to be executed in seconds night and day at all. In addition, obligatoriness caused unexpected difficulties in developing the details of the regulatory concept, the establishment of a sound liquidity management framework and the coordination between the various participants of the project. As instant payments had not been obligatory by law anywhere else, there were no ready answers and examples that would have helped us in finding the right solutions.

Complications began in earnest when technical development and later testing started, which uniformly affected all the participants. Obligatoriness meant that everyone, from the largest banks to the smallest payment service providers, had to prepare for the introduction of revolutionary services by the same deadline, completing the upgrade on the participating IT systems and operating activities and testing them; tackling the issues that inevitably arose along the way before the deadline. Meanwhile, the external and internal IT development resources available to banks were inherently limited, and there were huge differences in terms of the number of systems affected by the developments at each bank as well as the extent of this effect.

One of the most important tangible consequences of these difficulties was that although the development of the central infrastructure was completed by the original deadline of 1 July 2019, not all participants were ready by that date to launch the service in a secure and failproof manner. As the central infrastructure was ready to start operating, if the concept of the obligatory same-time launch had been abandoned, it may not have been necessary to postpone the customer-side launch of the service. This was the most critical decision for the MNB during the whole project. But we did not give up our original idea that instant payments need to be rolled out to all customers at the same time with the same content and at uniformly high service quality. The need to ensure this trumped everything else, even if this meant a few months' delay.

Of course, there was a certain beauty to these difficulties, because the introduction of instant payments involved continuously exciting work fraught with intellectual challenges, which sometimes made it hard and burdensome but never boring. We also have the satisfaction that in the end all the problems were addressed and solved through our joint efforts.

THE PEOPLE WE OWE EVERYTHING TO

Legally binding status increased the project's complexity and difficulty considerably. This complex task would have been impossible to accomplish without the hard work and commitment of all stakeholders. Final success was beyond any doubt achieved by the banks, GIRO Zrt., the MNB and all other participants. I can say that even if only a few major players had not participated in the project at full steam, we would not have been unable to introduce the service by 2 March 2020. Therefore thanks are due to Hungarian banks, other payment service providers, the companies developing IT systems and GIRO Zrt., because after the Hungarian model of instant payments was finalised in 2016 and the related regulation was published in early 2017, everyone involved in the project set aside earlier disputes, maximised their efforts and worked as constructively as possible.

The successful rollout was largely due to the fact that we enjoyed the unwavering support of the MNB's senior management right from the outset. Particular mention should be made of the steady and careful guidance received from MNB Governor Dr György Matolcsy, MNB Deputy Governor Dr Mihály Patai in charge of the project, and Dr Ferenc Gerhardt who led our efforts as the MNB's deputy governor from the start of the project until the end of his mandate in April 2019.

The introduction of instant payments naturally enhanced payment services and affected numerous other central bank functions. Accordingly, the successful launch would have been impossible without the help and support we received during the project from the MNB's areas in charge of financial infrastructure oversight, payments supervision, banking operations, legal services, communication, IT developments, monetary policy instruments, monetary policy and financial market analysis, financial stability, macroprudential analyses, credit institution and IT supervision, financial consumer protection and anti-money laundering and customer relations. I hereby wish to thank them all for the joint work.

Last but of course not least, I would like to list those who played the most important roles in the project in my opinion, including the MNB's payment development experts, who always provided the most professional support and who performed their tasks with determination and humility: Gergely Patrik Balla, Zita Bárdits, Judit Brosch, Árpád Cseh, Vivien Deák, Éva Divéki, Tamás Ilyés, László Kajdi, Milán Kiss, István Nemecskó, Beáta Pappné Kovács, Gábor Sin and Kristóf Takács, who was the project leader in the MNB. Some of them were with us at the beginning, some of them at the end, while others took part in the whole project, but all of them deserve our gratitude because everyone's efforts were indispensable.

THE BEGINNING OF SOMETHING NEW

At midnight on Sunday, 1 March 2020, the moment we had all been waiting for through years of hard work, arrived. The period from the start of the project to go-live can be measured in several ways: over 4 and a half years, two national information forums, 13 national Project Steering Committee meetings, 9 national working groups, a total of 17 proposals for the Monetary Council, the Financial Stability Council and the MNB's Executive Board, 3 consultations with the European Central Bank on the planned regulation, countless professional consultations within and outside the MNB and 12,163 messages in my folder dedicated to the project. Whichever measure we use, they show that it took a long time and much work was done.

Many more banking and IT experts than usual spent that Sunday night at their workplace. About a dozen of us were there in the MNB, expecting banks' reports on the success of their weekend preparations necessary for the launch by 9 p.m., and then the reports on the result of the rollout by 1 a.m. At 1:30 a.m., we had reason to be optimistic about the data we assessed in Dr Mihály Patai's office, and by around 3 a.m., the most important question had been answered: the Hungarian instant payment system had been successfully launched. It was more than a simple success, because there were practically no errors which is rare with a complex IT system run with the cooperation of so many players. Then it all becomes a bit of a blur, tossing and turning on an air mattress, finally falling asleep before being woken up by a phone calls in every hour. I first experienced the happiness and relief over the successful launch on Monday early afternoon, when I listened to the joint press conference of the MNB, GIRO Zrt. and the Hungarian Banking Association, standing bleary eyed in the back of the room.

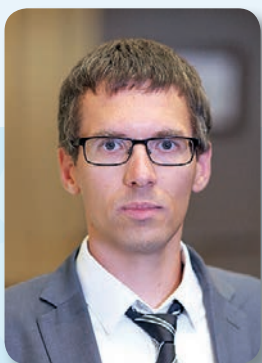
At midnight on 2 March 2020, instant payments became uniformly available to all customers of every Hungarian bank and other payment service providers. Not as an optional product potentially more expensive than a 'traditional' credit transfer, but as a new basic service automatically replacing the earlier intraday credit transfers under HUF 10 million. We finally made it, after years of work. Something revolutionary started in Hungarian payments. The development tasks related to instant payments did not end there. The rollout of the new system paved the way for continuous development. The functions of the central clearing and settlement system ensure that instant payments are at least as fast as cash payments, and they can also be used anytime. The secondary identifiers, the rules of requests to pay, the requirement to use open data entry technologies, the Hungarian QR code standard developed jointly by the MNB and market participants, to name only the most important ones, create a special opportunity for payment service providers to develop cheap payment solutions for their customers that can be used conveniently in any payment situation. Now it is only up to market participants how they will use this opportunity. But that is a whole other story.

CLOSING REMARKS

As with any human undertaking, the accounts, memories and opinions on the establishment and introduction of instant payments in Hungary will never be the same for everyone. But we rarely see a project which inspired such massive and enthusiastic support by its creators and users and outside observers. The establishment and launching of the system is a success that all the stakeholders, GIRO Zrt. and everyone who took part in the work in the past years, can be rightly proud of.

Perhaps I can claim without appearing immodest that we, the handful of Magyar Nemzeti Bank experts, count ourselves part of this group and say that we are proud that we were brave enough back then, in June 2015, in Room 424 of the Szabadság tér premises, to undertake nothing less than to introduce instant payment services obligatory for all banks and available uniformly and automatically to all Hungarian customers. As far as we know, we were the first in the world to do so. We had the strength to stand by our decision for nearly five years, pursuing something we believed in right from the beginning.

Without that dedication we would not have instant payments, which serves as a firm footing where we can base the promising future of Hungarian electronic payments with total confidence. Yet, there is still a long road ahead and much work to do before we can say that all Hungarian customers and economic actors can enjoy every benefit of the new system. We created all the necessary conditions, for the rest we can only succeed the same way as before: together, through our joint effort.



Kristóf Takács

Project leader, Magyar Nemzeti Bank

Exceptional opportunity for modernising payments

After the introduction of intraday credit transfers in 2012, it became clear that despite the major progress and enhancement in service quality achieved with the rollout, this solution could not support the general use of electronic payments. Although the few hours of processing time considerably broadened the applicability of credit transfers on working days, this was not enough in several payment situations. It was evident that even with intraday credit transfers and the increasing popularity of card payments, further improvements were necessary, because the available infrastructures and the increasing number of new and innovative market participants would not be able to provide a viable alternative to cash use in every payment situation.

In the end, the MNB started to assess the options for introducing the instant payment service in the summer of 2015. To engage in meaningful consultation with market participants, the options had to be carefully explored. During ten months of internal preparatory work, we examined in detail the planned or already operational systems abroad, the business and technical features of the available payment services and those planned by market participants for the years ahead as well as the implementation options of the potential operating models from a business, regulatory and technical perspective. The expected implications for banks' liquidity management were also analysed, just like the possible legal framework of the implementation and the necessary legal amendments. The operation of the instant payment system was modelled on payment data from earlier years to produce appropriate estimates on banks' liquidity needs in the new service and the system's capacity needs. It was important to make it clear to all stakeholders at the beginning of our joint work why this development was necessary and what the options and

the potential implications were. This allowed stakeholders to provide the most meaningful information to the MNB on the development needs and consequences triggered by the new system on their side.

The establishment of instant payments was envisaged to provide a universal platform that utilises modern communication and data transfer solutions to support the already operating market participants in introducing modern services and accelerate the entry of innovative players. This called for a system that can execute customer credit transfers by using basic electronic payment services, without any unnecessary interruption or delay, among all payment service providers in Hungary. Another goal was to create a payment solution that can be a real alternative to cash in all payment situations in terms of technical operation and the availability to customers. This required progress in the existing features of the credit transfer and card systems operating.

The first step in the cooperation with market participants was taken as expected. While everyone showed a positive attitude towards the initiative, the introduction of the service did not receive full support, as many players said that the planned schedule should be revised and customers' expected demand for the service should be explored in more detail. After taking into account the innovations in payments in Hungary and abroad, it soon became clear to everyone that the preparations had to start in 2016 if the Hungarian financial sector and thus the Hungarian economy was to remain competitive in the 2020s in terms of payment services.

By the time the joint work between the MNB, GIRO and the system participants as well as several other market players and state actors started formally with a nationwide project in mid-2017, everyone knew that the instant payment service had to be implemented. Accordingly, everyone supported the project during their work in the joint endeavour, and looked for the best answers to the questions that arose in their respective fields and for the most efficient ways those answers could be incorporated into the system. After that, the MNB team coordinating the project had several parallel responsibilities: the finalisation of the operating model's details, the coordination of the MNB's internal developments, which involved its role related to the central infrastructure and its own preparation as a system participant, the monitoring of clearing house developments, the preparation of market participants and the continuous coordination of all the above. From the perspective of the nationwide project, this holistic approach came in handy in several cases, because we had a first-hand experience about the central tasks and system participant's duties, which provided adequate information that allowed us to find the right answers to the questions as they transpired.

Although almost all subtasks required intensive work in project coordination and were memorable in some respect, there were two particularly special periods in the project. One was mid-2019 when the original go-live date had to be modified. Weeks of intensive work ensued related to the preparation of the modification and the detailed establishment of the further project schedule and testing processes, while the project's workflows had to be coordinated with uninterrupted intensity and attention to detail. It was important to ensure that no-one received word about the plans before the detailed rescheduling was done, because disclosing this information early would have had a negative impact on the intensity of several players' cooperation, which could have further obstructed the introduction of the service. Because one of the key aspects of the Hungarian implementation model was that instant payments could only be launched at the same time for every customer of all market participants, the modification of the go-live date could not lead to a slowdown in the preparation of any player. That is why requiring joint and coordinated testing was important, because it ensured that all the players remained continuously active in the period until the new go-live date, irrespective of their own state of preparedness.

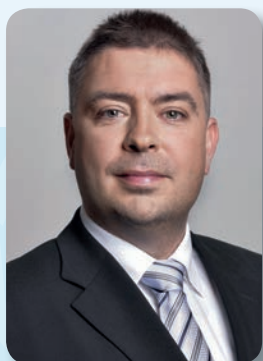
The other remarkable period was between late 2019 and early 2020, the few months prior to the launch of the service, when detailed summaries were prepared weekly on the progress of the preparations at system participants, the clearing house and the MNB, to ensure a smooth launch. Thanks to these, the project leaders gained even more insight into the workflows of all the players concerned, thus able to respond to all potential issues as fast as possible. In the last months, the very close monitoring of the preparation and our familiarity with the projects of all stakeholders contributed to the ease with which the team coordinating the project was able to manage its work on the night when the service was launched. In spite of the size and the number of participants in the project. Only some of the system participants had to be consulted during the night, and the overwhelming majority of the smaller issues reported by them were eliminated by dawn, so most customers saw a well-functioning service on the morning of 2 March.

All in all, the four and a half years spent with project coordination was an intensive period, in which we cooperated very closely with several colleagues within and outside the MNB. This is attested by the thousands of discussions I took part in at that time, and the hundreds of kilometres I walked between the buildings of the MNB, GIRO and the Hungarian Banking Association, located only a few hundred metres apart. Coordinating the introduction of instant payments from start to finish from the MNB's side while monitoring all workflows and processing all information proved to be a real challenge. I am most grateful to my colleagues who took part in the joint work of coordinating the project, for their undiminished enthusiasm and their tireless efforts to ensure smooth workflows across

the project and that the best possible answer was found to all the questions, whether within the MNB or in clearing house and market participant developments. It was especially motivating to work with people, whether they had been working for long in payments or just joined the team, who saw from day one the enormous positive implications of the instant system on Hungarian payments, and did everything they could for the success of the project, sometimes working during nights and weekends, without being asked to do so. I am also indebted to all the colleagues working on the MNB's tasks for their perseverance and that they always strove to find the best solutions. And I wish to express my gratitude to the countless other colleagues at the MNB, GIRO, the market participants and state actors, for their proposals, recommendations and questions that moved the project ahead in several respects and contributed to the establishment of the best possible service.

The rollout of instant payments created an internationally unique core infrastructure in Hungary, which provides unparalleled opportunities for modernising payments. Since payments can be made between any two Hungarian bank accounts in seconds on a 24/7/365 basis, this service combines all the positive features of cash and credit transfers. Instant payments are available to practically anyone, since only a bank account and a mobile phone are necessary to use the service, which poses no difficulties to the overwhelming majority of citizens today. Transactions can be executed in real time, similar to cash, and their success is also evident to all participants, and just as in credit transfers, payments can be made in any situation without physical presence. Even more importantly, the supplementary functions, such as secondary identifiers, requests to pay and standard QR codes, offer several new service opportunities, which may lead to fundamentally new payment solutions. They facilitate the widespread use of electronic payment solutions that can be conveniently used in any payment situation, which in the long run will transform people's payment habits and how companies conduct payments. This will increase the efficiency of the entire Hungarian economy and provide outstanding opportunities for the Hungarian banking sector to maintain its competitiveness. At the same time, it will make market entry easier and faster for the players entering the payments market. Building on the instant payment infrastructure, any market participant can develop modern payment services that will be able to communicate with the other services available on the market and access all Hungarian customers from the moment of the rollout, which is unparalleled in the world.

II. The central clearing system comes to life



Dr Zsolt Selmeczi-Kovács

CEO, GIRO Elszámolásforgalmi Zrt.

A new era in payments

PRELIMINARY PROJECT

The idea of implementing instant payments was already a major cornerstone in GIRO Zrt.'s strategy prepared and published in 2014. GIRO already prepared for this task actively back then. It was assiduously building its knowledge base on instant payments and its network of suppliers, making it clear to us from the beginning that the implementation of instant payments would not only be 'one' of GIRO's several payment developments in the decade. As a result of the ceaseless expansion of the knowledge base any fear from the unknown and uncertainty were replaced by cautious optimism in GIRO's general atmosphere. We started to believe that in the end we would find a reliable technological partner that meets several important requirements. We expected that the SEPA standard on instant payments would be ready in time, and that it would be accepted by the Hungarian community as the operational basis of instant payments. We also secretly hoped that even if all banks had to join the system upon the launch, the system would not be overloaded with the often unpredictable corporate batch transactions. In the end, at its meeting on 26 April 2016, the MNB's Financial Stability Council adopted the concept of the instant payment service in Hungary, prepared by the Magyar Nemzeti Bank's experts in cooperation with GIRO Zrt. During the market consultation in the summer and autumn months, GIRO formulated a detailed plan for the implementation of the central IPS infrastructure. However, our colleagues working in the MNB's payments area posed a somewhat unexpected and huge challenge to us, in the form of a competitor. In line with international trends, the option to implement the central IPS infrastructure within the central bank rather than in GIRO was considered. In the end, the MNB's Executive Board decided the issue at its meeting on 27 March 2017, mandating GIRO to build the central IPS infrastructure. This also marked the

end of the project for preparation for the IPS implementation in GIRO. This decision was an important milestone in the history of both the IPS and GIRO. There are several European countries where the local clearing houses or even central banks are unable or unwilling to cope with the challenges posed by instant payments. Due to the continuous rise in instant payments, these countries will lose control over their own payment transactions, which will be taken over by the ECB or pan-European clearing houses. I am convinced that a rational and good decision was made by keeping the national clearing house.

I am extremely proud of my colleagues who took on this extraordinary challenge individually and also as a team. I did not for a moment doubt that they would. However, most of the difficult part of the work only began when the national project of the IPS implementation started.

IMPLEMENTATION PROJECT

After GIRO Zrt. was designated to implement the Hungarian infrastructure of instant payments, the process for picking the supplier got under way as part of an internal project. This task presented the first major challenge to our Company. Highly stringent, mainly legal and technological requirements had to be stipulated and objective assessment criteria had to be formulated to provide the basis for the decision on the supplier. The choice had to be made from among a huge number of internationally recognised large enterprises that had relevant professional experience in instant payments. As several high-quality bids were received, a shortlist was compiled, from which eventually the Danish-based Nets was chosen to be GIRO's partner.

Numerous working groups were set up within GIRO, covering all areas from testing to business processes. My colleagues had to tackle important tasks during the project, such as the new package pricing to be determined for clearing members that supported the increase in the number of transactions, the establishment of 24/7/365 operation at exceptional service quality and the related incident management.

Both GIRO and Nets found it challenging that besides international standards, the national features or hungarica also had to be taken into account while designing the rules of the scheme, which defined the system's standards, such as the IT background and the business rules, to name but a few. The Hungarian instant transfer system stipulated more stringent

demands for system participants in many respects. These were determined with respect to the long-term interests of end-users and Hungarian banks.

During the project, special attention was paid to supporting banks. Moreover, regular group and individual consultations were held, electronic communication was continuously maintained. Another key factor in successful implementation was bank testing for which a test system identical to the live one was set up.

I am happy that despite every difficulty, GIRO Zrt. was able to meet the deadline of 1 July 2019, by which time banks could access the live GIROInstant system. The system proved successful in transaction processing within the framework of the mandatory live test run.

COMMUNICATION

When the project for the introduction of instant payments started, the Company changed course in its communication and PR activities. This was a fundamentally new attitude in the life of GIRO. The new communication plan and its organisational framework was formulated along the objectives determined in our business strategy, the new communication channels were built up. As regards public communication, we wanted to inform the market about the project's progress and the achievement of its important milestones; the information campaign about the service was envisaged to help people understand this new product; we wished to provide perspective by outlining ideas about the innovative services.

This period was particularly exciting with respect to communication, this was new for all of us. The television appearances, interviews, university presentations and conference speeches brought GIRO closer to our target audience. I thought it was important to present a true image of ourselves, reflecting the Company's reliability and its openness towards innovation.

POSTPONING THE GO-LIVE

Even while preparing the project, it became clear that the introduction of instant payments would present a daunting challenge to the banking system and naturally to GIRO as well due to the fact that all the banks had to start offering the service at the same time and

the mass migration of transactions from the InterGiro2 system increased the complexity of the project even more. Launching across the whole industry at the same time with a huge number of transactions was not standard practice in Europe. In simplified terms, implementation could be divided into two large tasks and phases. The first phase served to ensure that all banks could join the central system and execute transactions in full compliance with the rules. The second phase served to ensure that banks' and GIRO's system could operate in parallel and remain stable even with the continuous flow of a large number of transactions. International experience, especially from the UK, showed that the success of instant payments hinged on it being available at the overwhelming majority of banks (ideally all banks) and all banks offering the same quality in execution. By May 2019, it had become clear that banks' preparedness varied widely even in meeting the requirements in the first phase. I believe that in the light of this a wise decision was made. A partial launch leaving out several large and medium-sized banks would have damaged the reputation of instant payments considerably, which could only have been restored through a longer period of time. Such damage was not commensurate with the economic benefits of an early launch. The live test run that started in July 2019 and the tests that were conducted in parallel left enough time for all players to ensure that the systems were stable even under high loads.

THE INTRODUCTION OF THE SERVICE

We were looking forward to the day of the public launch of the service wearily but contentedly, well-prepared and with a healthy dose of self-confidence. The fact that GIRO did not put in place a new version on the day of the launch also had a symbolic meaning. This reduced technical risks considerably, and it was also a good indicator of the fact that the launch on 2 March had been preceded by very careful preparation. In addition, the moment of the go-live was anticipated with a detailed schedule. Just as in earlier instances during the project, we were aware that the larger burden and larger risks may arise at our customers, the banks. At midnight, banks had to enable the updates that allowed their customers to enter instant payment orders. I was, we were, truly anxious. But who wasn't? Of course, in the first minutes we were glued to the monitors showing the status of our own system. Once assured that everything was alright, we took out our mobile phones and started using banking apps. These were truly unforgettable moments. We gathered in the largest meeting room at GIRO, but there was not enough space for everyone. Large numbers of colleagues worked on the implementation of instant payments at GIRO, this project demanded genuine teamwork. There were difficult moments, but fortunately that night and the early morning were not among them. With this success under our belts,

I think that the whole payment industry can face future challenges with even greater confidence.

THE FUTURE

The establishment of the instant payment system was a historic development in the field of Hungarian financial infrastructures. However, Hungarian citizens can only truly experience the system's benefits when the services built on this service start to appear.

Thanks to the joint foresight of GIRO Zrt. and the MNB, all banks had to offer secondary account identifiers from 2 March 2020, therefore account holders can make transfers to email addresses, mobile numbers, tax identification numbers or tax numbers from that date, replacing the long bank account numbers that are difficult to remember.

The request-to-pay service has also been offered by GIRO since 2 March, but joining this was merely recommended to banks. Nevertheless, we see that the overwhelming majority of banks will soon join this service, while requests to pay are already available at some banks. It has to be noted that besides banks, any legal person registered in Hungary can make an agreement with GIRO to use the service, which makes the service widely available.

GIRO also attempts to use the opportunities inherent in the request-to-pay system as much as possible with an additional service called GIROFix. This relieves market participants, not only banks, of a considerable development burden. GIROFix is mainly suitable for firms where sending a request to pay is not time-critical, and for non-bank players the technical aspect of joining the service is much simpler than joining directly.

Another bridge between the present and the future is the QR code standard developed jointly under the nationwide project, allowing people to initiate transactions based on the instant payment system using a QR code. The standard was created to make the payment solutions built on the new system interoperable. People can soon experience the new payment solutions that enable peer-to-peer money transfers, bill payments, a new way of online shopping and even mobile payments in shops with the help of QR codes and instant payments.

This is more than a hope for GIRO, because we are already working on implementing a uniform mobile payment solution in Hungary similar to the existing international examples.



Dr Mónika Iszály

Project leader, GIRO Elszámolásforgalmi Zrt.

The introduction of the central infrastructure in GIRO

When I joined the GIRO team in May 2017, the only thing I knew was that I had to coordinate the introduction of the central infrastructure of instant payments. I was naturally aware that this was a high-value priority project, but I only realised what this actually meant much later.

When I arrived, the preparatory project was drawing to a close, and work on the requirements specification was well under way. I did not have much time to acquaint myself with my new workplace since the call for tenders had to be sent out to the potential suppliers in mid-June. I remember that we prepared and encrypted the electronic document packages for each supplier, and after we pushed 'Send' on the emails we knew that this small step meant a huge shift towards the future, and we only suspected the length of the road we had just entered and the obstacles that lay ahead.

From a professional perspective, one of the most exciting and memorable parts of the bidding process was the contract negotiation. We worked hard for two months, negotiating with the supplier five days a week, 8–10 hours a day, sometimes even on weekends. There is no doubt that we laid the foundations of good cooperation during the project there and then.

After the contract was signed, the joint work started among experts, too. We travelled to Nets' Copenhagen head office several times to discuss the issues in person. I believe that although videoconferencing and discussions over the phone are efficient, lasting

good working relations can only be built by talking in person. I was proud to see that my colleagues, who had not worked with an instant payment system before and were merely familiarising themselves with the new payment scheme, were able to cooperate as equals with Nets' experts who had several years of experience.

The Hungarian instant payment system and the supplier's basic software, implemented in several countries, are based on the SEPA SCT Inst. standard, which had to be slightly tailored to the Hungarian environment; the software also had to be customised to allow the incorporation of several Hungarian features (e.g. Hungarian script characters). Following months of discussions among the experts, these changes were implemented, and even though we knew that Nets' basic solution worked, the first really exciting moment was when the software's first version, the so-called 'GIRO edition', arrived in November 2018. I remember I was down in the server room with my colleagues during the installation and when we started the software and the first green stripes indicating the successful test transactions appeared on the screen, we nearly jumped for joy. But we knew that the finish line was still a long way off.

At the end of December 2018, we were all anxious to see how many banks could join the voluntary testing in January. How will the connection work? When will the first bank test transactions be sent?

Several factors had to be taken into account while designing the instant payment system. One of them was that in Hungary the instant payment system was not based on voluntary cooperation, as the Magyar Nemzeti Bank decided that all Hungarian banks had to join the central infrastructure, and this was unprecedented in global terms. Originally, thirty-eight players had to tackle this huge challenge, and we knew that if the instant payment system was to successfully launch by the designated deadline, we had to join forces, cooperate with each other. We established working groups to take into account banks' needs and support them in the integration as much as possible. We continuously consulted with bank representatives and sought to help their work with documents as much as we could. After the initial difficulties, these working groups operated increasingly efficiently, and the cooperation between banks also became stronger. I was glad to see that after the meetings, the participants remained behind to talk and share their thoughts with each other, and often these post-meeting discussions led to some cooperation or initiative, such as the first joint tests.

However, instant payments do not only comprise an IT solution, but also a completely new approach to payments and a completely new service in GIRO's portfolio. For example

my colleagues worked for months on developing a pricing structure that ensures as favourable conditions to banks as possible so that they can also offer favourable prices to their customers, since that is one of the key factors in the adoption of electronic payments.

On 1 July 2019, at the original deadline, the central infrastructure went live, although the deadline for the submission of bank customer transactions was postponed. Nevertheless, the 8-month postponement allowed all banking players to further enhance their systems, so everyone could prepare for the launch in March.

The introduction of instant payments was one of the largest projects in the banking sector in the past 25 years, and it will fundamentally change payments and payment habits. The key to the success of the project for the introduction of the central infrastructure lies in non-stop support from GIRO's management and the exceptional professional qualifications of our colleagues as well as their faith in final success. I am proud to have been part of this historic undertaking.



Paul Walvik-Joynt

Senior Vice President, Nets A/S

A journey of cooperation and collaboration to the future

The world of Instant Payments has been my passion and working ground for the last ten years. When the initial contacts with the Central Bank of Hungary were made it was very clear that the ambition in Hungary was to create a momentum and a new service that would transform Hungary in many ways. Having a solid base in the Nordics we have always valued cooperation and knowledge sharing to arrive at the goal with the best solution. So, when in 2016 the Central Bank of Hungary came with an expert delegation to hear about our experiences on Instant Payments we were of course thrilled. Our CEO, representatives from the Danish National Bank and our unit Payments International took part.

It was clear from the outset that the Hungarian approach to developing insights is to have a very structured approach where details are being discussed across all levels of expertise, to really understand what are the lessons we have learnt. Through discussion comes clarity and this was the foundation upon which all subsequent interaction was built. It became apparent through our dialogue that the collaborative approach with a clear vision of transformation was the common denominator. My observation was that the voice of experts was, and is, highly valued, and paved the way for how Hungary both procured, planned and executed the path to Instant Payments. I think it is safe to say that the level of detail and curiosity to learn the full inner workings of all intricacies of Instant Payments in the context of what it means for banks, society and the development of the financial system was on a level that we could really appreciate. It felt like we had found some friends that we could instantly relate to – no pun intended.

In the Nordics we have the Law of Jante which is written by the Dano-Norwegian author Aksel Sandemose. According to Wikipedia: “It characterizes not conforming, doing things out of the ordinary or being personally ambitious as unworthy and inappropriate.” In our meetings with the Central Bank of Hungary and the Hungarian ACH (GIRO) during the execution of the Instant Payments project I think it became rather obvious that we are very proud of what we have achieved with our RealTime24/7 Instant Payments solution, so we were breaking the Law of Jante. What was particularly rewarding in the way we worked together was that when we were proud of features or approaches, then we were always met with a healthy dose of scepticism that we came to understand originates from a deep interest to really understand what is behind a feature, process or success that one has had. This sharpened our own view on what we have done and raised the bar on expectations as to what we could achieve together.

For Nets the journey together with the Hungarian community was, and continues to be, an interesting and rewarding journey. Challenging in the sense of the clear commitment and a very keen interest in making a real change in Hungary for society, people, and the financial services environment. When you set out on such a journey together something happens in the dynamics between people and organisations that in retrospect is interesting and rewarding to reflect upon.

We had already launched Instant Payments services in Denmark, Italy and Slovenia prior to the engagement in Hungary and we had a solid knowledge base to share regarding experiences and approaches to implementing the solution. It has amazed me when sharing, to see throughout the process an incredible ability of finding ways of overcoming challenges that were always constructive and objective. There are always areas where one feels that the path is straight and easy to make great progress on, and when you hit a bumpy or more difficult part of the path it is easy to resort to entrenched positions in overcoming obstacles. I must say that this has never been the case in our cooperation, challenges were overcome with dialogue to understand where to focus and who could best provide insights to the best way forward.

On 25 January 2018, after a very professional tender process, we could celebrate together that a deal had been signed in Budapest that would mark the start of a new era for payments that were identified as the right service, delivered at the right time with the right experience. The Instant Payment experience.

1 March 2018, the date of the first conference where the whole banking community was gathered to walk through expectations and milestones. The conference was conducted in

Hungarian and the Central Bank of Hungary was so kind to provide us with a translator for the whole event. It was very clear from the outset that there was a strong agenda of providing a solution that would be mandatory for all banks to use from the start. Substituting cash and providing a frictionless experience paved the way for entering a new way of paying, get paid and interacting. The key words that we brought to this conference were convenience, right now, reducing friction and bringing innovation. All of these elements have proved to be true in the subsequent implementation and will prevail for many years to come in Hungary.

Accelerating out of the starting blocks early for the implementation was paramount and in February 2018 the mutual project was kicked off. With the first delivery completed in record time on 31 July 2018 the foundation was laid for successful cooperation from the start.

This was followed by a huge undertaking done by all parties involved with a spirit of cooperation. The key to all successful implementations is always the spirit of cooperation and knowledge sharing. The strong collaborative effort was of particular interest to Nets since one of the requirements was to run our RealTime24/7 as a software installation on the premises at GIRO's datacentres in Hungary.

The service was launched with strong attention from the Hungarian financial community. On 2 March 2020, all eyes were focused on the first transaction to be processed on GIRO's RT24 solution leveraging the RealTime24/7 solution software from Nets. Nets had a support team in place inside GIRO's operation centre, who shared this special moment with the staff from GIRO and who had worked with dedication towards this moment. Fortunately, everything went well and within hours hundreds of thousand transactions were successfully completed, a proud moment for GIRO marking the beginning of new ways of transferring funds and payments in Hungary.

The new GIRO Instant Payments service for Hungary will not just complete payments faster, end-users will also directly benefit from the capabilities and features embedded in the GIRO solution in terms of simplicity and convenience.

End-users will benefit from the possibility to replace account numbers with an alias such as a mobile phone number or a QR code making new ways of payment and transferring money between us possible. Person to person money transfer via is an obvious idea to explore with this technology.

Businesses relying on cash can also benefit from the instant payments made possible by GIRO. Transactions can be completed using a feature called Request-to-pay, where a merchant can request payment from consumers through e.g. a mobile app. These payments are instantly completed on terms comparable to cash, and the merchant gets paid as the goods are exchanged, fast and safe, the money will go directly to the merchant's account reducing risk.

It will be interesting to follow how payments will develop in Hungary, and fair to say that 2 March 2020 was more than a special day for GIRO, 2 March marked the introduction of new possibilities for faster, safer, and more convenient payments for the benefit of Hungary as a nation.

The tremendous interest from the banking and fintech community shows that the steps outlined from the Central bank have been a catalyst for extensive innovation. It is manifested in events that regularly take place from FintechZone, the wide interest of presentations and discussions prove that Instant Payments is the new norm in Hungary.

The journey has just begun and we are honoured to be part of this, and to support the Central Bank of Hungary, GIRO and GIRO partners in realising the potential of the technology and delivering new services for the benefit of the Hungarian community.

When looking into the future we see that the opportunities are limitless, and we believe that many roads will be taken in the years to come. These will increasingly focus on ensuring that Business to Business friction is removed; one of the most obvious areas that will benefit from Instant Payments. Supply chains that can be supported with frictionless e-billing with just in time delivery of the services and related payments will thrive in this ecosystem. Sharing a vision to include rich data together with services being delivered will make the Instant Payments transaction invisible and woven into the fabric of Hungarian life. It will not only be the new norm, it will be the new way of living, transacting and collaborating for the betterment of Hungary.

III. Key figures in the coordination of the nationwide project



András Becsei

President of the Hungarian Banking Association between July 2019 and May 2020, during the implementation phase of the project

Rollout of the instant payment service: How the displacement of cash began

If we look back on 2020 a few years from now, this period will surely be remembered for the extraordinary ordeals caused by the pandemic, but also for the major milestone in financial digitalisation. The state of emergency transformed the world as we knew it in a flash, past truths have been questioned, and previously unchallenged taboos have been shattered. The changes affected education, daily work, our relations with family and friends and last but not least our banking habits. Hungarian banks' IT developments implemented in the past years played a central role in enabling our customers to conduct their finances with the usual efficiency during the pandemic. Perhaps the largest project that affected the entire population, fundamentally transforming the Hungarian payment infrastructure was the introduction of the instant payment service in March this year.

BANKS ON THE ROAD TO CONSTANT RENEWAL

Banks are traditionally committed to modernisation. However, when it comes to innovation, many of us think of the developments of the fintech firms of the 2010s or the financial innovations of social networks (e.g. the financial services of WeChat owned by Tencent have been available in a simplified form since 2014). However, the foundations of the technologies used today had been laid down by banks over decades, starting in the 1950s. The first versions of the modern credit card used for paying at merchants appeared in 1958. Wider distribution and use was facilitated by the POS terminal emerging in 1979 which eliminated the need to call the bank to approve card acceptance. Internet banking services

made their debut at many banks in the 1990s, and online credit transfers and payments did so at the turn of the millennium. If we think about it, it has been almost 20 years since the dotcom bubble burst. The past decade saw a transformation in the relationship between traditional banks and fintech firms, most of the then disruptive players have partnered with banks, and the solutions suggested by them now form part of the service offering of universal banks. All in all, a large portion of the technologies used today have been here in the past six decades, and the financial sector implemented major developments to make our everyday finances easier. The instant payment service was the cherry on top of this process, as it brought along the simplicity and real-time nature of cash to electronic payments.

Recently, besides ensuring legal compliance, which ties down a major portion of IT capacities, enormous resources have been dedicated to digital developments, too. Some of these are less apparent to customers and serve to renew the banks' internal IT infrastructure, however, the sector came up with several developments that entailed tangible improvements in customer experience. One can open an account online, and personal loans can now also be taken out online, from start to finish. Banks have no shortage of ideas, but often the legal environment has to be modified to realise them. The Hungarian Banking Association's 22-point digitalisation package proposed such modifications, and, I hope that, by the time this book is published, several proposals will have already been turned into reality.

The digitalisation proposals can be divided into four large groups. First, the elimination of the obvious legal constraints was advised. Examples include laws stipulating that certain financial transactions may only be carried out on paper, which is often the case in housing loan processes. Second, innovative solutions were explored, for example the potential uses of the e-administration law. Third, we noticed that several players have implemented significant digital developments on their own. These operate as isolated digital islands that are, sadly, only connected by customers clutching stamped documents. The digital document of one player is brought by a customer to another player who records the data on the document before digitally processing it. The examples include the digitalisation of Land Registry procedures. Fourth, a separate study on reducing the growth rate of cash holdings was published as part of the digital proposals. A good example for that is the instant payment service. Another important concept also appeared in the study: the 'same activity, same regulation' principle should apply. In other words, banks should be subject to regulation similar to that applying to FinTech firms: legislators should either cut red tape for banks or require FinTech firms to abide by the principles rightly protecting consumers. This year's Wirecard scandal, the largest corporate crime in Germany in recent decades,

showed the dark side of fintech firms. Another important aspect is that the tax burden should be the same across the financial sector.

INSTANT PAYMENTS – THE RIGHT PLACE AT THE RIGHT TIME

The introduction of the instant payment service supplemented the above innovation process and established an operating model promising further development opportunities in payment services. The system as designed makes it easier for people to conduct their everyday finances. The commitment of the sector is shown by the fact that according to estimates, the Hungarian banking sector paid tens of billions of forints to external IT suppliers in the past 3-4 years to implement the instant payment system. Add to this the hundreds of thousands of work hours of bank employees and we can see that the rollout of instant payments, costing around HUF 40 billion, was perhaps the largest ever one-off investment in the Hungarian banking sector.

One should also mention that the Hungarian implementation was unique in the world in terms of its speed and complexity, nowhere else in the world was the system established like this. The introduction and use of secondary identifiers and the deployability of the request-to-pay function opens up huge opportunities for development, along which several auxiliary services can be established in infrastructure (e.g. payment of utility bills electronically at the click of a button). It was a special Hungarian feature that banks were obligated to join the service, whereas other countries opted for voluntary participation. In countries where participation has been compulsory, the upper limit on payments is low. The HUF 10 million (approximately EUR 30,000) cap for instant credit transfers used in Hungary is much higher than elsewhere, and it covers almost the entire spectrum of Hungarian payments since 97 per cent of transactions within under HUF 10 million range. The transfer is executed in a very short time, a couple of seconds—it takes three times that much in the UK and the US, for example.

The introduction of instant payments instantly marked the beginning of the end for cash as a convenient means of payment. For example, in the future we will not need to pay the deposit in cash when purchasing a home, because the seller will receive the transferred amount immediately. When buying a car, we no longer need to rattle around the city using public transport nervously groping wads of bills stashed into shopping bags, we can instead immediately transfer the amount (under HUF 10 million) to the seller at the push of a button. Moreover, we do not need to remember banks' operating hours as credit transfers are executed 24/7. Challenging the primacy of cash is favourable in itself from the

perspective of the national economy: reducing large-scale cash use is estimated to result in surplus revenues for the budget amounting to HUF 400–500 billion annually.

It was also a good decision to launch the system in March. Thanks to the constructive cooperation between the central bank, GIRO and the banking sector, banks had ample time to perform the necessary testing, therefore the service launched basically without any issues at 00:00 on Monday, 2 March 2020. Although we did not foresee this back then, we breathed a sigh of relief with my colleagues during the state of emergency when we realised that it would have been impossible for our developers to fix the errors of a less tested system from a home office environment. Instant payments also play a key part in health protection, as it provides an efficient alternative to cash use.

The future of instant payments is also influenced by the regulatory environment. The financial transaction tax has caused a competitive disadvantage for years, while the transfers between the accounts of foreign-based fintech firms are not subject to any fee. To ensure that in the longer run financial transactions remain ‘within the country’s borders’ in the Hungarian financial sector, the transaction tax should be completely phased out in the case of electronic retail transfers.

In closing, let me share some personal experiences and acknowledgements. More than a thousand experts worked on the introduction of instant payments, and thanks are due to all of them. First, I would like to mention Dr György Matolcsy, the Governor of the Magyar Nemzeti Bank and the main sponsor of the project. The process was also actively assisted by Dr Mihály Patai, who first took part in the establishment of the implementation framework as President of the Hungarian Banking Association, in cooperation with Dr Ferenc Gerhardt, Deputy Governor of the Magyar Nemzeti Bank at that time. In March 2020, Dr Patai cut the ribbon upon the go-live of the system, by then as Deputy Governor. I am convinced that his prudent and judicious insight was key in the successful launch of the instant payment service.

In the first months of 2020, the introduction of the instant payment system provided a special framework around the operation of the Hungarian Banking Association. The last event open to the press before the coronavirus pandemic was the press conference on 2 March, which I attended as the president of the Hungarian Banking Association. Together with MNB Deputy Governor Dr Mihály Patai, we outlined the operation and advantages of the new system. Thereafter, following a period of frequent videoconferencing during the partial curfew, the first event with personal attendance was the ceremony for presenting the Golden Beehive Awards prior to the meeting of the Hungarian Banking Association.

This year, apart from our colleagues from the banks, Lajos Bartha, the Executive Director of Financial Infrastructures and Banking Operations of the Magyar Nemzeti Bank, and Dr Zolt Selmeczi-Kovács, CEO of GIRO Zrt., received awards for their indispensable work in the establishment and launching of the instant payment system.

Again: thanks are due to all our banking colleagues and external developers and experts, since without them this project would not have been realised at this high quality. Although the three-year work, peppered with challenges, successes and low points, came to an end in March, the development and expansion of the instant payment service are far from over. The goal is to push back the frontiers of cash use within reason. I wish strength and vigour in this endeavour to all participants.



Professor Dr Levente Kovács

Secretary General, Hungarian Banking Association

The historical and banking aspects of the launch of the instant payment system

In a breakdown by processing time, the enhancement of low-value payment transactions in Hungary was achieved in three leaps forward (overnight, intraday, instant), culminating in the instant payment system, or IPS, that debuted on 2 March 2020. The Hungarian banking system made huge progress by international standards, since the country was the first in the CEE region to offer the instant payment system not as an extra service provided for a surcharge but as part of the basic system of payment transactions. The processing time and the optional services surpass for example the services of SCT Inst., the pan-European payment scheme developed for the euro. The success of the launch and the reception of the new system in professional circles and by society at large confirm the appropriateness of the concept and decision related to its establishment. The need for society to move to digital solutions as a result of the coronavirus crisis provides another proof for the well-timed nature of the IPS, since it is one of the main pillars that sustain the economy in this period.

First and foremost, I would like to welcome this commemorative book, and I am grateful for the opportunity to share my memories and experiences related to the project with the readers and other participants through this piece, and I hope future generations of experts will find the historical overview useful. I am convinced that the world-class infrastructure was not the only value created by the sector's community through their cooperation, as this commemorative book itself continues to create value in terms of society's intellectual and civilisational benefits.

The commemorative book recalls some of the earlier events related to payments, such as the milestones of Hungarian payments and clearing transactions, which led to the IPS. Let us first examine GIRO Zrt.'s evolving role.

THE CHANGING ROLE OF GIRO ZRT. IN ITS OWN PERCEPTION

I was part of the management body of GIRO Rt. (later Zrt.) during its three-decade history, and I saw three different attitudes towards its own role based on clearing house management and owners' expectations.

In the first and longest period, the clearing house owned by the clearing members (commercial banks and the central bank) sought consensus among the members with the help of its own management, and created its own system with the active participation of the MNB in terms of the establishment of the requirements specification. As a result of the cooperation between credit institutions and the MNB, the BKR (Interbank Clearing System) started operating in 1994. During the 15–20 years in this period, GIRO Rt./Zrt. could be seen as a background institution in the banking sector. Other important developments in this era included the introduction of the clearing of batch transfers and direct debits (1997) then the overhaul of the InterGiro1 (IG1) overnight platform in 2009. This period was determined by the activities of CEO László Szamosi and Péter Braun, member/chairman of the Board of Directors.

The next milestone was the transition to intraday clearing, which did not entail any major developments on the part of clearing members apart from the replacement of the clearing house software and hardware. This solution accommodated the increasing customer needs and the central bank's demands related to the phase-out of the float. Another important factor was the successful launch of the multi-cycle intraday clearing service in several neighbouring countries. As a result of these developments, the intraday clearing service consisting of five cycles a day, with a so-called four-hour rule, launched on 2 July 2012. After the central bank acquired 100% ownership in GIRO Zrt., it required that the number of daily clearing cycles be raised from five to ten from 7 September 2015, reducing the clearing and settlement time to two hours (during operating hours). If the activities of GIRO Zrt. in these five years had to be characterised by a single phrase, perhaps the best choice would be 'an IT service provider operating as a background institution'. Advances included the purchasing of BISZ Zrt. and the launching of the GIRinfO service. This period was epitomised by the leadership of CEO Péter Legeza and the difficulties in reaching consensus among the interests represented in the Board of Directors.

The third era started in 2014 when the owner of GIRO Zrt., the MNB, the central bank, acted as a catalyst and prepared its plan for instant payments and initiated a public consultation. Once implemented, this innovation brought about a true paradigm shift in Hungarian payments, achieving the benchmark announced by the European Central Bank: attaining the same immediateness that is offered by cash in low-value large-scale electronic payments. Since GIRO Zrt. was tasked with creating the central unit of the new infrastructure, the clearing system, and coordinating the cooperation between payment service providers across the whole system acting in its capacity as a central player in the nationwide project, its earlier role changed as well, as the former IT service provider turned into an innovative, standard-setting organisation. Not only did GIRO Zrt.'s role change because the instant payment system (IPS) required disciplined cooperation on the part of payment service providers on account of their obligatory clearing membership, the makeover also entailed huge costs and IT developments due to the technological character of the IPS. Accordingly, GIRO Zrt.'s attitude was transformed as it became a dominant, pace-setting institution. This period is characterised by the dedicated work of CEO Dr Zsolt Selmeczi-Kovács and Lajos Bartha, the Executive Director of Financial Infrastructures and Banking Operations of the Magyar Nemzeti Bank.

THE IPS PROJECT – INTERBANK COOPERATION DURING THE IMPLEMENTATION OF THE IPS

Undoubtedly, in recent years in our world of payments and payment systems the top priority has been the obligatory preparation for the launch of the IPS for both GIRO Zrt. that operated the system and the participating member organisations.

Therefore our member banks delegated a large number of experts to the working groups of the nationwide project set up and operated by GIRO Zrt. right from the start, and even beyond that, under the auspices of the Hungarian Banking Association's Payments Working Group. At regular meetings, which served as independent supplements to the work in the project structure, with the involvement of the representatives of GIRO Zrt. and the MNB, discussions were held about the issues related to regulation, legal interpretation, the clearing system's operational and process management aspects, message content and flow schemes as well as secondary identifiers and the links to the banks' internal systems. The conclusions from the joint reflections were incorporated into the MNB's decree on payment services. Experts discussed the optional request-to-pay service at separate meetings. We were pleased to see that the MNB took into account most of the suggested ideas and proposals in this issue. The liquidity management principles and mechanism, which are key elements in the system, were high on the agenda for the Hungarian Banking Association's Treasury Working Group; the jointly formulated needs were incorporated into the system.

The preparations for testing the IPS began in 2018 in which member bank experts also took part by attending the regular meetings of the Payments Working Group. Under the nationwide project, we participated in the establishment and organisation of the Legal Working Group tasked with preparing the membership conditions and business rules of the system. Two high-level CEO meetings also deserve special mention where central bank executives presented and assessed the status of the nationwide project and the conditions necessary for launching the system, inviting a discussion. They also talked about GIRO's new pricing model to be introduced for the operation of the IPS. The Hungarian Banking Association also organised a weekly test forum for member banks with the involvement of MNB and GIRO Zrt. experts to ensure a smooth and successful launch.

Based on a fairly tight work schedule, the MNB's decree set the deadline for providing the instant payment service to the wider public for 1 July 2019. To this end, the Project Steering Committee (PSC), where I represented the banking sector as the secretary general of the Hungarian Banking Association, continuously monitored the preparation of the players. Acting on the PSC's proposal, having assessed the potential risks related to the launching of the instant payment service at its meeting in May 2019, the MNB's Financial Stability Council postponed the deadline for providing the wider public access to the service until 2 March 2020. The decision was warranted by the fact that Hungarian payment service providers were obligated to take part in the project, and participants had to fully comply with the requirements both individually and jointly upon joining the central system. Therefore the system could only start operating after reducing the risks to a minimum and ensuring 100% preparedness. On the other hand, the decision allowed the central infrastructure to go live on 3 June 2019, and from then on real banking transactions could be conducted between participating payment service providers, but only with limited amounts and excluding consumer transactions.

Until the full go-live, the PSC stipulated a test run schedule with more stringent requirements for the remaining nine months. Payment service providers were also required to enhance end-user services and the processing of request-to-pay messages by 2 March 2020. The MNB and GIRO Zrt. monitored the preparations rigorously, and they assessed the fulfilment of the testing requirements across the whole system as well as at individual system participants. The findings were presented in a CEO presentation in October 2019. The same meeting shifted the focus to the issue of the scope of transactions submitted obligatorily or optionally to the system (e.g. corporate batches) since the different system participants may have significantly different processing capacities, which may lead to systemic risks and 'flooding'. The Hungarian Banking Association proposed to eliminate this risk through regulation, then experts from the MNB's Directorate of Financial Infrastructures and member banks were invited to develop the necessary regulation. As

a result, the MNB's decree on payment services defined the scope of corporate batch transactions and transactions deemed to be similar (which therefore do not need to be processed immediately) as well as their handling from the go-live of the IPS. These transactions were completely excluded at the time of the go-live, but since September 2020 they can be processed at a given frequency.

Besides the commitment to interbank cooperation viewed as a value, it also has to be noted that our members undertook considerable financial obligations with the implementation of the IPS, both individually and jointly. According to estimates in the sector, they spent around HUF 40 billion on the introduction of the new technology and infrastructure in addition to hundreds of thousands of working hours,¹ which often came on top of the replacement or development costs of members' own systems.

WITHOUT WHOM WE COULD NOT HAVE DONE IT

Last but not least I would like to mention and express my heartfelt gratitude to the key figures who did the lion's share of the work to ensure that Hungarian payments and their infrastructure are renewed in line with the requirements of the digital age.

I could start the list with Central Bank Governor Dr György Matolcsy simply because of his seniority in rank, yet I do so here because of this comprehensive financial market development activities. Under the leadership of Central Bank Governor Dr György Matolcsy, the Budapest Stock Exchange, KELER Zrt. and GIRO Zrt. became modern, 21st-century financial service providers shaping markets, thanks to the MNB's active economic engagement and ownership.

Central Bank Deputy Governor Dr Mihály Patai, a former president of the Hungarian Banking Association, was instrumental in picking the right moment for the launching of the instant payment system and in ensuring the success of the launch. Thanks to his work experience, he was aware of the status of the project and project members from all sides, and even from 'inside'. His professional reputation and consensus-building capacity contributed considerably to the uniform preparedness of the players standing on the starting line on 2 March 2020.

¹ András Becsei, ' Március másodikán indul az azonnali fizetési rendszer' ('The Instant Payment System Launches on 2 March'), Világgazdaság 22 January 2020, p. 13.

Central Bank Deputy Governor Dr Ferenc Gerhardt, the chairman of GIRO's Board of Directors, played an important role in the preparation, launching and coordination of the project with his extensive banking and bank IT experience.

Executive Director Lajos Bartha² made outstanding contributions to laying the theoretical basis for the IPS and then for its implementation where he used all his professional experience gained during the establishment of the intraday clearing system. Not to mention the fact that his person served as a live link providing continuity between the successive infrastructure developments.

I also need to mention the work performed by GIRO Zrt. CEO Dr Zsolt Selmeczi-Kovács,³ who can move mountains and who employed his great professional dedication, humility and perseverance to follow through the project. He worked in close cooperation with the MNB, which sometimes appeared as supervisor, sometimes as owner, and also with clearing members, the Hungarian Banking Association and the Project Steering Committee.

Successful projects often have someone in the background, the project owner, who should not be forgotten, because they shouldered a considerable share of the tasks. From the first moment of the project's implementation until the last second, Gábor Bakati placed particular emphasis on establishing a suitable environment for the stakeholders to foster cooperation. He created an open professional atmosphere to facilitate meaningful work, avoiding or eliminating the difficulties that inevitably arise among such a huge number of participants.

Of course, successful projects also have a very well-prepared and committed team of experts, in our case comprising the banks' payment service experts and GIRO's workers and IT specialists, who spent hundreds of thousands of working hours during the years of the project to achieve the final goal, relentlessly doing their job, in other words, stood their ground. The result of their work speaks for itself, for which we thank them.

² Lajos Bartha received the Golden Beehive Award from the Hungarian Banking Association in recognition of his work in 2020.

³ Dr Zsolt Selmeczi-Kovács received the Golden Beehive Award from the Hungarian Banking Association in recognition of his work in 2020.

CLOSING THOUGHTS

Following a successful launch, the instant payment system has performed well, it has been providing the domestic forint transfer infrastructure without any errors. Since the outbreak of the unanticipated COVID-19 pandemic, it has played a crucial part in the functioning of the economy thanks to its real-time features. For Hungarian society, the pandemic has gone hand in hand with a real boom in digital solutions. Therefore, building on the IPS as the financial infrastructure of the 21st century, we can now reasonably prepare for the new digital payment services that will support the reduction of cash, more efficient money management, the reduction of the shadow economy, innovation and accelerating economic development.

For all this, let me express my gratitude and admiration to the executives and workers of the Magyar Nemzeti Bank, GIRO Zrt. and the commercial banks who took part in the planning, development, testing, application and regulation of the instant payment system.



Péter Dunai

Secretary General, Hungarian Chamber of Commerce and Industry

New dimensions in the Hungarian financial system: The Chamber's experience with the instant payment system

Hungarian micro, small and medium-sized enterprises are the backbone of the economy, they provide the sound basis for sustainable economic and social development, and they also play a central role in employment. For that reason, developments in this sector, those supporting their adjustment to the broader external environment, the enhancement of productivity and efficiency, expanding the opportunities for reaching external markets, increasing entrepreneurship and financial literacy are key components of the Hungarian economy.

The recent turbulent social and economic changes call for awareness and financial determination from market participants. This idea leads us to the necessity of an adequate level of financial literacy. The continuous development of financial literacy is becoming essential for national economies, including Hungary, since the high level and quality of financial literacy is the common interest of all economic actors. In recent years, several international scientific studies have confirmed that improving the quality of financial literacy is in the interest of not only households and companies but also the state, because the national economies where financial literacy is greater are usually more competitive, and are also better positioned in the global market. To ensure Hungary's steady and sustainable economic growth and enhance its competitiveness, companies with financial awareness and a broad range of up-to-date knowledge are needed.

The above thoughts are closely correlated with modern payment systems, one of the main examples of which is the instant payment system. This scheme has been established in several countries, or the planning or implementation phases are under way. Hungary cannot fall behind in the digital transformation, because this is clearly essential in competitiveness. Having recognised this, the Magyar Nemzeti Bank took the necessary steps and laid the foundations of the new regulation in 2017. It has to be noted that Hungary was the first European country to make it a legal requirement to establish and operate the system. This measure of the MNB helped increase the country's long-term competitiveness, and the Hungarian Chamber of Commerce and Industry joined these efforts as a supporting partner.

The HCCI is committed to supporting and developing Hungarian companies. In view of this, the HCCI considered it important to familiarise all micro, small and medium-sized enterprises operating in Hungary with the operating mechanism and inherent opportunities of instant payments, right from the planning of the system. In the instant payment system, credit transfers take just a few seconds to arrive at the recipient's bank account. This scheme basically means that we have joined the world of the real-time economy, which offers various advantages to companies. First, it supports the reduction of cash use, which also helps the widespread adoption of electronic payment alternatives. The HCCI believes that this is particularly important because it improves transparency and allows companies to be more open towards the tools and solutions of the digital world. Of course, one should not forget the financial position of the companies, as the instant payment system can clearly improve the liquidity indicator of businesses. The HCCI surveyed companies about their expectations concerning the new service several times. All the surveys showed that most firms welcome the introduction of instant clearing. The companies also monitor customers' views, which show that the new system resulted in increased confidence due to speed and simplicity as well as the C2C payment option.

The road leading to the introduction of the system was long and arduous, because several Hungarian and international regulations had to be examined and new ones had to be drafted. Yet, all the organisations taking part in the innovation exhibited exceptional professionalism, working in constructive cooperation. The Hungarian Chamber of Commerce and Industry did everything in its power to support the early introduction of the service and familiarise companies with it. We organised several events last year that focused on instant payments. These workshops allowed firms a profound insight into the advantages of the system, also providing an opportunity for stakeholders to prepare for the go-live of the payment system in a timely manner, with sufficient awareness. The representatives of the companies attending the workshops had the chance to share their observations, often constructive criticism and any further innovative ideas with each other. This was based on

the 'open innovation model', where the individual institutions and organisations and all stakeholders cooperate with each other to utilise the financial and human resources as efficiently as possible, rather than acting independently, relying on their own resources.

The introduction of instant payments presented a huge challenge to all traditional banks, whose account management systems had been unable to fulfil the requirements of 24/7 operation. Often completely new systems had to be built which can now meet the demands of stakeholders.

Feedback from businesses clearly shows the massive popularity of the instant credit transfer scheme. The experiences so far confirm that stakeholders quickly recognise the opportunities inherent in the system and how convenient it is for everyday lives and operating activities. It has to be noted though that significant differences can be detected in the use of the new service by company size. Firms with financial awareness are much more open towards using the system, while smaller outlets with less financial awareness and fewer digital skills sometimes fall behind.

We hope that the system and all its advantages will be used even more widely in the future. The Hungarian Chamber of Commerce and Industry will continue to support this goal as a dedicated partner.



Gábor Bakati

Project leader of the nationwide project

A 360-degree view on IPS

I thought a great deal about the best way to present the formally three years (seeming like four to me) that I spent with the instant payment system and examining the options of instant payments before that.

FROM OUTSIDE OBSERVER TO ACTIVE PARTICIPANT

I had the opportunity to be part of the country's largest and most successful transformation and infrastructure project in the industry, first as an outside observer, with some envy, then from the inside, working hard in close cooperation with my colleagues, shaping the project.

What could better illustrate the enormity and incredible significance of the task than the fact that the infrastructure, with strategic and critical importance to the national economy, had to be established to the highest standards and integrated into the financial system, while it was running in parallel with an older system that was otherwise functioning perfectly.

During my earlier work, I had become familiar the concept of 'Value at Risk', which we used in the world of treasuries, portfolio and investment management, but it can also apply to this project. In this case, the Value at Risk was the safety of Hungary's payments, the confidence in the banking system and the reliable operation of the Magyar Nemzeti Bank and the commercial bank infrastructure. In contrast to the field where it is traditionally used, this Value at Risk cannot be expressed in monetary terms, and as regards the responsibility, it has been an unparalleled challenge and task.

The nationwide project had a special status. We had to know all the players well and help them when necessary with respect to the workflow and finding solutions. Our collective professional knowledge enabled us to accomplish this. It was interesting to see and, as project leader, establish a balanced compromise between individual and common interests, proprietary solutions, the community's options and the central system's features.

It was terrifying and inspiring at the same time that in this task we could not cast a watchful eye at any one point in particular, because we had never seen a project with such depth and extent that was obligatory for all market participants concerned with payments. After the decision on the IPS was made, based on the experiences from the earlier IG2 project (introduction of the intraday clearing platform) as well as the data and information from the reporting system that could keep up with the complexity of financial institutions, we had to establish the methodology, the information flow, the method of feedback, progress control and the necessary communication platforms. Initially, this applied to thirty-eight institutions, the professionals at GIRO and the MNB and the consultation forums and, when they were needed, the developers, suppliers and integrators who participated in this grandiose project.

The task could only be understood by knowing each side, and it could only be tackled through the flawless and effective cooperation of all players. That is why this project was special and remarkable: we had to see, understand and utilise the opportunity inherent in the 360-degree view. We started the work a long way off. To borrow an expression from my banker colleagues, the IPS was a 'regulatory project' at the outset. I remember that my first discussions started with the 'why' and ended, inevitably, with the 'how'. I would like to briefly discuss the 'why', because we already know the result of the 'how'.

Although every participant believed that the financial institution infrastructure was sufficiently developed and fulfilled its function, we saw that several institutions engaged in major new developments only indirectly related to the IPS. Establishing a competitive, high-quality and fast infrastructure is crucial in this sector. Even if it was not necessarily clear in the beginning, the IPS has been providing this to market participants. Beyond the tasks involving the project itself, the related developments also triggered progressive changes in the infrastructure and its operation.

The implemented development provides business protection to financial institutions, since the payments infrastructure offers state-of-the-art technology to the entire sector, ensuring high-level service capacity to all the players on the Hungarian market. This means significant and reliable advantage in the strategic competition against outsiders.

WHAT EXACTLY WAS THE CHALLENGE?

First, despite the potential benefits, commercial banks unanimously agreed that such a big project cannot be completed in the given timeframe. Of course, every player saw their own tasks, but I, as the leader of the nationwide project, had to consider 38 equally important projects when we started, and I had to make sure that the joining clearing members were ready for the planned go-live of the instant payment system. Of course, there were bottlenecks, mainly in terms of IT capacities. Sometimes the uncertainty of some professionals was also palpable, as is usual in the course of the establishment of every fundamentally new thing. The challenges included the doubts surrounding customer needs, the rethinking of the existing infrastructure and the development of the environment necessary for the new service. Often, managers had to convince owners sitting in faraway offices that this was not simply another service launched based on a central decision but the modernisation of the whole of the payment infrastructure.

The different mode of operation, processing time and transaction preparation as well as the security solutions required trailblazing solutions from every player; a total and comprehensive restructuring, professionally aligned processes, new procedures, exceptional operational security and previously unthinkable IT capacities. This was uncharted territory for most of us. Unprecedented resources were mobilised, mostly intellectual, perhaps less material. Depending on the complexity, the headway made in the different financial institution projects was defined by knowledge and cooperation. The high-octane performance in the individual projects could provide a sound basis for the common task, the creation and operation of the national payment system. The word 'system' was key, because it focuses on joint performance rather than individual efforts. And if anything, this remained in the focus throughout.

Every single player realised that besides their individual responsibility, they also had an important responsibility towards the community. Strangely enough, outstanding individual performance did not guarantee good performance as a group. The real breakthrough came when individual responsibility turned into shared responsibility at some point during the process. This was tangible in the phase following the project's extension, where every player understood what the above meant. They saw that they had to do something for the others as well as for themselves. This represented a step change in the evolution of the project. With faith in the profession and our colleagues, we knew that the project would be successful.

Immense amounts of energy were mobilised, this time without consideration or restraint. From that point on, everyone was aware of the key to successful progress. With this attitude, the joint workshops, the regular and focused ad hoc expert meetings eliminated the effect of fatigue and the inevitable slowdown, the fading light of inspiration was in full blaze once more. Of course, there were pessimists, some lacking in faith, some arguing from experience, but none had malicious intent. Interestingly, even pessimism seemed to have contributed to success because, thanks to our arduous efforts, the solutions started to work and the first completed complex tests started to appear at the institutions with fewer and fewer errors. We started to operate together, that is to co-operate. It does not matter which came first.

A CLOSER LOOK

Let us take a look at the process through the lens of the above in the order it actually happened. The preparation of the regulatory environment was completed quite fast. The implementation phase of the project also demonstrated this. The firm professional stance was often contested, sometimes even concerning details, but it prevented the internal shifts in the development and rollout project from jeopardising the implementation and the fabric of the project from being destroyed. Naturally, there some events were unexpected, counterproductive and flawed decisions caused much headache to the developers and sometimes even set back the development process. Due to the complexity of the process, disruptions caused delays with spillover effects. This period was marked by shorter stretches of time fraught with policy discussions and conflicts and the solutions were not limited to the players experiencing the given problem. Such issues included the debates on digital signature and certain elements of the scheme, also the development of the model designed to ensure liquidity and the argument about flooding risk.

These issues cropped up as a result of the decisions made in the preparatory phase and the fact that they were resolved under the normal conditions was a major achievement. These were not the only bones of contention, but the others were not significant and were settled a part of the process. Often the hold-up was caused by interpretation issues, and the Q&A database, maintained by the MNB's relevant area and providing the most up-to-date information, proved to be a fantastic tool for clarifying them. This source of information offered very strong high-quality support (not only in work stages) to the various parallel bank projects.

The huge amount of tasks in the entire system could not be completed at the necessary speed. The problems with preparedness, scarce capacities, changes and decisions causing

slowdown in the process, slow working financial institutions and the institutions' desperate fight against time when they did not meet their own project deadlines were already apparent in early 2019. Preparedness data showed that although every player dedicated all their resources to finding solutions, the bottlenecks, the much greater than expected complexity and the resulting surplus tasks did not provide for a safe rollout. GIRO, the MNB and several financial institutions reported completion their projects, but this did not mean that the whole system was ready. Major players and significant tasks were delayed, so the testing, which would have made the rollout possible and safe, did not run long enough to allow the instant payment system to be responsibly launched on 1 July 2019 with all participants. It was decided that the go-live would be postponed. As we later saw, it was wise to provide a preparation period twice as long as initially contemplated. Every minute of the new period had to be used to ensure success.

If we would like to identify the key points in such a complex project involving so many participants and critical tasks, we have to say that broad-based and clear communication was essential. This was apparent in the information flows within and across the working groups and the diverse communication tasks of project participants; at the company level as well as the communication between the financial institutions' project organisations. This was embodied for example in efficient problem-solving. The issues were handled outside the relatively closed structure of working groups and in the ad hoc and recurrent forums, which had more leeway in terms of the topics to address. Examples include the Banking Association Working Group and the various workshops organised for solving specific issues and tasks.

In terms of communication, cooperation was also inevitable with players outside the sector, and such partners included the Ministry of Finance, the Ministry of the Interior, professional organisations (Association of Hungarian Insurance Companies [MABISZ], the Hungarian Chamber of Commerce and Industry [HCCI], county-level chambers, the Hungarian Venture Capital and Private Equity Association [HVCA]) as well as the large national backbone structures such as the Hungarian National Tax and Customs Administration and the Hungarian State Treasury. The multifarious nature of the information fabric was an inherent characteristic of the project, offering enjoyable opportunities for providing information about auxiliary services as well as for the preparation and support for major state level actors. The complexity posed a constant challenge, as it also called for supporting different levels of organisational and professional preparedness across the companies. The emerging changes also had to be managed, which required up-to-date professional competence.

TIPPING POINT

The most exciting part of the project was the obligatory test period, which showed the quality of our work and provided feedback on the shortcomings and achievements. After only modest success in the initial testing, the instant payment infrastructure gathered pace, started to evolve and come to life. Without exception, every participant worked on the security, coordination and performance of the systems. In this task as well, there was much ground to be covered before arriving at a common platform and achieving success. The sticking points included the testing concept, as the tests were very slow to show progress, numerous tests gave negative results. The system, believed to have been well-prepared, seemed to be falling apart.

Then we arrived at a tipping point, the moment when organic development began in the project, to which I have already referred to as a step change in the evolution of the project. The players, our colleagues realised within a short time that without cooperation, understanding each other's problems and changing their attitude the project was doomed to failure. We are not used to failure. Failure would have been huge and it had to be avoided at all costs, especially because we already had the key to success. This key was cooperation itself, by disregarding difficulties and negative precedents. The community of financial institutions provided a perfect example of this, for which they deserve full credit. It was important to succeed and finish this exceptionally demanding task. There were financial institutions that made the impossible possible despite the volume of their other tasks, while others grappled with delays, difficulties in solving the problems related to suppliers, issues caused by the central infrastructures outside Hungary and the extreme (un)availability of the specialists. There were some institutions, quite a few, actually, that finished everything on time and to the appropriate standards. But one thing was common in all players. Success required massive efforts and engagement.

The night of the launch was not without excitement, but as I saw it, during the last days everyone firmly believed that the work performed by them would be enough to ensure success. The first seconds and minutes went by with excruciating sluggishness, the data charts were filled painfully slowly, even though the transactions were executed within seconds. This all happened in the large meeting room of GIRO (the site of countless working group meetings).

At a summary and creative weekend held for managers quite a few years ago, I started my opening presentation with the following quote, the source of which I have now forgotten:

‘Ladies and gentlemen, please fasten your seat belts. This spaceship will now either lift off or blow up.’ Our spaceship lifted off. And we were there to witness it.

By a strange mercy of fate, I worked together in this project with a colleague who heard the above quote while sitting next to me. We worked hand in glove to help the spaceship lift off back then and now, too. In the past period many people requested a reset plan. When I heard this, I always thought about the above quote and that we often do not have the option to turn back.

ON FUTURE TASKS

There will be no shortage of challenges when it comes to the world’s digital development. Beyond the expansion in business uses, which is a natural requirement, every service, operation and resource optimisation function should work perfectly to our benefit. The established system holds enormous potential. Today, it only supports the financial institution system, but product development will make a real difference in areas not yet covered by digitalisation. Not only from the perspective of reducing cash, but also from the aspect of who will be the active players and users in this transformation—local governments, the education and healthcare system, transportation or the social sector.

We have lift-off, and we know that this spaceship has to fly perfectly for a long time, to everyone’s satisfaction.



Monika Németh

Leader of the Sub-Working Group on Market Services within the Working Group on Innovative Services in the nationwide project

Instant payments: The future today

The introduction of instant payments and the widespread use of the system's services are essential in today's technological and market environment to maintain the competitiveness of businesses and the country.

- Only awareness of real-time financial data and their immediate, automatic processing ensures fast and flexible response to the quick shifts in market developments.
- The range, price structure and price level of banking services are critical for economic development. It has become essential to use technologies facilitating cost-effectiveness.
- The well-functioning service ecosystem of card payment solutions has become an increasingly painful cost driver for merchants and service providers.

The capabilities of the instant payment system may provide a digital and cost-effective solution to the above challenges.

Isolated instant payment systems developed among industry players have been present in Europe for 8–10 years. Even the two most successful examples from Europe (Sweden and Denmark) show that even if market participants with a large customer base joined forces, achieving any meaningful coverage took at least six years. That is too much time. The MNB had two choices: follow the international examples and foster industry partnerships but in effect leave it entirely to the market to create instant payments, or use its regulatory instruments. The central bank wisely chose the latter option.

This decision expected massive investments from all the banks operating in Hungary, but it also laid the foundations of the long-term competitiveness of the entire Hungarian banking sector. The general obligatoriness also ensured critical market access, which is indispensable for generating any return on investment. (According to the MNB's Payment Systems Report, there were 8.4 million payment accounts accessible online in Hungary when the instant payment system was launched. This is the initial market size where the basic services of the instant payment system can be accessed since 2 March 2020.)

Besides the compulsory and well-defined basic services, the regulation also foresaw auxiliary, convenience services, but only established the framework necessary for ensuring fair competition and innovation. It was up to the service providers to define the technological and procedural open standards that ensure the freedom of competition and innovation, the safe provision of services and the unbiased framework for cooperation between service providers. One of the most exciting areas of the preparation was to outline the operational framework of the value-added convenience services developed for the instant payment infrastructure.

The instant payment system was established as a result of the close cooperation between the MNB, the banks required to participate and the technology companies and developers supporting the developments of the financial sector, in almost three years. The preparation was organised in the nationwide project created under the joint leadership of the MNB and GIRO, which developed and operates the infrastructure, in expert working groups. The MNB invited experts from several financial and non-financial policy areas to join in the common reflection.

I hereby wish to thank Executive Director Lajos Bartha for asking me to head the Sub-Working Group on Market Services within the Working Group on Innovative Services that developed the framework for the infrastructure's value-added services.

IMAGINING THE FUTURE AND DEVELOPING THE OPERATIONAL FRAMEWORK

The working group sought to find the points where an industry standard, recommendation or code of conduct had to be formulated so that value-added convenience services can be developed and provided to users through the instant payment system with low barriers to entry and under transparent conditions.

Let us see how and where we started. Together with technical experts well-versed in digital technologies, economists, IT experts, banking professionals, fintech firms, mobile companies, utility companies, merchants, checkout developers, card company experts and many others, we wanted to find answers to the following questions:

- In which typical situations can instant payment offer an appropriate value proposition?
- What is the value proposition that can convince cash users and increase the available market share?
- Since without a wide coverage the investment does not generate returns, which convenience services can be introduced for large numbers of customers and quickly?
- Who pays? What could be a sustainable model for the various convenience services?
- Will instant payments upend the card market? Are they friends or foes in the fight against cash? How to do this right?

After the analysis of successful international models, the following success criteria were determined:

- The continuous and close cooperation between the regulatory authority and market participants is crucial for market-building.
- The GIRO central infrastructure capacities and cost-driven, transparent pricing can help market-building considerably.
- The local (Hungary-specific) consumer issue(s) or need(s) have to be identified for which service providers can develop very simple convenience services that can be used with very low entry thresholds. This can generate the critical mass, which can be used as a basis for the value-added services relevant to other, smaller segments.
- In the case of these services, the priority areas need to be determined where regulatory intervention, standard or procedural recommendations or the development of a self-regulating code of conduct may be necessary.
- These processes and standards need to be developed together.

Based on international experiences and Hungarian purchasing and payment habits as well as the market environment, four typical situations were selected where the convenience services based on instant payments provide a real value proposition according to our team of experts:

- Purchases made at physical merchant acceptance points
- Purchases made at online stores
- Payments between individuals
- Bill payments

THE MOST EXCITING PHASE OF THE PROJECT THAT CALLED FOR THE GREATEST CREATIVITY AND PATIENCE

In addition to establishing the value proposition of instant payments' to users, the interests of the business players concerned in the process had to be explored to identify the drivers that enable the development and provision of the various services. The cooperation and development processes between business players had to be thought through from a technological, legal and business perspective. We learnt a lot in this phase of the project. The user-side service processes ('customer journey') were actually drawn up in parallel. Then the entry points critical for maintaining competition in the charted services were determined, along with the regulatory instruments that can ensure safe services and fair competition at the same time.

The joint policy work contributed to the open MNB recommendations facilitating the work of the developers and service providers of auxiliary services:

- Guidelines on the QR code data entry solution applicable in the instant payment system⁴
- Guidelines on the payment and data entry processes applicable in the instant payment system and on the standardisation of the basics of certain related business services⁵

MOTIVATING THE RETAIL AND SERVICES SECTORS TO INTRODUCE THE NEW SOLUTIONS IS INDISPENSABLE FOR THE SUCCESSFUL ADOPTION OF THE INSTANT PAYMENT SERVICES

Due to the lack of the necessary knowledge and competencies on the part of service providers, the value propositions of instant payments were initially unclear and the companies were not in a position to decide. Education in itself is not enough. Visible results can only be achieved through motivating companies and supporting them in identifying their business opportunities. To smaller service providers (e.g. tradesmen, smaller shops, hospitality, bars and restaurants, hairdressers), the available benefits and necessary steps need to be made clear tailored to their own business activities. It is very important that service providers with many clients (e.g. telecommunication providers, utility providers, insurers) should offer instant payment among their payment solutions. The project has shown that in the case of large enterprises, customised education and motivation are just as important as for small outlets.

⁴ <https://www.mnb.hu/letoltes/qr-kod-utmutato-20190712-en.pdf>

⁵ <https://www.mnb.hu/letoltes/fizetesi-folyamatok-utmutato-20190712-en.pdf>

All market participants have to pull their weight in market-building. Cooperation is key here as well. First, on 2 March 2020, the obligatory basic services became available in Hungary (instant credit transfer to bank accounts or secondary identifiers), but in the months following the go-live, banks and non-bank service providers started offering convenience services. The rest of 2020 and 2021 will be about market-building. The regulatory and supervisory authority and market participants now focus on encouraging the widespread use of the basic services and expanding the range of value-added services.

In September 2020, a new dimension of instant payments appeared: the central infrastructure now accepts batch transfers and requests to pay; batch requests to pay can be sent by non-bank service providers, too. Service providers can now collect their fees with a request to pay sent to a mobile number or email address, we do not have to remember the deadline for our children's school payments and in many other situations we can fulfil our payment obligations with a single click.

1 January 2021 is another milestone in instant payments: the Trade Act stipulates that every company with an online cash register has to offer an electronic payment option to their customers. Approximately 60,000 merchants and companies need to choose between card payments and instant payments in the next months. Since these merchants probably had not been using card companies' services for financial reasons, we believe that the Act will give a significant boost to the adoption of instant payments.

THE FUTURE IS ABOUT DEVELOPING REAL-TIME BUSINESS PROCESSES AND TRANSFORMING THE OPERATING MECHANISM OF THE ECONOMIC SECTORS

The establishment of the instant payment system and the introduction of the services is basically the banking sector's investment, but, if we do this right, its benefits will bolster the competitiveness of all the sectors in the economy in the medium and long run, and they may also change the operating mechanisms on the given sectors. Over the longer term, the operating mechanisms of the economic sectors other than the financial sector may be transformed, too. The widespread use of instant payment services entails the need to accelerate business processes and develop instantaneous response capacity.

Web shops, utility providers and insurance companies face especially exciting challenges: they need to make their business processes and decision-making mechanisms real-time if they want to remain competitive. The sectoral regulations will have to be revisited for

the transformation of the operating mechanisms and business processes in the different sectors.

INSTANT PAYMENTS: THE FUTURE TODAY

I hereby wish to express my gratitude for the work and thoughts of every member of the working group, and to Kristóf Takács and János Zátonyi especially for always answering our myriad questions with due consideration and endless patience.



Gábor Ákos Dávidházy

Leader of the Sub-Working Group on Public Services within the Working Group on Innovative Services in the nationwide project

Creating cooperation along value chains

BACKGROUND

In June 2017, I had the honour to be asked by Executive Director Lajos Bartha to lead the section of the Working Group on Innovative Services in the nationwide project on the establishment of the instant payment system (IPS) concerned with the opportunities for state use. I welcomed the professional challenge personally as well as in my capacity as the strategic and project director of Nemzeti Mobilfizetési Zrt., since the national mobile payment system project implemented by our Company in 2014 also focused on a unique and nationwide platform, which has been expanded with several 'smart' services since then. The nationwide instant payment system project was also connected to my everyday work. 2017 saw the establishment of the Electronic Payment Service Providers Association (EFISZ), thanks in part to two subsidiaries of the MNB (GIRO Zrt. and the Pénzjegynyomda Zrt.). When the EFISZ was founded, a strategic objective was to support the development of the Hungarian cashless electronic payment ecosystem and new service and business models. That is why I was happy that I could draw on my experience obtained in the above-mentioned previous nationwide project as well as the dialogue started in the established professional association, in a unique, nationwide project that is considered exceptional even by international standards, and whose national economy impact may be huge in terms of reducing cash use in the years to come.

SUNDAY BANKING

The central element of the IPS is its real-time nature, which means that banks process credit transfers within 5 seconds of their receipt, on a 24/7/365 basis. The service marked the beginning of a new era in the Hungarian banking system. Having familiarised myself with the operating rules of the instant payment system, I believe that perhaps the feature that brings real breakthrough in conducting personal and business finances and that facilitates and also transforms our existing payment habits and processes is the 24/7 access to the service. In view of the boom in 'instant payment' solutions in Asia, this undoubtedly is only the beginning, and the large number of auxiliary services built on the underlying system will be key in meeting the expectations regarding the new system.

Furthermore, I see a trend of the once-forgotten QR codes making a comeback all around the world. Asian examples highlight simple data entry methods, therefore I believe that QR codes will proliferate everywhere from commerce to transportation in the years ahead in Hungary and other parts of Europe as well.

I think that perhaps the most visible changes that the general public will encounter in their daily payments will be the request-to-pay services and the boom in QR codes.

PREPARATIONS

After the national project structure was established, two parallel auxiliary services working groups started operating: one of them included market participants, while the other mostly involved state players. The working group related to state use typically comprised representatives from state-owned enterprises, ministries, authorities, payment service providers, developers, institutions concerned with accepting electronic payments and the firms providing public payment services. One priority task of our working group was to explore the opportunities for using the instant payment service in public payment situations and identify the necessary collaborations; I am convinced that establishing these contributed significantly to the success of the project.

However, it was important to familiarise ourselves with the operating structure of the participating governmental actors to identify the areas of application, and this could only be achieved by knowing their IT features. We also found that as the technical implementation of the project progressed, the value chains where the stakeholders were addressed since the launching of the project were gradually taking shape and a professional dialogue started an evolving between the participants. Our work method was the purpose oriented

workshop, where a small team of experts discussed a predetermined payment situation in a focused manner. They provided feedback and policy proposals and comments to the nationwide project. After several expert workshops, a policy team within the nationwide project was formed, in which my colleagues, working alongside their daily tasks sometimes late into the night and occasionally on weekends devoted their time to the conceptual development of the individual payment processes to the best of their professional knowledge and I would like to express my gratitude to them for that.

The partnership discussions helped us identify the aspects that determined the technical, legal and operating conditions necessary for the successful implementation of the services. As the implementation progressed, there were increasing calls for a wider consultation, therefore we participated in numerous forums targeting a wide range of clients. One such special event was the specialist conference organised by the Hungarian State Treasury, then a 'Survey on the potential support for the introduction of the instant payment service to the Hungarian State Treasury' was compiled, which provided useful feedback for the nationwide project team.

The experiences from the expert discussions confirmed the need to target both state players and market participants and facilitate their closer cooperation, because the service would be developed as a result of the partnerships between them. After the series of policy consultations of the Innovative Services Sub-Working Groups we decided that for the sake of efficiency and information flows the two working groups would be merged, and that we should continue coordinating the policy work together with my colleague Monika Németh, by dividing up the sector-specific tasks between ourselves.

LAUNCHING OF THE SERVICE, FUTURE OPPORTUNITIES

It has to be noted about the IPS that it was the result of around four years of development, requiring a major transformation in the whole Hungarian banking system, particularly in IT. The instant payment system launched on 2 March 2020 is a true success story for all participants as the system is stable and the nationwide project has achieved its purpose. But, as we all know, the work has not stopped since the preparations for the appearance of auxiliary services (e.g. request to pay) continues. This triggers new ideas not only at the financial institutions but also in other sectors, such as the insurance sector or utility companies. I believe that unlike in the initial period when we were still familiarising ourselves with the world of instant payments, we now have established professional competence that can identify business opportunities beyond the technology. One thing is for certain: if anything hinders the implementation of a new system, it is never technology.

Without the collaborations along the value chain, at the end of the day all we see is a completed IT project—without the services. The continuous education of the public is also important, and it has to begin in the higher grades of primary school because our children grow up in this instant payment world; they take the real-time services for granted.

The partnerships established during the instant payment system project guaranteed the success of the launching of the service, and they will also guarantee that its application will appear in our everyday lives. I hereby wish to thank the members of all working groups and my colleagues and partners for the joint work in the recent period.

IV. Instant payments as a tool for modernising public finances



Dr László András Borbély

Vice President, Hungarian State Treasury

The Hungarian State Treasury joins the instant payment system

BACKGROUND

The Hungarian State Treasury concurred with the Magyar Nemzeti Bank's opinion in 2016 that it was time to introduce a new payment service that reorganises the low-value credit transfer and request-to-pay transactions and also challenges cash use and the newly emerging other electronic payment solutions. The Treasury expressed its support to the MNB in enabling electronic solutions for state payments by providing a convenient and fast money transfers to individuals and companies engaging in payment transactions with the state.

When the project started, the Treasury had already been advocating the formation of a consultation body that would help in efficient information sharing related to the development of the proposed concept and coordinate the development and testing of the central system and the banks' own systems. The Treasury indicated to the MNB that it wished to participate in the nationwide project. Following the approval by the Financial Stability Council of the MNB in 2017, one of the most important medium-term developments in the Hungarian payment infrastructure got under way with the nationwide project for the implementation of the instant payment system.

In the nationwide project, the Treasury took part in the following working groups:

- Bank Participation Working Group
 - Business Sub-Working Group
 - Liquidity Sub-Working Group
 - IT Sub-Working Group
 - Testing Sub-Working Group
 - Security Sub-Working Group
- Innovative Services Working Group
 - Market Services Sub-Working Group
 - Public Services Sub-Working Group

THE TREASURY'S POSITION IN THE NATIONWIDE PROJECT COORDINATING THE INTRODUCTION OF THE INSTANT PAYMENT SYSTEM

In accordance with the stipulations of MNB Decree No. 35/2017 (XII. 14.) on the execution of payment transactions effective since 2 March 2020, the participation in the instant payment system (IPS) was compulsory for all clearing members.

The Treasury's situation was peculiar from several respects when it joined the IPS rollout process. This was due to the following:

- Most of the Treasury's clients are special organisations (public finance and other Treasury funded institutions) that are characterised by high-value, pre-checked individual payments.
- Whenever, exceptionally, the Treasury transacts low-value payments, those appear in a contracted form, predictably, on specific days, such as the payment of pensions and other benefits. Processing this large number of transactions imposes a great burden on the banking sector, therefore at the current level of development it requires special treatment, such as night clearing.
- Due to the special client base, the receipts are mainly comprised of a large number of mostly low-value transactions on special days, principally on account of tax and contribution payments.
- At that time, the Treasury was just about to replace its payment account system, which is expected to become fully functional in 2022.

Taking into account the above, the Treasury was planning, with prior approval by the MNB, to first only join the IPS on the receipt side at the time of the 2 March 2020 go-live. Due to tax payments, participation on the receipt side is key. Yet, it seems reasonable to postpone participation on the payout side, mainly on account of the special handling requirements and the replacement of the account management system.

Participation on the receipt side means that transactions sent by other payment service providers to customers' payment accounts held with the Treasury through the GIROInstant system at any time on the current day are processed and then credited to the institutional customers' forint-denominated payment accounts with a current day value date.

PREPARATION FOR THE INTRODUCTION OF THE SYSTEM

The Treasury-internal Project Working Group was established in line with the above. The internal project's objective, scope, organisational structure and operating rules were precisely set out.

The planning, regulation, testing and implementation of the participation took over two years. The development was heavily influenced by the fact that the Treasury's customers with electronic access currently only have offline access to the payment account management system, therefore the following main development avenues were identified:

- the Treasury connects to the IPS through a front-end system;
- the currently functioning forint account management system had to be prepared on the receipt side to provide clearing;
- on the Treasury's website, an Integrated Query Platform had to be developed, which allows customers to obtain up-to-date information on the transactions received by the front-end system;
- a special robot should be developed that provides instant direct notification on the transactions received by the front-end system to the institutions requesting such a service;
- hardware capacities to be expanded;
- the link between the special customer accounts of the securities trading system and the IPS has to be developed to ensure uniform ledger posting.

The development of the front-end system required the involvement of an external supplier, while abiding by the stringent rules on public procurement procedures. The business needs were formulated in the project preparation phase; so were the technical specifications formulated in cooperation with the external supplier and the necessary hardware (server) capacities were assessed.

During the implementation phase, the supplier performed the developments, server capacities were improved and internal testing was conducted. Following the integrated testing, the identified issues were first resolved and then tested once again. Successive enhancements of the external supplier's system were necessary during the development to ensure that the IPS remains fully operational even during days with an especially high volume of transactions. For example on tax payment days, more than 700,000 transactions are received, in a concentrated time frame during usual business hours, particularly close to the opening time. Yet the majority of the transfers are below HUF 10 million, so they were expected to arrive in the IPS.

MAIN FEATURES OF THE NEW SYSTEM

By the time of the go-live, the internal regulations, customer information documents and the Treasury's Business Rules and Terms and Conditions had all been prepared.

With continuous master data and balance synchronisation, daily operation is conducted on a front-end system. At the end of the day, the closing holdings are generated following the 'ex-post' clearing of the forint account management system. An account statement is prepared for all calendar days, which can be accessed by customers from 8:00 a.m. on the following working day.

The transactions received through the IPS on the forint accounts of the beneficiary held with the Treasury can be viewed online on the Integrated Query Platform. The National Tax and Customs Administration receives immediate, online notification about the transactions received in the front-end system.

The Treasury initiates the payment orders submitted by its customers with unchanged conditions, individual transfer orders continue to be settled through the InterGiro2 intraday clearing platform (IG2), batch transfer orders, direct debits and official transfer orders are submitted by the Treasury in the InterGiro1 overnight clearing system (IG1).

PARTICIPATION IN NATIONWIDE TESTING

The technical participation in the new clearing system was preceded by a test and several months of testing on a live system. The Treasury's tests focused on various indicators (6-hour test, 24-hour test, TPS test) and sought to model the most sensitive problem points of the future live operation. Their continuous clearing was a precondition for clearing membership. In view of the Treasury's architecture and system features as well as the large number of transactions conducted by its customers, the tests mostly focused on reaching the maximum possible receipt-side processing capacity per second (TPS) and the preparation of the current Treasury systems for the IPS.

As a result of the test and the live testing during the pilot period as well as the developments, the Treasury successfully met the business and performance requirements, therefore it was awarded the IPS Technical Quality Certification on 6 February 2020, which continues to allow our institution to conduct transactions in the GIROInstant system. With the certification, the Treasury now accepts the IPS transfers sent to its customers' accounts every day. While ensuring uninterrupted daily operation, the Treasury's payments and IT areas and LIB Számítástechnikai Kft. that developed the Treasury's IPS front-end system contributed considerably to the successful participation in the new clearing system through their dedicated work.

EXPERIENCES FROM THE PERIOD FOLLOWING THE GO-LIVE

On 2 March 2020, the day when the system went live, the Treasury received and booked 42,616 transactions, amounting to HUF 4,290,287,832. In the first five months (until 31 July), a total of 6.5 million IPS transactions were received, worth over HUF 926 billion. In the same period, the intraday clearing system (IG2) continued to receive a considerable number of transactions worth a large amount on the Treasury's accounts. We are looking forward to September, when even batch orders can be executed in the IPS, therefore we are expecting a regrouping of transactions from one system to another.

The Treasury is committed to the continuous development of its payment services. During the sub-project 'Introduction of an account management system' of Special Project No. KÖFOP-1.0.0-VEKOP-15-2016-00024 'Family support and pension in the 21st century', it rolls out a new multi-currency account management system. The Treasury is foreseen to participate as a sending IPS member when the system goes live, first to institutions outside

the Treasury customer group as well as those investing in securities, then from 2022 it will open up the service to all its customers.

We hereby wish to thank GIRO Zrt. and the Magyar Nemzeti Bank for their coordination work during the nationwide project, as well as the tireless efforts and exemplary cooperation of the Hungarian clearing members who took part in the tests.



Attila Polcz

Customs Brigadier General and Special Director General, National Tax and Customs Administration

The introduction and utilisation of the instant payment system at the Hungarian National Tax and Customs Administration

The Hungarian National Tax and Customs Administration (NAV) is one of the most important public administration players using the IPS. Owing to its capacity as a service provider, the tax authority was interested in establishing a system that benefits taxpayers and improves customer experience.

The essence of the IPS is that in the case of individual transactions below HUF 10 million, the transferred amount must be booked on the target account within five seconds so that the beneficiary can use it. A main feature and major advantage of the system is continuous operation on a 24/7/365 basis.

THE IPS AS A NEW OPPORTUNITY

Although in the given legal environment the introduction of the IPS was only obligatory to payment service providers, the Hungarian State Treasury (MÁK) decided in May 2018 to join the IPS on the beneficiary side, to accept the transfers initiated by the payment service providers to the payment accounts it manages, without initiating credit transfers through the IPS. This decision indirectly affected the NAV, too, because its account-servicing payment service provider is the MÁK.

The NAV has realised that since payment service providers are required to use the IPS under certain conditions, therefore NAV customers can easily access the system and enjoy its benefits, irrespective of their bank or payment service provider. Thus the tax authority decided to accept the Magyar Nemzeti Bank's (MNB) request and participate in the working group exploring the application opportunities of the instant payment service for the state.

PRELIMINARY IDEAS

The NAV aims to develop a system that helps it gain truly real-time information about its customers' transferred payments, so that it can take them into account without delay in the tax authority's procedures. For example, it is easy to understand the assistance and convenience offered to taxpayers if they can obtain their no-debt certificate immediately, because they can pay any outstanding amounts through the IPS wherever they are, in a fast and simple manner. The tax authority will also have reliable information about this in real time. Therefore, due to its special significance, the introduction of the IPS received special attention at the NAV.

THE PROJECT

According to the original plans, the MÁK accepts the transfers through the IPS, sends a receipt for them, but the accounting processes are only run later, as booking only happens at the end of the day. The Treasury's balance statements are also compiled together, at the end of the day, before being sent to the institutions. As a helpful tool, it provides a query platform for reviewing the notifications to its customers, including the NAV.

To the NAV, this idea did not seem beneficial, because it has a large transaction volume. Since information on the IPS payments is only available at the end of the day, in every administrative case where a payment may be significant the payments would have to be checked manually on the unique query platform. This would slow down the workflow considerably and undermine the quality of the service provided to customers. Another solution had to be found.

The policy consultations between the MÁK and the NAV outlined a solution. As implemented, the solution ensured the necessary automation and that the tax authority can take into account instant payments in as many procedures as possible. Two working groups were set up within the NAV on 25 March 2019 to realise this concept and the tasks related to the rollout of the IP: one of them was in charge of establishing the data

link between the NAV and the MÁK, the other was responsible for meeting the policy requirements. All NAV policy areas were represented in the latter.

The tasks of the working group charged with establishing the data link included connection and load testing, receiving the data sent by the MÁK and their integration into the proprietary front-end module, and also shaping the diverse relations with the profession.

The working group in charge of laying down the policy requirements was tasked with assessing and coordinating the needs of the different areas. These were necessary to determine which specialised systems of the tax authority should be directly linked to the front-end module developed by the NAV and where to establish system–system links for the querying option to reduce the need for personal human involvement.

It also had to be assessed how the introduction of the IPS would affect the internal processes of the NAV, and it had to be evaluated whether a legal amendment had to be requested at the Ministry of Finance. The policy working group's tasks included providing internal trainings for colleagues in areas affected by the operation of the IPS which also involved explaining its benefits to customers.

THE INTRODUCTION OF THE IPS

The system developed as a result of the external policy discussions and the internal workflows and launched on 2 March 2020 fulfils what the NAV originally had in mind. The tax authority receives up-to-date data on the transfers received through the IPS, which are then stored in the front-end module until the account balances are received from accounting. This allows the NAV to automatically associate the received payments to a taxpayer, at least those where all the necessary data are available, therefore it can now take them into account in its procedures automatically.

On weekdays, the MÁK, at the NAV's request, sends a preliminary summary of the account balances before sending the final version with all the data for the day. On weekends and holidays the tax authority only receives the final account balances. Based on the account balances, the NAV records the payment on the tax account and deletes the instant payment data from the front-end module.

The go-live was successful for the NAV as well. The smooth introduction is a huge achievement for such an enormous nationwide project with a large number of participants.

UTILISING THE SYSTEM IN THE NAV'S PRACTICES

In practice, for the NAV, the introduction of the IPS means that in certain procedures taxpayers' payments have to be taken into account immediately, prior to booking. As originally planned, if taxpayers need a no-debt certificate but they have tax arrears, they can transfer the necessary amount immediately using the IPS. To check whether they have any tax arrears, they can easily query their tax account through the eBEV system with a Client Gateway access.

The crediting of the transfer received through the IPS can also be checked on the eBEV platform, therefore the payment made in this manner shows up in minutes as an 'item to be recorded in the books'. If taxpayers request a no-debt certificate after this, the NAV takes into account this item to be recorded in the books when issuing the certificate. The few minutes of processing time are necessary because of the verification of the payment data transmitted by the MÁK.

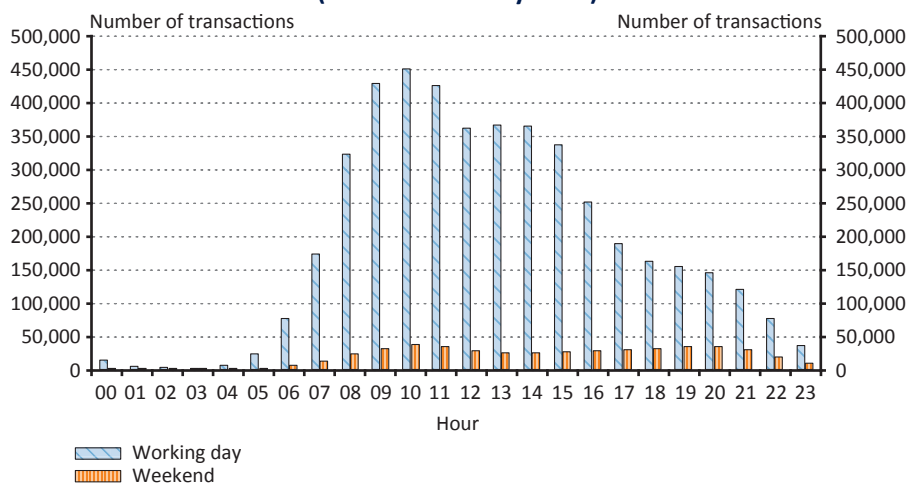
IPS payments can be taken into account in several other procedures where the NAV examines arrears. Let us see a non-exhaustive list of examples:

- determining taxpayer arrears and launching or terminating enforcement actions;
- exercising withholding (lien) rights in public-law debt management;
- making decisions on cancelling tax numbers due to the failure to pay the tax payment collateral supplement;
- recognising EKAER risk collateral when determining net tax liability;
- when the customs penalty levied in an accelerated procedure or the excise duty penalty levied in an accelerated procedure is paid through the IPS, the balance qualifies as having been paid on the spot.

Since the go-live, around 44 per cent of the bank payments to the various tax type accounts held by the NAV were made through the IPS.

The experiences so far show that customers mainly use the opportunities offered by the system during working hours and during the early evening, weekend transfers are less typical.

Hourly distribution of instant payment transactions on working days and weekends (2 March – 14 July 2020)



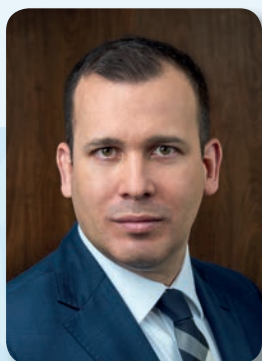
THE FUTURE

The service can be made even more convenient and customer experience can be further enhanced by performing additional fine-tuning on the system. For example, the option to use the tax identification number as a secondary identifier should be considered. If more customers used this, or its application were to be made compulsory, the payments to taxpayers would be easier, because the tax identification numbers are part of the NAV's core records. Therefore bank account numbers would not have to be submitted for payouts. At the same time, this solution would allow the NAV to send requests to pay based on the tax identification number in certain procedures. (Requests to pay are standardised messages in the IPS on initiating payments, which contains at least the information necessary for submitting an instant credit transfer. This is intended to automate the submission of the instant payment order for the payer.)

The opportunities for using the QR code standard developed by the MNB and GIRO Zrt. should also be explored. The QR code itself would contain all the information on taxpayers' payment obligations, allowing taxpayers to fulfil their obligations immediately, for example related to relevant decisions (e.g. payment relief, payment notification, tax payment).

Instant payments clearly offer several opportunities due to the state-of-the-art solutions in digital payment options. We hope that many more of these will shortly be implemented at the NAV.

V. 21st-century customer experience in payments



Dr Koppány Tibor Lélfa

Chairman & CEO, Budapest Bank Zrt.

Teamwork can help in realising even the most ambitious plans

In the history of Budapest Bank and the entire Hungarian banking sector the introduction of the instant payment system has undoubtedly been the most complex and difficult task, requiring the highest levels of discipline. On 2 March 2020, we completed a project lasting about 2.5 years, although this does not mean that the tasks related to the system have all been completed. The rollout enabled 24/7 operating times for electronic transfers, therefore we can rightly claim that the system has a major impact on several walks of everyday life and it will continue to do so thanks to the increasing number of additional services built on it.

Owing to the digital services that have been widely adopted in recent years, it has become clear that bank customers increasingly demand solutions that are fast, simple, do not require personal presence and sometimes are not even tied to operating hours. In the banking sector, new solutions appear from time to time that fundamentally change our payment habits. The instant payment system stands out even among these. All stakeholders knew that this new payment solution would have a very positive effect on the customer experience and play a central role in reducing cash payments, therefore despite the great challenges of the project, the advantages clearly tipped the scales towards introduction.

Bank experts had already known instant payments from other schemes already operating in some countries, but the foreign examples often did not involve such an ambitious project as the introduction in Hungary. The planned go-live was preceded by an effective preparatory

period, so it was known in advance that an established system would be introduced that passed live tests and was operating reliably.

At Budapest Bank, over 100 employees worked on this project, including IT experts, project managers and business areas. The other very important factor was that practically consortium level cooperation had to be established: we collaborated with Takarékinfo, our key supplier, and also with MKB and Takarékbank to deliver a common system in which Budapest Bank's systems were integrated. The significance of the project is also attested by the fact that the Magyar Nemzeti Bank devoted more attention than ever before to the process of system development, so they always knew exactly how the banks progressed with the preparations.

In connection with instant payments, two things were obvious: first, that there would always be problems with systems like that, and that the closer we would get to the rollout, the more problems would arise. But we also knew that we had a highly dedicated and professional team, so we were sure that we would solve everything by the deadline.

The long months prior to the launch required great discipline from my colleagues working on the project, since the MNB's test run requirements were understandably high. During the live testing, errors kept cropping up from time to time, and solutions had to be found quickly, creatively and flexibly. The workers of Budapest Bank and the other banks joined forces to eliminate these as soon as possible. At Budapest Bank, during the live test run of the pilot operation robots simulated the customers, whose actions, together with the systems conducting live instant credit transfers, were monitored by our colleagues around the clock. This required massive efforts, but it was necessary for success. Something that was truly helpful was the culture of cooperation characteristic of Budapest Bank and I am especially proud that our performance stood out within the consortium.

I did not sleep too well on the night of 1 March 2020. I was eager to test the system myself. All my colleagues were relieved when we were testing the transactions one minute after midnight, and everything worked smoothly like clockwork. Everyone kept sending transactions of HUF 1–100 to try out the service. It was a once in a lifetime experience that we will always remember.

We rearranged one of the larger rooms in our office building so that our colleagues from the various areas working on the project could keep watch during the weekend before the go-live and for 72 hours after that on site. We were able to tackle several minor issues quickly and effectively and fortunately there were no critical incidents. This was a huge

relief. In the first 72 hours of the transition about 150 employees were working in shifts during which roughly 40 family-size pizzas, three shopping trolleys of soft drinks and snacks and huge amounts of coffee ensured that the people would 'survive' this period.

Naturally, the work did not end after the 72 hours following the go-live passed, because instant credit transfers have to be executed on a 24/7/365 basis. Making this work presented a considerable challenge to the whole banking system with respect to IT solutions and human labour as well. To provide 24/7 access, several developments had to be completed in our account management systems, the fault tolerance of the IT solutions had to be increased and the on-call IT duty had to be reorganised. A new position was created at the bank to manage these and the colleagues working in this role were tasked with eliminating the errors in the instant credit transfers as soon as possible.

The introduction of the instant payment system is another success story for Budapest Bank we can all be rightfully proud of: the system was successfully launched as planned. Also, the go-live was well-timed by chance, as it happened a couple of weeks before the coronavirus pandemic hit Hungary, allowing customers to familiarise themselves and get used to the operation of the new system that oiled the wheels of electronic payments exceptionally well while the conditions were still calm. Thanks to the preparedness of Hungarian banks, the IPS has been stable since its launch, operating reliably without any major incidents. Customers welcomed it; they have shown steadily increasing confidence in transferring money outside the usual weekday time slots.

Instant payment is a huge achievement: the fact that today credit transfers are executed in five seconds represents a resounding success for the Hungarian banking system, impressive even by international standards. From the perspective of customer experience, it is very important that customers can send their money to the other party in real time, the amounts are also received immediately. Another accomplishment is that secondary identifiers have also been introduced, therefore for example mobile numbers and email addresses can also be used instead of the long bank account numbers that are difficult to remember; the request-to-pay service will also be increasingly available in the near future.

This project has moved our customers and our banks closer to a fully online a cashless society. This is a major opportunity to the bank and a huge challenge to our IT team, because this system has to be operated on a 24/7/365 basis. I believe that the introduction of the instant payment system is an achievement that not only we but also our children and grandchildren can be proud of. This system will still function in 10–20 years, and although

people will take it for granted, the developments built on it will fundamentally change the payment habits of our descendants.

Numerous new services can be built on the instant payment system in the next few years. First, Hungarian banks are now launching their request-to-pay service and the scope of secondary identifiers will also definitely expand, which may open up new, exciting areas in this field.

Instant payments can have a positive effect on e-commerce and the reduction of cash-on-delivery payments, since most market experts believe that this offers a more secure payment solution than bank cards, which is all the more important because in Hungary many people are still loath to share their bank card details when purchasing online.

The solution will increasingly be used in truly real-time payment situations, including in shops, at the hairdressers or at the covered markets. Merchants' applications will also have to be designed for these. The introduction of QR codes will also be important in this connection, and that is typical of the exciting developments where there are positive foreign examples.

Raising awareness among customers is key in the adoption of new solutions. This was clearly made easier by the Magyar Nemzeti Bank's campaign, just like the intensive and efficient customer information drives of the banks, including those of Budapest Bank. Mobile phone penetration in Hungary is sufficient for the widespread adoption of instant payments and the related payment solutions, but we can still see that the share of people using banks' mobile applications is still much lower than those using online banking or card payment solutions. Nevertheless, we expect that this proportion will surge in the future thanks to instant payments.



Dr Pál Simák

Chairman & CEO, CIB Bank Zrt.

The introduction of the instant payment system from the perspective of CIB Bank Zrt.

The first thing that comes to my mind in connection with the introduction of the instant payment system is that this was a large-scale and successful project in the history of the Hungarian banking sector, which is particularly special to me for three reasons:

- This was the first time when it was demonstrated that outstanding results that can be achieved through collaboration among the members of the sector, the MNB and GIRO. The regular consultations and information exchange helped a great deal in enabling the players in the sector to successfully complete this gargantuan task. This cooperation model was used to successfully join forces against the challenges posed by the coronavirus, and it has been proven several times since then that this type of collaboration is very good practice even when it comes to day-to-day operations.
- From a professional perspective the task was a truly exciting challenge. There are several developments in the banking sector that seek to enhance customers' everyday banking experience and the quality of the services; yet my colleagues were particularly keen to participate in this project among many others because instant payments are the basis for numerous future bank services, they play an instrumental role in fending off the challenges posed by fintech firms.
- What made participation in this project particularly valuable for CIB is that one of the pillars of CIB's strategy is digitalisation. The introduction of the instant payment system gave an additional impetus to that.

The consultations with the MNB on the rollout of the instant payment system started in the summer of 2017. CIB became an active participant of the consultations relatively early on partly because our parent company, the Intesa Sanpaolo Group, was already offering this service in Italy. Several aspects of the implementation that the MNB insisted all throughout the project seemed far from being straightforward or simple:

- execution of transfers in five seconds for domestic transactions in all electronic channels, even as the international norm had been ten seconds;
- ensuring 24/7 operation;
- obligatory participation for all the members in the sector;
- introduction on 1 July 2019, which left roughly two years for the development following the inception of the idea; an unprecedented challenge in international practice.

For CIB, the project started in late 2017, which was perhaps one of the factors why we were able to spearhead the development process. The largest project in recent years was set up back then: there were 6–7 workstreams, with the almost continuous participation of around 100 people, many of whom were specifically dedicated to this project. The costs were also worthy of a ‘mega’ endeavour. My colleagues were competing to participate in it, because they regarded it as a prestige challenge. A very good team was established representing almost all areas of the bank, because the introduction of the system affected practically all of our systems and business operations. In the words of one of our project leaders, ‘we were a truly passionate and dedicated team’. The project, simply referred to as ‘AZUR’ in-house, offered colleagues an insight into how a nationwide project can and should be run.

Although the rules set by the MNB and their consistent pursuance proved a trial of strength, in hindsight they definitely proved to be very useful: the central bank carefully assessed international experiences and picked a good system. Initially, there were many open questions as to the application of the decree, but these were clarified during the regular consultations within the Hungarian Banking Association. It proved to be a wise decision to make participation in the system obligatory: this is what truly ensured that the system worked for all electronically initiated transactions of under HUF 10 million across the country between any two banks. And it was also sensible to postpone the introduction by eight months, ensuring that all banking players would be safely prepared for the launch. We at CIB were ready with the necessary developments by the original deadline and to us this provided an opportunity to continue carefully testing the system. We were very pleased and proud to have been able to help others.

In-house, we first had to assess which road to take: to build on our existing features or choose a new solution. In the end, taking into account the resource requirements, we

decided to do the former, which proved to be a fortunate choice. At that time, intrabank transactions were already executed immediately in CIB and the related accounting technology and permanent availability parameters also necessary for the instant payment system were in place as well. Of course, there was still the occasional bump in the road, but having continuously consulted with our parent company and used its experiences and built on the extraordinary efforts of our suppliers and mainly my colleagues, CIB was ready to safely launch the system on the original go-live date. During the whole project one thing was sure and also our primary objective: to ensure the stability of core banking operations. This was the largest challenge and risk during our work. To offer another sneak peek into our processes, our system was built in a modular manner, the different functions went live one by one, and they could be switch on and off during testing. In the end, on 2 March at 0:00 a.m. a single button had to be pressed.

The launch was naturally surrounded by great excitement. All the participants of the project were present in our IT centre, their eyes on the projected clock around midnight, waiting to see what happened in the ensuing minutes and hours. It may sound conceited, but we were not concerned for ourselves in particular, but because we knew that this had been a truly great challenge requiring truly huge resources and even if the project participants supported each other all along, especially in the last extra six months, not everyone had a smooth ride. We now know that my colleagues had every right to celebrate: the launch was successful, and the instant payment system has been operating without any glitches since then.

Our accomplishments exceeded all our expectations: today 97 per cent of transactions are executed in two seconds. The experiences show that customers' habits have clearly been transformed since the rollout of the system. In the first three months, despite the fact that due to the pandemic work schedules had been modified considerably across the whole country and many people were working from home, 31 per cent of the transactions were initiated outside normal working hours. We gathered plenty of experience regarding immediate payment requests. For example in the case of emergency repairs or in consideration of online private lessons, some service providers ask clients to transfer the amount 'on the spot' once the work has been completed, so that they can see the amount showing up on their balance in seconds. At CIB, our customers can do this free of charge in compliance with the MNB's proclaimed concept and supported by the price setting method for the service provided through GIRO, namely that banks should use package pricing for retail customers and the individual transfers should not entail extra costs. The instant payment system can truly help realise the MNB's other intention announced at the

beginning of the project, namely that the economy should become increasingly cashless, transparent and digitalised.

The system, as established, is set to give impetus to further digitalisation in the future. One of the most straightforward options is the introduction of the request-to-pay or the mobile payment service. We may foresee with confidence that instant payment in the banking system will be regarded as naturally in the future as having electricity, heating or water in our homes. We will not be able to imagine living our everyday lives without it or how this could have been any different in the past.



Radovan Jelasity

Chairman & CEO, Erste Bank Hungary Zrt.

Erste Bank's four-year project: 25,000 person-hours on 53 systems

THE BEGINNINGS

In the spring of 2017, the news of a new, nationwide project, instant payments, spread like wildfire among our colleagues working in payment services. Unsurprisingly, at the first meetings, we mainly listed the questions. 24-hour balance management? What happens to the end-of-day closing? How to ensure continuous availability? What exactly has to be available on a 24/7 basis? What are considered secondary identifiers? In which situations are requests to pay useful? Which risks should we prepare for?

The longer we analysed the task at hand, the clearer it became that it was not simply a matter of 'expanding' the existing payment services. It meant systems and their operation. Architecture. Processes. Channels. Account statement and customer information. Besides payments, lending and risk management are also affected (as interest rates have to be calculated). The same goes for telephone customer service and for providing the information in our branches. Complaint management. Internal and external reporting service. It became clear that similar to the introduction of intraday clearing cycles in 2012, another new dimension will be added to Hungarian payment services.

We mulled over the solutions over and over again. We were looking for the place of instant payments in the everyday lives of customers and of the bank at various debates and discussions. However, the details just kept raising new questions. The number of the sub-cases to be solved increased. In the end, the number of the affected systems was over

50, and there were just as many suppliers to be coordinated. Business matters were built on the requirement of capping the processing time at five seconds.

Before such momentous changes, it is standard practice to take a look around the world and try to utilise the experiences and solutions of others. But here we could not do that. Although there were countries where instant payments appeared in 2018–2019, introduction was not obligatory anywhere. Besides the simultaneous introduction across the whole market, the capping of the processing time at five seconds meant much more stringent requirements than the previously known SEPA Instant. Therefore we could hardly draw on the experiences of the neighbouring countries. Since the rollout, we have shared our experiences and the lessons learnt at various forums.

We had a similar experience with the suppliers. They understood what the instant payment system was, but they had never been faced with requirements such as the Hungarian system demanded. We learnt this together and eventually formulated the solution jointly.

ON THE ROAD

Like the other market participants, Erste Bank started a project for the introduction of instant payments. The working groups within the project, business/IT/testing, tackled the tasks with continuously expanding capacities.

Based on the established system, the project team prepared a specification and a testing plan, negotiated with the suppliers and conducted integration tasks. It tested partial developments and then increasingly complex processes. Along a jointly agreed go-live strategy, it involved more and more elements in the live environment to ensure that these tasks would be completed ahead of the weekend before 2 March 2020. The success of this work is attested by the fact that Erste Bank sent the first successful instant payment transaction in Hungary during the nationwide live pilot.

One of the most burning questions was how to manage the rollout and long-term risks affecting the system. What happens in a system outage? How to strike the right balance between protecting customers' money and executing orders fast?

We can say that almost all the areas in the bank took part in the system's preparatory work. The members of this very diverse team sought answers to highly complex questions, and they had plenty of opportunities to familiarise themselves with the full impact mechanism of the payment process. We all participated in this massive learning process.

Even Erste Group watched closely what happened in the Hungarian project. We regularly reported to Vienna at the level of executives and experts as well.

NOVELTIES

Besides the basic requirements tied to instant payments, some easing elements of the payment order also appeared such as secondary identifiers and requests to pay, a new type of product. These concepts put services and products, earlier demonstrated by the ECB and seen in the fintech world only, on the roadmap of Hungarian payment services.

Debates could not be avoided here either. How to develop the most suitable solution for our customers' segments? How much will corporate and retail needs differ in terms of these services?

Just like banks in general, Erste supports convenient and broad-based solutions. But how can we achieve this if the standard of the instant payment system had already been developed, and the SEPA standard is still being formulated?

SIX MONTHS OF NATIONWIDE TESTING

Some people may claim that launching a service happens in a second. In a certain sense, this is true, and this is what happened early in the morning on 2 March 2020, as that was when the instant payment service became available to customers for interbank orders.

However, the preceding six months were necessary to come to that moment. I do not know whether any other banking market had seen such thorough and deep testing as we experienced in Hungary between September 2019 and February 2020.

We were testing day and night. On weekdays and weekends. From Monday to Wednesday, on Thursday and Saturday. We were testing using our in-house simulator. We were testing with selected partners on the market. With willingly cooperating banks. With a single partner bank. With all the partner banks that were available at the given time. We were testing functions and performance. And then analysed the results, again and again. We asked questions, discussed issues, fine-tuned settings, then tested again, and started analysing once more.

To us, the cooperation between GIRO and the banking sector's participants was especially instructive. Everyone fought their own battles with their own difficulties, but the common

goal and deadline, the professional community and helping each other contributed enormously to launching the instant payment system on the Hungarian banking market without any major flaws on 2 March 2020. The task was a great challenge, but I am proud that Erste Bank completed it to a high standard.

WE HAVE ARRIVED. HAVE WE ARRIVED? WHERE TO GO FROM HERE?

The system has successfully gone live. Between 2 March and 30 June 2020, Erste Bank alone sent or received almost 8 million instant payment orders. The average processing time of these orders was 1.16 seconds, less than 2 seconds in more than 96 per cent of cases. Over 40 per cent of the transactions were initiated at times when the given amount would only have become available on the next working day prior to the introduction of the instant payment system. Of the secondary identifiers, a novelty to customers, 7700 were registered, mostly mobile numbers and email addresses.

However, we are not at the end of the road yet. We are proud that Erste Bank was to first to announce the request-to-pay service to its customers which was very popular in March. Since early July, we have opened up this option towards the other banks, but the volume of such orders is currently low. We have to raise awareness among customers, and the service has to be made available as batch transaction to companies that collect money from a large number of customers on a regular basis.

Instant payment initiation through a static QR code built into mobile banking applications and the requests to pay initiated with a dynamic QR code are the way instant payments can truly become part of the everyday lives of a wide range of people.

Undoubtedly, the world is moving towards continuous, 24/7 availability in all human interactions. In the case of the forint-denominated payments, the instant payment system now provides a very firm footing. We have to continue building on this in the future to provide solutions to our customers that utilise the opportunities of real-time transactions. We have to press ahead on the road and we have many ideas left.

With respect to the instant payment system, Erste Hungary is the benchmark within the Erste Group, in other words it is a good example that a subsidiary bank may even surpass not only the parent bank but also several other, much larger and more significant subsidiaries and we are definitely proud of this.



Éva Hegedüs

Chairperson & CEO, Gránit Bank Zrt.

The introduction of the instant payment system from the perspective of Gránit Bank

THE IDEA OF THE INSTANT PAYMENT SYSTEM

I have supported the idea of establishing the instant payment system to modernise the Hungarian financial infrastructure. First, it was obvious to me that this was a fundamental development that would require huge human and financial resources from the banking sector, and in exchange the international competitiveness of the Hungarian payments market, including that of Gránit Bank, will improve. I knew that we could provide an experience to customers with instant payments that offer all the advantages of cash payments while being much safer and cheaper, therefore I was hoping that this solution would lower the current high share of cash transactions. I am an ardent advocate of competition, but the instant payment system is a platform where cooperation came first, where we worked closely together with GIRO Zrt., the Magyar Nemzeti Bank and the partner banks with full commitment to the task.

As the chairperson and CEO of Gránit Bank, I can say on behalf of all my colleagues that we are proud of our innovative digital solutions the business innovations that we introduced first, or among the first, and which we provide to our customers. We continuously strive to innovate, as who would not like to be among the leaders? We kicked off and implemented our entire project on the introduction of the instant payment system in this spirit.

PREPARING FOR THE INNOVATION

Assessing the tasks to be completed during the project took more time and effort than we initially thought. Even planning siphoned off massive resources, because the depth, breadth and complexity of the identified tasks were like no other previous challenge in any of the earlier projects. Due to the 24/7 availability, the concept of our entire banking operation had to be revisited. Before the introduction of instant payments, most people knew exactly that any amount transferred in the evening would only arrive at the recipient the next morning. The same goes for weekend transfers. This old mindset was blown away by instant payments and the associated 5-second processing time at a stroke. Not only did the customers have to get used to the changes resulting from the new system, we also had to develop a whole new workflow. The planning showed early on that almost every element of the infrastructure would be affected by instant payments. From the digital channels available to our customers through our account management system to the treasury module. We should not forget either about the tasks laid down in PSD2 financial directive, effective from 14 September 2019 and completed (as in several other financial institutions) by more or less the same project team at Gránit Bank.

LET US TAKE A STEP BACK

There was great pressure on the whole banking sector to successfully accomplish all planned developments by the originally planned deadline of 1 July 2019. Since the banks were in almost daily contact with the MNB, GIRO and the Hungarian Banking Association in connection with the instant payment project, the Magyar Nemzeti Bank was able to make the difficult, but in my opinion also responsible, decision to postpone the go-live of the system to 2 March 2020, since the advantages of the new system can only be enjoyed if all the players are prepared. This 8-month delay meant something different to everyone, but it soon turned out that the MNB and GIRO had very specific ideas for this period; they stipulated stringent pilot test requirements and it made the go-live of the banks in March conditional on the success of these tests. The testing showed that the MNB made the best possible decision by making the tests compulsory, and in retrospect I think that this decision facilitated the smooth go-live of the new service for all financial actors in March.

MAIN MILESTONES AND ACHIEVEMENTS

As noted above, we strove during the whole project to be among the first, so I was very proud to learn from my colleagues that the first instant credit transfer in Hungary on the newly built infrastructure was sent between Gránit Bank and Erste Bank.

Although the tasks of the test run required a considerable amount of extra work for those working on the project, requiring them to work late into the night on several occasions, their necessity and usefulness are indisputable. They brought together the different players, and as far as I know eventually everyone completed the tests by the deadline.

After the pilot period ended, there was a last large milestone to pass, the go-live of the new system itself. This gave meaning to our efforts that lasted for over two years, turning them into a tangible revolutionary innovation. The transition exceeded our expectations, and we felt as if a great weight had been lifted from us. It was exhilarating to see the plethora of low-value transfers made by us, partner banks, our friends and journalists. I was among the first to register a secondary identifier to my account number. As expected, the number of customer inquiries increased in the next weeks, particularly related to the launching of the instant payment system, but after 1–1.5 months this figure returned to the level seen before the go-live.

I believe that the instant payment system passed the test, in our experience the customers are satisfied with the new service and the potentials inherent in it are continuously being harnessed.

COMMENTS ON THE APPLICABILITY OF INSTANT PAYMENTS

The instant payment system brought about not only the 5-second 24/7 operation and the handling of secondary identifiers, but also the option of the request-to-pay service with which, it goes without saying, Gránit Bank had wished to broaden the range of its digital payment solutions.

Our stated intention was to make Gránit Bank the first financial institution in Hungary where the request-to-pay service launches on 2 March. In the end, this milestone was only reached a month later due to security concerns, but still Gránit Bank, together with Raiffeisen Bank, was the first to introduce this fast and convenient way of sending money. The launching of the instant payment system accelerated the development of state-of-the-art payment solutions, and I am convinced that the request-to-pay function is also such a premium offering.

It is difficult to predict the specific innovations in the years to come because they are shaped by the changing payment habits. Nevertheless, I think that the instant payment system and its auxiliary services, such as the handling of secondary identifiers and the requests to pay, still hold an enormous untapped potential. If the appropriate quality of the

service is ensured, it will also impact the other areas of the economy. Our aim has always been customer satisfaction and that is most often achieved through innovative solutions. We wanted to be the first to introduce requests to pay because this new payment solution can only become truly popular if more banks launch the service and if utility companies will request to collect a larger share of their bills using this modern method.

On behalf of Gránit Bank, I can say that we will always be committed to innovative solutions and will endeavour to ensure the digital availability of more and more products and services to the highest possible standard.



David Moucheron

CEO, K&H Bank Zrt.

Celebrating innovation in the Hungarian banking sector, and some behind-the-scenes information

‘Time isn’t the main thing. It’s the only thing.’

The above quote is attributed to Miles Davis, one of the most original jazz artists in the world, but this idea also applies to today’s banking habits. It matters a lot how much time we spend on everyday tasks, the time it takes to conduct a payment transaction, a credit transfer, searching for an ATM and other problems with money. Hungary’s financial system was taken to the next level in this crucial area, elevating it to the vanguard of Europe and the world with the launching of instant payments on 2 March 2020. The innovation practically eliminated time from everyday banking.

The idea of instant payments arose from new dimensions in communication systems, since earlier the simple transaction methods were aligned with slow and outdated data processing. It was time for the banking system to adapt to the benefits offered by the modern communication and data transfer services widely available in recent years, and to renew the payment system. This called for innovation and modernisation from the individual players and also coordinated development and close cooperation among financial institutions.

The extraordinarily fast instant payment system based on accelerated data transfer options paves the way for a boom in cashless solutions. Like most players on the banking market,

four or five years ago K&H also maintained that steps should be taken to reduce cash holdings and cash use, which were considerable by international standards. First, using cash is quite expensive due to the logistics, infrastructure and security system behind it, yet people do not necessarily see this in their day-to-day lives because the costs are dispersed among many transactions on account of the huge number of cash payments. Second, for many merchants, deploying a POS terminal was not a straightforward decision, for example due to limited monthly turnover. In many cases, the instant payment system can offer a viable alternative as clearly shown by the shift in banking habits caused by the pandemic in recent months. While a resource-intensive development is required for the electronic channels, in the long run this is the future. It is safe, fast, convenient, simple and cost-effective. That is precisely why the Magyar Nemzeti Bank's decision to introduce the instant payment system across the whole sector was exemplary and progressive even by international standards.

BUILDING ON SOLID FOUNDATIONS

At K&H we used a model to implement the instant payment system that supports the creation of various auxiliary services built on the core infrastructure and the basic payment services in the future. Thanks to these, both the existing payment service providers and new innovative entrants will be able to build further financial services fit for the 21st century and producing extra value added for consumers and companies alike.

ON A LONG, MULTI-LANE ROAD

The development of the brand new system took years of interbank cooperation the milestones of which will remain memorable. Prior to the project, in 2012, the Hungarian banking system had already been taken to a higher level as it cleared transfers within a day. In 2015, the Magyar Nemzeti Bank announced together with GIRO Zrt. (its own company) that it would establish a system executing transfers immediately and affecting all banks and all customers. We already knew that we had our work cut out for us, but we were happy to do it so that we could participate in the revolutionary overhaul of Hungarian banking. The project started four years ago, in 2016. The players in Hungarian payment services had three months to review the necessary steps.

Several areas of K&H were involved in the project from at the outset. Senior management was also engaged. Under the leadership of the product management team, technical feasibility had to be assessed mainly from an IT perspective, while collateral management had to be analysed for treasury. From the marketing aspect, customer and business needs

had to be considered, while the bank's legal experts reviewed the legal requirements. The comprehensive examination of the system, including the presentation of experts' opinion in writing and at personal consultations, posed an exciting challenge to K&H as it did to all banks. The Magyar Nemzeti Bank finalised its plan after assessing several rounds of consultation and feedback, so the implementation phase could begin.

Implementation raised new questions. How to start it? Which K&H Bank system should be first transformed in the project? How many people are needed? Who should be included in the team? These are just a few of the countless points that arose during the work. As time went by and we neared our objective, the launching of the system, all the colleagues working on the project felt that we were making history in Hungarian payment services.

The breadth of the project is demonstrated by the fact that 12 working groups were involved, making developments on a total of 17 systems and establishing three new ones. The project became international at K&H since besides the 200 Hungarian K&H employees several international—Greek, Serbian, Bulgarian, French and Dutch—colleagues assisted in the work. We also cooperated with Australian and Indian experts. Uniquely, the introduction of the system was also a milestone for one of our large global suppliers as this was the first such development for them as well.

TESTING, TESTING

Since we had to establish a system affecting the operation of the entire Hungarian banking system and all customers, we regularly engaged in weekend and night work during the nationwide testing to ensure that the tests were completed safely and successfully. In July 2019, transfers were executed not only on test accounts but also on accounts in the live system in pilot mode.

Yet despite all the excitement and joy of the work, there were some calamities. The amendments to the regulation and the changes that were introduced along the way placed a considerable burden on the shoulders of our colleagues. The nationwide go-live meant a special challenge due to the several consultations and tests necessitated by the different development statuses of the market participants. To put this into perspective: we ran over 5000 tests since practically every instance had to be completed successfully. We compiled accounts held by other banks and initiated transfer from or to them based on a schedule, and we checked how the money arrived, thereby collecting useful information for future operations.

As the go-live date of the instant payment system, 2 March 2020 was coming closer there were many people at K&H, just like I think also at GIRO, the central bank and the other commercial banks, who were anxious because this was an extraordinary development and a landmark innovation. We had a detailed schedule for the go-live at 0:00 a.m. on 2 March, where the bank's experts were present in person, waiting to see whether everything was alright.

Well, the system was launched without the slightest glitch. That day showed that the launching of the instant payment system was a success and every day since then has confirmed this. The results speak for themselves; until the end of May almost 6.5 million instant credit transfers reached their beneficiaries at our bank.

FIRST EXPERIENCES

I was especially glad to hear that K&H Bank had the largest number of transactions on the first day. This was the cherry on top, because our system passed the test from day one. We were excited to see whether our system and GIRO's system would withstand the load when the country woke up on 2 March. Could we ensure 5-second execution? Will clearing be alright? Will we have enough coverage? Today, most people, including us, practically take the instant payment system for granted. We have noted that people found the time saved for them by the new system a fantastic gift. Transaction volume is increasing after working hours and on weekends. It has become a matter of course that banking services are available around the clock, because it is easy to get used to good things.

SECONDARY IDENTIFIERS

The launching of the instant payment system was an enormous step forward partly because it introduced the so-called secondary identifiers. Thanks to this, the sender does not necessarily have to know the beneficiary's bank account number. If the beneficiary registered their email address, mobile number or tax number at their own bank, it is enough to enter one of these instead of the bank account number. K&H Bank was among the first to register secondary identifiers and they functioned perfectly even during testing. This solution has become an unqualified success among K&H customers: In March, the month of the introduction, 35 per cent of the secondary identifiers recorded at all banks nationwide were registered by K&H customers. This solution which simplifies credit transfers significantly may, in the long run, render the lengthy bank account numbers obsolete.

THE FUTURE

The rollout of the instant payment system is not only important because retail credit transfers now reach their destination in five seconds. The above-mentioned secondary identifiers make transactions much simpler and more convenient. This system will form the basis for the requests to pay that will soon appear and may even replace payments using the traditional yellow payment slips. Utility companies can send out requests to pay about the monthly bills, and if the client approves the amount, the payment is executed immediately.

The system also provides a new pillar to the Hungarian insurance market. Thus, K&H Biztosító recently introduced instant claim payments: payments can be made right after the damage assessment. The list will only grow in the future because instant payments pave the way for the development of numerous new, imaginative solutions. At K&H, innovation, digitalisation and facilitating customers' financial transactions are our priority and the basis of our strategy.

To loop back to Miles Davis: when it comes to credit transfers, Hungarian customers can now practically ignore the only factor that the musician held in such high esteem.



János Nyemcsok

Deputy CEO, MKB Bank Nyrt.

Instant payments: From the beginnings until the implementation

0:00 a.m. on 2 March was a great moment in the life of the MKB IPS project team, when senior managers of MKB and several colleagues working on the project tried the live instant payment service in the executive meeting room of MKB Bank's office building in Kassák Lajos utca. The next couple of minutes were spent with registering secondary identifiers and sending transfers to each other, followed by exchanges of 'Did you get it?' and 'Yes, I did!', and we were relieved to see that we can enjoy the benefits of almost two years of hard work. Besides the core project team, whose every day had consisted almost entirely of the implementation of this task, there were hardly any organisational units in the bank that did not work on IPS tasks. Our business and IT colleagues provided special proof in the last months that together, through joint efforts, MKB can solve a huge number of tasks and last-minute challenges. It was uplifting to experience together with the entire organisation how quickly the solutions were found together with the suppliers to issues that we had previously not encountered for some reason: new code sections were written, these were installed on the test environment and the testing team went ahead and started checking them. This helped us in developing a service to our customers that allow their forint credit transfers of up to HUF 10 million to reach their destination in a couple of seconds, on a 24/7 basis. The success of the IPS was due to real TEAMWORK!

But how did we get there? In the spring of 2016, when the MNB's consultation document entitled Options for the implementation of the instant payment service in Hungary was published, the date for delivery seemed a long way off. MKB's management, welcomed the MNB's proposal and treated the task as a special priority from the first moment. At that

time, our bank was in the middle of a digital transformation project which was unique in the Hungarian banking sector because it sought to renew not only the electronic channels directly providing customer services but also our account management system that lay at the heart of our bank. The programme's aim was to create products and channels that meet today's digital challenges and expectations that help us provide our customers with a wide range of high-quality services in digital space. For this reason, our management saw an opportunity to utilise the full potential of the new account management system, and picked right system with this purpose in mind. Right from the beginning, MKB did not consider instant payments a system that simply directs IG2 transfers to another, faster channel, but, as suggested by the title of the MNB's document, something much more than that. It was seen as a new dimension that would help us expand our electronic transactions, meet client needs that we had not had the opportunity to meet in the existing framework.

2016 saw the rise of fintech firms, a danger posed to the banking sector since these nimble little businesses would soon grab large slices from the most profitable activities of the bulkier banks that are slower to introduce innovations. Back then, the banking sector was convinced that customers were satisfied with the available credit transfer services, that if a credit transfer was initiated it would reach the beneficiary in a couple of hours during working hours, but if the money was sent outside working hours it arrived at the bank account on the morning of the next working day. It was clear that the banking sector by itself would not and could not have dramatically transformed the payment system. Therefore by today the services of some agile firms entering the market would have posed real danger even in the case of high-value transactions.

The MNB acted boldly by international standards, setting a very ambitious target: an execution time of five seconds for the credit transfers, which foresaw a fundamental change in the operation of the financial sector and the customers. Besides accelerating credit transfers, the introduction of secondary identifiers was another progressive plan, bolstered by the auxiliary services, especially the encouraged development of the request-to-pay service. Compared to several international examples, another major difference was that participation in the instant payment system was not voluntary; the MNB prescribed an obligatory deadline for all players, thus preventing the emergence of fragmented, possibly even incompatible, payment solutions on the Hungarian market, which would have hindered the further development of the financial system and the widespread adoption of electronic payments in the long run.

At first, the establishment and operation of the required payment system that worked on a 24/7/365 basis also seemed to be a tall order and the questions just kept arising. How can

we ensure that customers can make transfer anytime if version updates in NetBANKár and our mobile application service allow downtimes? While the bank's account management system operates around the clock, it is only available for executing transfer transactions outside the bank during working hours; after that, the end-of-day closing has to start. How will we solve this problem? The transactions executed until midnight need to be booked for that day, therefore the meaningful part of the end-of-day closing can only begin after that. How can we expedite this process without jeopardising next day's opening? How can we execute the transactions in five seconds, as expected by the MNB? The task seemed to be huge not only from an IT perspective but also from the aspect of banking operations: professionals should be on-call around the clock to respond to customer complaints immediately, because if a higher-value transaction gets stuck somewhere, customers will surely do everything they can to rectify the issue and make the transfer reach its destination. Our bank security also listed the challenges: transactions are executed night and day so fast that customers' accounts can be wiped clean in a matter of minutes, the traditional fraud control solutions would not be enough to tackle this. When transferring with a secondary identifier, there is a high chance that due to a typo in the email address or mobile number the transaction goes to the wrong destination. How will customer complaints be addressed? In the meantime, the countries that had launched the request-to-pay service had already started reporting their negative experiences. How will we manage these?

In the first period, the number and significance of the questions to be answered just kept increasing. It took a couple of months for the expert team to find the solution for these issues. The IT implementation plan was drawn up, the IT developments were ordered, and the suppliers left to do the development. In the meantime there was no rest for the bank's project team either: topics and questions were raised at the GIRO consultations and working group discussions that shaped the solutions. During the first months of 2019, the project gathered pace once again: the suppliers returned with their IT solutions, and their integrated testing could begin. The whole year was spent working with a very tight schedule: large resources were tied down first by the preparation for the voluntary tests, then from September by the intensive testing period prescribed by the MNB. The events confirmed the MNB's decision: only an obligatory and supervised test period could help the entire banking sector in finishing the developments by the deadline. The first two months of 2020 were about the finishing touches: customers and the bank's organisation were prepared for the launching of the service on 2 March 2020. At MKB, senior managers closely monitored and supervised this period which provided huge support to the project team. This was indispensable for the successful launching of the service by MKB by the deadline.

Several months have passed since March, we can see that the system is working and customers started using it, too. There is no greater joy than seeing an application scenario in real life practice that previously only existed in theory because it only became available with the introduction of instant payments. For example when our friends do not give us a 24-digit account number for a transfer, which always used to lead to concerns whether we typed the digits correctly in the mobile application, they instead tell us 'Please send me the money to my mobile number', and in a couple of seconds their mobile phone beeps, indicating that the transfer has arrived. The instances where for example a buyer responds to an advertisement by asking if they could pay for the purchase right away with instant payment, or when Facebook adverts show stall-keepers at the market or a fair ready make instant transfer payments possible via secondary identifier at the stall show that the Hungarian banking market went in the right direction, that the huge amount of work and energy devoted to the project was worth it.

But let us not forget that this will not end here. Most players in the banking sector now begin to work intensively on their auxiliary services and making the benefits offered by instant payments more available and convenient to their customers. In addition to improving the customer experience, the MNB's objective to further reduce cash transactions may also be achieved, thus making the country's economy more and more transparent. MKB will continue working to promote this end, I in my capacity as an executive will support it personally.



József Vida

Chairman & CEO, MTB Magyar Takarékszövetkezeti Bank Zrt.

We have built a payments superhighway

The US government announced its information superhighway initiative in the 1990s, and in the 25 years since the world's development has fundamentally changed including financial services. The enhancements in telecommunication technology and messaging solutions and the reduction in the costs of high-capacity IT systems brought innovations into everyday life that transformed customers' needs and facilitated faster communication in greater volumes and higher quality.

LEADING INNOVATION BY INTERNATIONAL STANDARDS

The Hungarian instant payment system represents landmark innovation even by international standards. Perhaps its most important quality is that under the coordination of the MNB and GIRO, a core payment infrastructure was established covering payments in the whole country, that every credit institution in Hungary joined at the same time, and that is tailored to the Hungarian environment; yet in theory it is also a system that can be used in the SEPA zone, compatible with international schemes. (Instant payment systems operate in several European countries, but most of them developed over years, on a voluntary basis, with the participation of a few banks, they do not cover the entire banking system, and operate under fairly heterogeneous conditions.)

Just as in the case of information society and the information superhighway, the IPS is not simply the product of the digitalisation of financial services but also their catalyst. This is because it establishes a core infrastructure that fosters the emergence of revolutionary and innovative products and services, while also bolstering the financial circulation and international competitiveness of the whole national economy. In the medium and long term,

the solutions based on the IPS will bring about huge developments, they will fundamentally change how payments work. Customers can conduct their finances every hour of the day and every day of the week. Hungarian banks have practically shifted to 24/7 operation. The IPS is a lightning-fast, convenient and modern alternative to cash payments, making banking user-friendly and facilitating the emergence of new digital solutions.

UNPRECEDENTED CHALLENGES AND CUTTING-EDGE SOLUTIONS

The introduction of the IPS in Hungary came at a time when the Takaréék Group's resources were largely tied down by the IT support provided to the national savings cooperative mergers. The Takaréék Group was between a rock and a hard place: it had to continue the mass migration of retail and corporate loan, deposit and account holdings and the integration of the highly heterogeneous IT systems on the one hand, and, on the other hand, despite the unprecedented challenges on the market, it had to implement the IPS entailing considerable investment costs, originally with a very tight deadline of one and a half years, which was then extended to two years. This led to a gruelling race against time for the resources. Moreover, a system had to be planned and delivered that was suitable for establishing an indirect link with the savings cooperatives, which, as a unique feature of the Hungarian market, operate their own internal clearing houses, and also a direct link with the former FHB banks that had their own GIRO connection.

The IPS programme of the Takaréék Group implemented the system's functions with deliveries tied to three large milestones and it tested them with GIRO and other banks during the nationwide pilot period launched in September 2019. After the pilot period stages ended in December 2019, we took part in the nationwide testing in January and February, before successfully going live on 2 March. Almost 200 banking and IT professionals took part in the planning, testing and introduction of the IPS in two years, with over 300,000 hours worked.

The Takaréék Group started planning the system together with its IT service provider, Takarékinfo Zrt., which entailed numerous challenges that differed considerably from the experience of the rest of the financial institutions:

1. The biggest challenge was that during the time of the IPS rollout, the Takaréék Group was in the middle of the decade's largest transformation on the financial market, merging 126 credit institutions in seven years and three stages as well as establishing its new, uniform commercial bank, the Takarékbank. As part of the product consolidation almost 60 years of product development and 60,000 products of the legal predecessor savings cooperatives had to be standardised while the terms and

conditions had to be amended 20–50 times for each product during the seven years on account of developments, mergers and legal compliance. The new Takarékbank had to integrate around 7000 employees of earlier savings cooperatives. The substantial consolidation was completed in terms of corporate governance, business processes and divisions, organisational structure and culture and back-office activities (e.g. HR, finance, controlling, legal). During the portfolio transfers entailed by the mergers, the account numbers of many customers changed, and there were a series of system migrations.

2. The implementation of the task was made considerably harder because the IT background of the Takaréék Group was highly heterogeneous at the outset. During the planning stage nine account management and six internet banking systems were being used along with numerous other systems to be integrated into the IPS. Because the integration of the savings cooperatives would not have been completed by the originally planned go-live of the IPS on 1 July 2019, the system initially had to be planned to accept and simultaneously serve several legal entities. At the actual go-live of the IPS, in March 2020, Takarékbank was already a uniform entity but it still had a heterogeneous IT background when it joined the new system, therefore the last system migrations had to be performed while ensuring the uninterrupted operation of the IPS which was also without precedent. Takarékbank was the first on the Hungarian market to have held a bank holiday while continuously offering its customers the option of receiving IPS transactions (and sending was only down during the short period when the internet banking service was unavailable).
3. Another grave difficulty was that the savings cooperatives did not join the national clearing system as independent financial institutions, instead they conducted their payments as correspondent banks of their central bank, operating a shared internal clearing house. Therefore, together with the experts of Takarékinfo Zrt., a multibank system had to be planned and created that could establish a link between the IPS and the 52 cooperative credit institutions indirectly linked to Hungarian payment services through their central bank on the one hand, and the former Takaréék Kereskedelmi Bank and Takaréék Jelzálogbank that joined the integration in 2015 and that had their own direct GIRO connection on the other hand.

Out of nine serious bids, the Takaréék Group and Takarékinfo picked the solution of ACI Worldwide based on the experience of Capsys in payments and T-Systems (TSM) in system integration. The central core system delivered by T-Systems was integrated with Takaréék Group's ancillary systems while successfully managing to support in the background the longest series of bank mergers in recent decades. The highly complex delivery implemented under the leadership of T-Systems, the main contractor, contributed significantly to the

success of the IPS project, and it proved to be a real adventure in which bridging the gaps between the different operations of ACI, TSM and the savings cooperatives was also a great challenge.

In view of the above, the Takarék Group built a system comprising payment centre surrounded by a micro-service layer combined with shadow balances in which the monolith bank payment systems can be called through services. This concept resulted in an instant payment system that became the central element of a robust digital banking platform.

When the IPS was launched, more than one hundred of our colleagues gathered and waited anxiously for midnight to strike. Some of them were glued to the system monitoring screens, while others prepared the first test transfers. It took only a few seconds to complete the first successful transactions; every successful transfer was followed by cheer and applause. We only had to wait 15 minutes for the first HUF 10 million transaction, and after the first hour we could say that the system was working well.

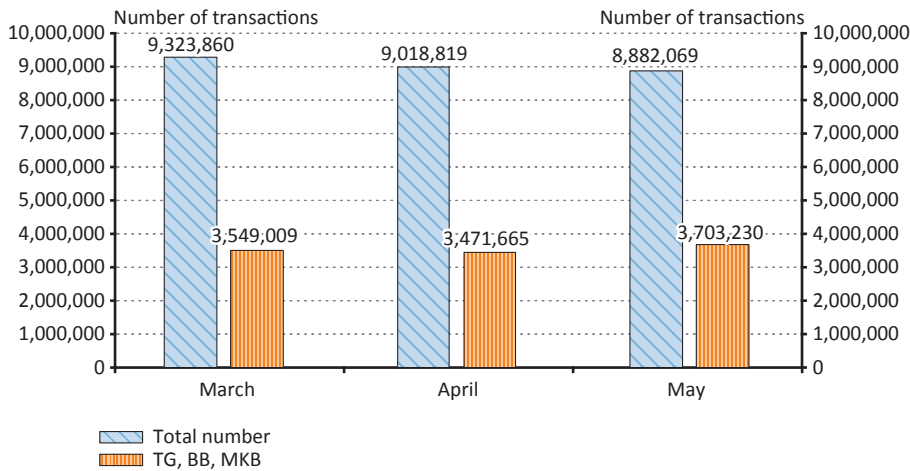
Takarékinfo Zrt. is the only player on the Hungarian market to have developed the instant payment system service for three Hungarian large banks, Takarékbank, MKB Bank and Budapest Bank while performing the IT tasks related to continuous operation and development. The establishment of the IPS entailed considerable investment costs and increased the market's demand for experts and suppliers experienced in the IPS. Therefore jointly hiring Takarékinfo Zrt. as a system integrator, the financial institutions concerned incurred relatively low costs while successfully transitioning to the instant payment system which affected over 20 account management systems and 100 system connections while implementing a completely new system.

THE FIRST KILOMETRES

Taking into account the above difficulties, it is a huge achievement for the Takarék Group that it managed to launch the instant payment system smoothly on 2 March 2020, simultaneously ensuring the IT operation of the constantly merging savings cooperatives that served more and more customers. Although not required by law, the Takarék Group offers its customers the option to credit the IPS transfer items received to their bank account numbers used prior to the portfolio transfer to the new bank account number created after the portfolio transfer. In addition, the mortgage bank of the Takarék Group, Takarék Jelzálogbank Nyrt., is the only one in the country to offer instant credit transfer and receipt to its customers.

According to GIRO’s data, on average 39 per cent of all the IPS transactions conducted in Hungary in March–May 2020 went through the systems built by Takarékinfo Zrt. In four months (2 March–30 June), the Takaréék Group, MKB Bank and Budapest Bank conducted a total of 14,080,846 successful transactions. 99.365 per cent of the credit transfers were successful, and most of the failed transfers were attributable to external reasons (non-IPS transfers and transfers to a closed or blocked account or from an account with insufficient funds).

Instant payment transactions in the first months after the go-live of the service



The average transferred IPS amount was HUF 169,000 (without Takaréék Jelzálogbank), which is about 20 per cent higher than the average Hungarian commercial bank figure. Most transactions in the month are conducted on the first days due to wage payments and the second ten days of the month on account of the transfers of taxes and contributions. On average, 34 per cent of the transactions are conducted outside the period between 8:00 a.m. and 5:00 p.m., which shows the extent of the active demand for the service.

CONTINUING ON THE SUPERHIGHWAY

Takarékbank expects the IPS to really take off and be widely adopted after the request-to-pay service goes live. That service, based on the 5-second time limit and secondary identifiers, will create a whole new situation where customers can conduct their credit transfers much more conveniently and simply than with the traditional methods (account number, IBAN).

Takarékbank also sees great potential in QR code payments because they are expected to be swiftly and widely adopted by Takarékbank's customers from affluent city dwellers to rural primary agricultural producers. QR code payments offer payments without a bank card and with the help of the IPS. Furthermore, numerous services will be packaged into a single application from bill payments to payment transactions to savings allowing customers to manage their accounts held with different banks at the same place.

The establishment of the IPS offers a real opportunity for cash register integration in retail and wholesale trade based on the IPS that could be a viable alternative to card payments. This enables the collection and analysis of customer habits and information which allows us to know our customers better and have a clearer picture about the products they buy and where they buy them. Thus we can offer them products and, if necessary, more efficient financing.



Tibor Johancsik

Deputy CEO, OTP Bank Nyrt.

The success of the instant payment project at OTP Bank and what lies behind it: 127 new developments, 15 newborn babies and 400 pizzas

THE TASK

The 2016 document entitled The operating model of the instant payment service in Hungary marks the beginning of a new era from several respects. This is because besides the preparation for PSD2 compliance and other obligations, the document published by the MNB made the instant payment project a top priority for Hungarian credit institutions. The tasks related to the rollout of the service tied down most of OTP Bank's development capacities for the next three years.

When we first read the document, we immediately thought that meeting the stipulated requirements would be a real challenge, requiring immense efforts. This premonition was confirmed as the project progressed; if anything, it became stronger.

We started the planning within a short time, involving all the business and IT areas. We faced our first challenge when the thematic concept had to be translated into concrete tasks that could be implemented even though we did not know the technical details back then. The challenges kept mounting, as they do in any decent project. During planning, we were repeatedly faced with the almost impossible challenge that the system was to be shaped

into perfection while also enabling the simultaneous joining of the entire banking sector. As we did not find any earlier international examples for such a 'Big Bang' launch, we also had to model the scenarios and their consequences. We also failed to find a precedent for a one-step introduction affecting such a wide range of services. And then we got down to work...

ESTABLISHING THE CONCEPT

We determined the priority areas: we had to be able to send instant credit transfers to account numbers and secondary identifiers, record and manage secondary identifiers, manage liquidity 24/7, quote rates for the weekend and implement new accounting and clearing rules and risk management principles by the deadline. Throughout this time, we had to open up our bank's systems to third-party providers by going live with the API GateWay. Since the preparations for PSD2 were already under way, the question immediately arose as to how this payment method and its auxiliary services would influence the fraud monitoring risk that we had assessed for our existing products and to which we ultimately aligned our systems during PSD2 compliance.

We assessed the number of legal provisions that would not fundamentally change but their implementation would because credit transfers would be sent and received on holidays and their value date would not be a banking day. The planning and the repeated replanning proved to be a really tough research task. We found that the two legal requirements would not only need to be fulfilled at the same time, their implementation would also have to be merged. In 2016, a joint project was established for the PSD2 and instant payments which was supported and supervised by the bank's senior management and in which almost all organisational units of the bank were involved with some task.

Even before the project kicked off, the bank was committed to transforming and renewing its IT architecture, therefore in the first grand step, the management decided that the project would enhance the old systems but most of the new functions would operate in the building blocks of the new architecture. The technological renewal was to be supplemented with both purchased and proprietary elements. We decided to develop the balance management system with 24/7 availability, the system for recording invoices and managing fees and the system managing secondary identifiers all in-house. The systems behind the transfer process were purchased. Another strategic decision was made during planning which was that in the case of the Hungarian group members, participation would be ensured on the developed shared architecture, therefore OTP Bank, OTP Pénztárszolgáltató and Merkantil

Bank joined the system on the same platform. The concept thus prepared looked like this: 12 new systems to be introduced, 41 existing systems to be transformed with a total of 127 development needs.

COOPERATION – PROJECT STRUCTURE

After having assessed the tasks, it became clear that broad-based, close and almost continuous partnerships were needed. The number of participants expanded dynamically, and the bank's affected areas were in active communication with foreign software development firms that had prior experience in introducing instant payment systems, as well as with GIRO, the MNB, partner banks and the delegated executives of the Hungarian Banking Association. Our project became an integral part of the central project, and we were working almost as a single organisation to ensure implementation. Instead of the otherwise healthy competition among banks, this time we focused on achieving joint success. We held almost daily consultations for years and sent regular progress reports to the nationwide project, supplemented monthly by the preparedness survey. Closer to the finish line, this was complemented with a biweekly preparedness report the preparation of which, understandably, was not among our favourite tasks.

GIRO AS THE KEY PLAYER

In parallel with the banks, GIRO was also planning a new system, and after its finalisation the first basic documents, the rule books, were published, which were followed by other technical descriptions. Since the documents evolved together with the project, we had to stop from time to time reviewing and analysing our detailed plans, checking to see whether they were still aligned with the central solution. We had to make adjustments in several cases, harmonising our own concept with the published details. We even had to chart a new course for some of our developments.

TESTS, TESTS, TESTS

After the planning, in the implementation phase, huge external and internal teams started to work on implementation. We sought to achieve a readily scalable solution based on modern technology that satisfies the central requirements as well as all the needs of everyday users. These developments entailed major investments which the bank allocated to ensure the full implementation of the project tasks and to lay the groundwork for establishing value-creating services in the future. We were still in the

middle of developments when the partial testing of the architecture began. The technical connection test was the first step among the development tasks that clearly showed that implementation had started: our system successfully communicated with GIRO's system over the new interface. After this, the functional testing could begin during the test run of the nationwide project and also in our internal testing schedule.

The requirement and the achieved target were both part of comprehensive testing. Overall, the quality of participating IT systems improved during the test period because we engaged in the integrated testing of entire financial processes with the participation of the whole banking sector. During the functional tests, banks helped each other by pointing out any errors. Based on the feedback, the developer teams returned to ensure smooth cooperation in practice. After each test run, discussions were held with our testing partners where we received valuable feedback and we believe that we also provided useful insight.

We worked and tested for months, again and again, to ensure the stability expected from our system even under the high loads in the plans. Since OTP Bank ensured access to its Hungarian subsidiaries, it was crucial to ensure that the system would withstand any future extreme loads. In case of an error the outage would have occurred at three participants at the same time.

PREPARING FOR GOING LIVE

International experiences showed that the introduction of the instant payment system was often preceded by a so-called 'pilot' period on the live platform. This period bridged the gap between testing and the actual live operation, thereby reducing risks after going live. That is why we supported the MNB's decision, as a result of which the live operation was preceded by a 9-month pilot period.

We conducted our tests on the accounts opened in the system and on a live platform. Besides the test required by the MNB, we organised numerous voluntary test runs, usually at night and on weekends, in cooperation with the partner banks. Both the management and our colleagues received daily feedback about the test results.

The pilot phase was a very active period that eventually consolidated the partnerships among participating banks which are key in projects like this.

SHOWTIME!

The last weekend was spent with excited and tense waiting. We had done everything we could, and we hoped to achieve the success that we had been working for, struggling for, in the previous three years. That is why the launching of the live system, now available to customers, only requiring changes a few parameters in the system, was an important event. Besides the senior manager who took part in the project, almost the entire project team was there in the project room on 1 March. The last checks were done, the last tests were run. We were waiting for midnight which eventually did come that day as usual. It was important that everyone was there and witnessed together as the first transaction data appeared on the feedback monitors a couple of seconds after midnight. We saw the transactions coming in, the GIRO screen was also green: the highly complex architecture went live and was stable. These were thrilling moments, indeed.

We detected a few minor issues almost immediately that we either communicated to the party concerned or resolved right away, but the instant payment system was launched in Hungary and it will hopefully change how people manage money profoundly.

Continuing the tradition of the pilot period, months after the go-live of the system, we still maintain our cooperation. We often request testing opportunities from others in connection with new tasks. This is because developments have not stopped, the preparation for channelling batch corporate transfers into the instant payment system is ongoing, just like the introduction of requests to pay.

We congratulate every participant on the success of the project.

We hope that the experiences gained during the successful rollout can be used in connecting to the European instant payment system, thus opening up new business opportunities and charting new business strategies.

SUMMARY – THE OTP PROJECT BY NUMBERS:

- 12 new systems established
- 41 already used systems transformed
- 127 development needs
- 6 channels where the service is available (internetbank, smartbank, electra, ebiz, apigw, merkantil internetbank)

- 200 external and internal experts and developers working continuously on the implementation
- 50,000 emails sent in three years
- 20 weekends spent with our 'second family'
- 400 pizzas eaten
- 15 babies born during the project



György Zolnai

CEO, Raiffeisen Bank Zrt.

True teamwork

The instant payment system was a development in the Hungarian banking sector that happened at the right time and with absolute success. What did we gain? Plenty of new knowledge, cooperation, experience, satisfied customers and the future. We have taken the reins.

It has not been long since we could read analyses every day in economic and IT publications that the FinTechs would come and take control of the so-called traditional banks that are clumsy, slow to respond, do not appear practical to young people and represent the values of a bygone era. We heard the pros and cons, numerous conferences, webinars, radio and television interviews were organised and journal articles were published. The media sought to sell their content with sensational headlines predicting the end of the players in the old banking sector.

Yet, the Hungarian banking sector was able to renew itself to provide state-of-the-art services to its customers.

I, for one, have believed for years that the FinTechs or IT start-ups, are not adversaries but partners of banks on the market. We can achieve more if we work together rather than against each other. Why did I think this? Primarily because it is our customers' money that they wish to keep as safe as possible. The traditional banking system has been consistently ensuring that for a long time. Although there have been a few new service providers on the market that offer highly innovative solutions, customers did not flock to them. Traditional banks implemented the best solutions, albeit with some delay, and sometimes banks themselves initiated innovations. Many people try the services of the alternative

providers yet traditional commercial banks have maintained their primacy. At the same time, excellent partnerships have been formed with the fintech sector, for example under the Raiffeisen Bank Elevator Lab, where several teams offering high-quality services could introduce themselves, many of whom have become our partners at the group level in the whole region.

A good example for joint innovation coordinated at the national level is the instant payment system. It had to be realised that banking services in the 21st century cannot be provided any longer at the pace set for the late 20th century when no transactions were carried out between 5 p.m. and the next morning, or between Friday afternoon and Monday morning. This solution worked for decades but customer needs have made it obsolete and the business world has not accepted it either. There have been trailblazers and some financial institutions had more resources in-house but the systemic solution that would pave the way for the development of digital banking services providing a genuine customer experience or the option for their introduction were still yet to come.

When back in 2015 the MNB proposed that in a few years' time customers should be able to make transfers in five seconds, around the clock, even to mobile numbers or email addresses, many people shook their heads in disbelief. They doubted that such a transition affecting the whole banking sector and placing numerous banking systems on a new footing could be achieved.

Today, in 2020, I can happily report that the transition has been successful. Among the thousands of colleagues from the banking sector, Raiffeisen Bank's team played a key role in this. How did we do this?

In retrospect, we can perhaps safely say that the instant payment system was the most complex development of the Hungarian banking sector in the recent decade. The difficulty and also the beauty of the task lay in the fact that here not only a few clearing systems had to be reparametrized; dozens of interconnected applications, clearing processes, card systems, mobile and internet banking systems had to be prepared for the task, while ensuring that the solution worked not only in-house but also towards all market participants.

Besides these, some previously unseen, completely new functions had to be introduced: I mean bank transactions made to mobile numbers or email addresses or even tax numbers and the 5-second transactions that did not allow for any errors. Another extremely large and serious challenge was that most banking systems did not operate around the clock,

these had to be prepared for non-stop operation and ways had to be found to make systems that had previously been closed at certain times of day become available on a 24/7 basis. Naturally, their continuous supervision and redundancy also had to be solved.

It was already obvious when the first plans were presented that the launching of the IPS would be one of the top priorities not only for Raiffeisen Bank but for the entire banking sector and almost all the IT systems had to be modified within the bank. A dedicated project team consisting of a large number of colleagues was set up who performed in-house coordination, planning, development and testing work and also cooperated with the other market participants. Beyond the compulsory tasks, individual testing opportunities were also offered to the other banks.

Whether working on this project inside or outside the bank, we all knew that the IPS should be implemented through our joint efforts. This was largely attributable to the executive consultations and the expert dialogues covering every detail that emerged continuously between as well as inside the Magyar Nemzeti Bank and GIRO Zrt., the other Hungarian financial institutions and of course the Hungarian Banking Association.

It is an old adage that a comprehensive project works similar to the exam period at a university: as the deadline nears, the concentration heightens and quick decisions and sometimes even improvisation is needed. While students have usually three attempts to pass a standard exam, the IPS had to work on the first attempt. That is why the preliminary tests were particularly important, and looking back I am especially proud that we were the first to finish the developments necessary for launching. We were also among the first to complete the compulsory test tasks. My colleagues were extremely happy when we sent the first live HUF 1 transaction, a pioneering achievement.

This preparedness level allowed us to start using some elements of the IPS (24/7 availability, transactions within five seconds) within the bank from November 2019, therefore our customers could also gradually get used to higher quality around-the-clock banking. This made our job easier, because we arrived at the 'all-important night' of 2 March 2020 with months of operating experience under our belts and a fairly low risk that the IPS would not launch or that the basic services would crash.

Nonetheless, the stakes were still high, as the entire Hungarian banking system had to pass the test in front of millions of customers. The first hours were spent in anxious excitement not only by project members; IT support specialists, communication experts and system

controllers were on standby to intervene, along with the media. A hotline had been installed between the concerned areas, emergency plans and scenarios had been prepared.

Late in the evening on 1 March, our head office did not give the impression of a usual Sunday night when few colleagues are in the office apart from IT supervisors and the security staff. Now the lights were on, there were pizza boxes and soft drinks on the tables and one of the monitors already showed the countdown clock. However it seemed that no one was nervous because we knew that the launch would be a success as the system had already passed the very detailed, long and stringent performance tests.

Midnight came, the transition started, the first transactions were sent, and we waited whether the hotline would come to life. But there was simply no need for it. Practically everything worked without any errors and has continued to do so ever since. I think it is a huge achievement that the Hungarian banking sector managed to successfully complete this highly complex task. The quality of the performance was also outstanding.

We have a world-class payment system that fully serves customers' needs, and it is only up to us what further services we add to it. We endeavour to lead the way in these as well, just as we have proven our worth in development and the successful tests.



Balázs Tóth

Chairman & CEO, UniCredit Bank Hungary Zrt.

Instant customer experience: How we at UniCredit Bank saw and experienced the introduction of the instant payment system

TAKING IT TO THE NEXT LEVEL

Consumer expectations have been fundamentally transformed in recent years. In the eyes of retail and corporate customers, banks are no longer like an administrative office, they are much more than that: the speed of financial services has become a basic requirement, just like easy, complete and preferably remote access, and cheap and transparent pricing. At the same time, customers are uncompromising about total security. These principles are reflected in the prior EU regulations and payment solutions. One only needs to think of the PSD2 or SEPA's pan-European instant credit transfer solution.

In Hungary, the Magyar Nemzeti Bank (MNB) responded to these challenges in an unprecedented manner. When in 2016, following three months of public consultation, the central bank decided that the new instant payment system (IPS) would be introduced based on the infrastructure of GIRO Zrt. that operates the clearing and settlement system tied to MNB, and that participation would be obligatory for financial institutions, most financial institutions were taken aback.

Every bank was able to subscribe to the MNB's basic aims, such as increasing the number of electronic payment transactions and reducing cash use. There was also no question that

a new, innovative infrastructure had to be built providing a sound basis for the development of new payment services offering customer experience through simplifying solutions such as QR code payments, the use of secondary identifiers or the requests to pay, which allow the now outdated yellow payment slips, a unique Hungarian feature, to be phased out. The novelty of the MNB's approach lay in applying uniform standards in its capacity as the regulatory authority. Accordingly, the Hungarian financial infrastructure has now such a large uniform system in place thanks to the instant payment scheme that can be a potential competitor to the BigTech payment systems that have been able to directly reach an increasing share of Hungarian consumers in recent months. In this regard, the central bank displayed remarkable foresight, which many of us, let us be honest, did not appreciate when the project started.

Perhaps the most difficult aspect in the change of scale was to realise that in contrast to an opt-in solution for the developments ahead, obligatory introduction does in fact serve market protection purposes. However, we were fortunate in the sense that due to the projects already running in several European countries, we had something to go by in terms of the legal environment and the developer background. The information gained from there had to be utilised, the requirements adapted and the best practices synchronised.

The legislation provided considerable help for the preparation, since the legal regulation laying down the basic framework had already been outlined in MNB Decree No. 35/2017 (XII. 14.) on the Execution of Payment Transactions. At the same time, as regards the issues that emerged during the introduction of the brand new clearing system, the ways to overcome them, the detection of the necessary technical and regulatory steps, the constant dialogue between the MNB, the commercial banks, GIRO and the suppliers developing the systems was essential.

COMPLEX TASK, COMPREHENSIVE TEAMWORK, DIALOGUE

UniCredit Bank Hungary Zrt. kicked off its own preparatory project in July 2017. It could be seen right from the outset that this project would cover most of our banking operations, because it included not only the implementation of the instant credit transfer technologies but also the development of our internal system for intraday clearing. Therefore there were hardly any departments in our bank that did not participate in the preparations. The task was much more complex than a simple case of legal compliance and it required massive teamwork. Earlier, I headed the bank's risk management for years but even I found it a particularly interesting experience to observe the coordination necessary for this project.

The fact that the project involved many areas of our bank, made it clear to us from the beginning that UniCredit would not opt for purchasing technology developed by a third party but ensure that the operational background of the instant payment system with its proprietary system was developed in-house. The price difference between the two solutions was rendered irrelevant by the fact that linking the proprietary solution to our bank's core system was the easiest solution, making fine-tuning and the customisation of further developments more flexible, rapid and cost-effective and because the development can draw on UniCredit Group's know-how.

The greatest challenge in banking operation was clearly the implementation of instant payments' intraday clearing into the core system, because the execution of the orders that had been past the booking time before that (during the evening, night or weekend) had to be moved to the central system. We chose the most customer-friendly and transparent solution by ensuring that the booking date of every instant payment transaction is identical to the value date. This is also the most reasonable approach from a collateral perspective.

Even after establishing the groundwork for the system and setting the strategic objective, several issues cropped up and some of them could not be answered in-house. That is why the continuous dialogue and know-how sharing between GIRO, the MNB and the financial institutions that took part in the project alongside us became particularly important. Even though banks compete with each other in instant payments, too, and for example GIRO treats some issues differently than a market participant, in the workflow that had evolved by the end of the process included guidance from GIRO that contained relevant and up-to-date information which helped us considerably in developing and finalising our own solution.

Let us also mention the involuntary delay in the rollout of the system. I believe that from the perspective of the market's development, it is very promising that no market participant voiced criticism about the laggards, although it was well known that several credit institutions, including UniCredit, incurred heavy extra costs to ensure alongside other, equally expensive, regulatory projects that its core infrastructure be ready at such a hurried pace by the original deadline of 1 July 2019. The Hungarian banking system showed its solidarity and sent a message loud and clear: achieving maximum customer experience comes first and market participants should not put their interests first to gain short-term advantages.

TESTING: WE ARE NOT ALONE IN THIS

The half a year of extra testing period (between September 2019 and February 2020) provided by the postponement offered a great opportunity to identify and tackle every issue we had found. During testing, a so-called automatic test tool was used to complete the required amount of tests. Early in the testing, our colleagues often checked in the office at midnight or even later whether the test was running, whether we were sending the appropriate banks the appropriate number of transactions.

The complexity of the situation is attested by the fact that there were several points where glitches could occur (sending bank –clearing–recipient bank), so if an issue was detected, an investigation started: we first discussed the problem in-house, then turned to either GIRO or the other banks. GIRO Zrt.'s JIRA system was of great help in this, so was the collegiality and helpfulness between banks. It was good to see that banks were helping their competitors.

UniCredit Bank introduced its solution in silent mode in July 2019, and we also took part in the optional testing during the summer. During the compulsory test run starting on 1 September, we had to follow GIRO's specifications and model the daily volume of transfers in the new system. In UniCredit's case, this meant that about 70,000 transactions went through the automated test environment each day. We experienced how excellent the cooperation between banks was: if a financial institution needed a test transaction, there were always several volunteers who helped in modelling the transfer with a bilateral solution. I am convinced that the exemplary cooperation between the banks contributed significantly to the fact that every bank finished their developments and tests on time. Owing to this and the hard work and tremendous efforts of my enthusiastic colleagues from UniCredit Banking Operations and UniCredit Services, around 80–90 people in total, UniCredit Bank received the technical certificate from GIRO and the MNB, a necessary prerequisite for joining the instant payment system, on 13 February 2020, well before the go-live on 2 March 2020.

AT THE SAME SECOND, A WORLD FIRST!

Based on the specifications of the Magyar Nemzeti Bank, every Hungarian bank launched the instant payment system on 2 March 2020 at 0:00 a.m. At midnight, the members of the project team and senior managers were on board in every bank. I have to admit that such exciting moments have been rare in my career.

The system operated with the practically 100 per cent availability that we had got used to during the tests, even after the go-live, and this time true customer experiences could be enjoyed by everyone: Electronic transfers below HUF 10 million do indeed arrive on the recipient's account in seconds. But we were not the only ones awake at early hours of the morning, the media also followed the launch. We were particularly glad to see that journalists' first experiences were also positive, therefore on Monday morning every news outlet proclaimed that the introduction of the instant payments in Hungary was a success. We achieved this, in an internationally unparalleled feat, in the entire financial infrastructure of the country, at the same moment.

After all the efforts and hours worked, we could finally experience the success after the launch: UniCredit executed 370,000 instant payment transactions on the first week due to the heightened interest from our customers without any errors. Since then, instant transfers have become part of our daily routine: in the first three months, our bank processed over four million instant payment transactions to the tune of HUF 750 billion. Our statistics show that around 30 per cent of the orders are initiated by our customers after the earlier closing time, during the evening, late at night, past midnight or during the weekend.

Our example represents an important step for our Group as well: within UniCredit Group, Hungary was the second country to introduce the instant payment system behind Serbia. However, in contrast to our southern neighbour, due to its obligatory character, our system has many more transactions since in Hungary all the value-date transactions are automatically executed over the instant channel.

DON'T STOP ME NOW...

The ambitious plan of the Magyar Nemzeti Bank to reduce the share of cash transactions from 80–85 per cent in 2019 to 45–50 per cent in 2030 received a great boost in the months during the pandemic, when people and merchants preferred electronic payments without physical contact over cash. Besides bank cards, instant payments are the most obvious choice in this situation, representing the 'cashless cash'. However, a full breakthrough requires the elimination of the regulatory hurdles such as the transaction tax on the two free cash withdrawals in each month which makes package pricing difficult while in itself its impact runs counter to electronic payments. The banking sector sent a clear message by developing the exceptionally costly instant payment system: it is a committed partner to regulators in establishing electronic payment services that are more transparent, safe and represent a pleasant customer experience. We have to continue on this road towards new, common successes.

VI. Enduring contributions in supporting the technological implementation



Zoltán Szeles

CEO, Capsys Informatikai Kft.



Róbert Kiszely

Director, Capsys
Informatikai Kft.



Dr József Czimer

Head of London Office,
Capsys Informatikai Kft.

‘To do or not to do’ – Some lessons learnt from the implementation of the Hungarian instant payment project

Capsys’ acquaintance with instant payments started around 2013 during a meeting in London. We sat in a meeting room and wanted to get a deeper understanding based on the UK scheme that had been operating for five years how digital cash (‘cashless cash’) can function in a real banking operation environment. We saw right away that an unprecedented change would occur in the life of the Hungarian banking system. We understood that all we had to do was to move the clearing processes before the settlement, but what exactly this would entail in banks’ processes only became clear after the nationwide project got under way.

Almost two years before the official go-live of the nationwide project, we were working together with a large bank in Hungary on planning the technical content, which, along with the PSD2 regulation in force back then, expanded the list of professional requirements. The real turning point for Capsys was when the technical specifications made it clear that the Hungarian financial institution sector would be divided into two main groups in terms of technical implementation: the multinational banking groups with an international background and an existing group of suppliers and implementation experience on the one hand, and the Hungarian players lacking international experience and resources on the

other hand. It immediately became obvious that the nationwide project could only be completed through broad-based cooperation in the industry since the technical complexity and number of projects to be completed and the expertise necessary for success available in Hungary were worlds apart from each other. In other words, we clearly saw that the project would be a real challenge based on the available time and resources and the financial institution's existing operational infrastructure.

2 March 2020 was a big day. Not only because, uniquely in the world, in the Hungarian system every payment service provider had to join the instant payment infrastructure, but also because this coincided with the technical requirements of the PSD2 'open banking' regulation. We believe that as a result of the concomitance of these two regulations, Hungary has taken a huge step towards establishing a digital economy.

Capsys Kft. was a major player in the Hungarian project, as it was a special partner for two of the largest market participants who together conduct around two-thirds of Hungarian payment transactions in Hungary.

This piece is intended to provide something of an insider view on the project, recall the project's hot topics. We would like to share the experiences that we collected during this highly complex but successful project.

HOT TOPICS IN THE HUNGARIAN PROJECT

During the implementation of every project, there are topics that for some reason attract much more attention than other, seemingly equally important, subjects. The Hungarian project also had such topics. In many cases, the project participants engaged in long discussions on certain subjects and these discussions bore fruit in the sense that the essence of the problem was understood and some kind of consensus was reached facilitating a solution.

One major question concerned the number of transactions that should go through per second. The initiated transactions need to reach the account of the beneficiary in five seconds. This was a simple legal question for the regulators. However, payment service providers had to determine the capacity of their system based on this requirement. The regulatory authority did not provide guidance on determining the capacity, therefore banks had to develop that on their own, taking into account the assessment of their conditions and in a way that ensured that small banks should also be able to receive several transactions at the same time.

The issue of 'lost messages' and the consequent failed transactions also raised some serious questions because a completely new system was set up and numerous other elements using various technological solutions had to be connected to it. Even in IT, there is no completely error-free system in the world, but risks have to be minimised and an acceptable level had to be reached in the Hungarian instant payment system as well. After and during a lot of joint testing and trials, GIRO and the participating banks made numerous adjustments to the systems until the number of lost messages was reduced to a minimum. While today's level is acceptable, in the further enhancement of the system zero message loss should be guaranteed even during minor malfunctions such as the loss of network connection.

In the nationwide project, the central infrastructure and the related bank projects were practically running in parallel. Thus every last detail (which was nevertheless important in implementation) was clarified in the course of the project. Such details included the electronic signature of the messages. Its implementation may seem to be a minor detail in connection with the central infrastructure, but it may take months for banks to achieve. This is why some degree of flexibility proved to be useful (and good practice) in the scheduling of the nationwide project: such non-critical requirements are initially not obligatory, the testing can start without them, therefore they do not cause much delay in the project overall.

The issue of the transaction volume per second was mentioned earlier, and one of the solutions to that was that the Magyar Nemzeti Bank temporarily prohibited banks from sending corporate batch transactions to the instant payment system. Batches with a large number of transactions may have imposed a high load on the system upon its launch, therefore the option to send batches has only been available to banks since 1 September 2020 after the stabilisation and adequate preparation of the system.

A major bugbear of the project and instant payments in general is timeout. This refers to situations when the bank receiving the transaction does not respond in time. This may be due to several reasons, for example a simple message loss. But it may also happen that on account of the unique rules the central system leaves very little time for the recipient bank for processing, therefore the bank does not have time to respond. While this may not even be the recipient bank's fault, although it shows up as such a fault, this has to be proven. However, this is very bad for the customer because the transaction is declined in the end. Despite such hiccoughs, the system has ultimately performed well, no major incidents have been reported since the launch. After some time, the relevant rules should be reviewed based on statistics because the timeout rules do not guarantee short transaction times, they merely function as a safety valve.

The nationwide project originally foresaw a 'Big Bang' launch for 1 July 2019. As far as we knew, international experiences showed that the preparation time may have been too short, and this proved to be the case. After assessing the situation, the Magyar Nemzeti Bank eventually made a very good decision on an obligatory pilot period for another eight months. During this time, banks initiated a large number of credit transfers which indeed helped in identifying many problems.

SOME LESSONS LEARNT

The above summary shows that introducing an instant payment system (or two!) is not easy at all. All the details have to be right, and even the smallest error can cause a serious problem, for example message loss. The system has to be able to process a large number of transactions with low error rates. A nationwide IT project has to include much more stringent quality assurance (testing) than a standard project. The solutions used have to stand the test of time but also fulfil the requirements at the time of the rollout. Undoubtedly, in today's digital age, customers expect 24/7 availability in a service, this sounds natural. Nonetheless, providing such a service calls for more complex implementation and operation than before.

One of the most important lessons learnt from the Hungarian project is that ensuring access to all customers is not a mere dream, just a question of how the regulatory authority decides, which gives a tremendous boost to renewing the institutional system. Hungarian banks are not the most advanced from a technical or business management perspective, but all banks could successfully implement this highly complex project. We believe that they set an example for the sixteen large European banks that launched the European Payment Initiative and its supporters, the European Commission and the European Central Bank. We can see that full coverage is possible!

Of course, Hungarian banks still have tasks to complete. Although the country is small, its economy is closely linked to the economy of the European Union and other countries in the world. This interconnectedness has to be supported by the Hungarian forint-based payment system by establishing a direct digital link to at least one of the two pan-European instant payment systems (TIPS, RT1) and the SWIFT gpi, which can provide instant payment connection to the other countries in the world. Last but not least, solutions are cropping up on the Hungarian market based on instant payments. The current solutions are still rudimentary because they do not cover the entire range of payment processes and they fail to address several basic issues (e.g. fraud prevention). Developing a future-proof, robust payment solution is the next big challenge for the market.

The history of the development of payment services goes back thousands of years, and it does not end with the achievements presented here. We are also convinced that the systems described here, together with those mentioned in the conclusion, will serve the Hungarian economy for long years.



Zoltán Kaszás

CEO, T-Systems Magyarország Zrt.

Technology built on confidence

In March 2017, the Magyar Nemzeti Bank decided that GIRO Zrt., owned by the central bank, should develop the central infrastructure of the instant payment system. The MNB's decision sought to ensure the introduction of instant payments and the PSD2 directive in Hungary simultaneously and with a tight deadline for the whole Hungarian financial system, which had been unprecedented in Europe and the world. This was certainly a historic endeavour, and besides its inherent opportunities, it posed enormous challenges to the Hungarian financial ecosystem.

T-Systems Hungary blended its system integration, transformation and digitalisation capacities with ACI's products and solutions as well as the undoubtedly well-honed existing expertise of Capsys in finance and the firm's commitment. The complexity of the task was due to the fact that the whole bank process had to be rethought. This is because of the earlier features of banks' operation and process management: instead of immediate solutions, they used to follow a daily cycle, and the existing architecture of banking infrastructures was unable to execute instant transactions. Therefore interventions were needed in every process when developing the system. The supplier consortium organised by T-Systems had to enter on an untrodden path. Besides the tasks arising from instant payment, our company also had to manage the coordination of the implementation project brought together by Takarékinfo on the client's side (taking into account the systems of the institutions concerned: Takarékbank, Budapest Bank and Magyar Kereskedelmi Bank) and several integration challenges.

The targeted preparation of the systems of the three Hungarian large banks required diverse knowledge from T-Systems Hungary and the firms involved by it. Besides the professional

competencies, sufficient openness was also necessary: an attitude was needed that combines technological sophistication with innovative problem-solving. The unusually high stakes had to be borne in mind all throughout: the development of the system did not only mean a responsibility towards the main client, but also towards another three financial institutions who use the opportunities of the system as a service offered by a T-Systems client. Yet the main focus was on end-users, i.e. bank customers. With this, T-Systems Hungary undertook a joint reputational risk with the banks in a sector-wide megaproject that was closely scrutinised by professionals and the public alike, from the first second to the last.

The arising complexity called for advanced professional, project management and IT capabilities from the client, and it undoubtedly challenged suppliers' competencies as well, namely their agility, flexibility and resource management. Besides T-Systems' employees and partners, the team also included professionals who earned their place through their technological or business expertise, but colleagues also arrived from South America.

One of the top priorities was the coordination of business needs and the development of a uniform solution. The end-users of the solutions being prepared varied widely in their market profile as well as the complexity and process operation of their related systems. From a technological perspective, the greatest challenge was the formulation and operation of the integrated solution (the infrastructure and the applications combined) ensuring the necessary response times and availability. The partners of T-Systems Hungary have a heterogeneous infrastructure, with data centres located all around the country and a large number of ancillary systems. All of them had to be managed during the implementation.

We learnt a lot from this. We learnt a lot because success would not have been possible without camaraderie, commitment, humanity, understanding, professionalism and a deep faith in the future. To me, it has become clear that in addition to solutions and using international methodological frameworks, the human touch is also hugely important when historical tasks need to be completed with incredibly tight deadlines.

Today, in some sense I still feel that the vision brought together the professional clients, Takarékinfo on the client side and the team on the supplier side, and this was able to help the project overcome the stalemate, even in the most difficult moments, when implementation seemed to have practically come to a halt. There were trying moments, marathon meetings, tension-filled discussions and sometimes even inside 'politics'. And we spent time on understanding each other, because, even though everyone was Hungarian, we seemed to be speaking different languages. We had to understand individual aspects

and shape them into common targets and communicate them uniformly to the whole team. The operational decisions had to be taken along these lines, even if this seemed hardly promising at the given moment. This project has proven once again that merely adding up suboptimals does not produce the best possible solution.

This coordinated professional work in the development and implementation of the projects benefits the client (the Hungarian financial sector) and the suppliers (information and communication firms) just as much as the IPS introduction is important for the digitalisation of the Hungarian economy. This is because we not only need to keep up with the developments in a technological sense, but also in terms of processes and cooperation.

With the technological background of the instant payment system, the banking sector created the opportunity of the emergence of new business models, products and services. The massive business potential of the system was already expected earlier, but due to the pandemic, digitalisation has been on the rise in all walks of life, including the financial sector. Instant payments contribute to the sector's digitalisation and its development has acted as a catalyst. Their widespread use casts the limelight on the background infrastructure whose continuous development offers more and more opportunities for the players in the sector so that they can tailor their services to customers' needs precisely.

I have no doubt that we still have a lot of work ahead of us, there are many tasks left, but this journey has proven that a Hungarian client, a Hungarian system integrator providing global software solutions and a Hungarian SME offering financial services can complete such a large-scale and high-quality project. We obviously have great challenges to tackle. With the implementation of instant payments and the new generation of payment solutions, cybersecurity and the role of fraud prevention become crucial. I hope that similar successes await this well-oiled team in these areas, thanks to their commitment and professionalism.

I, for one, have learnt a lot from our principal and client, my own colleagues and our partners, and I trust that this lends our company the necessary humility and professionalism when looking to the future. A future where processes will accelerate even more, where the pandemic has shown the necessity of change, where digitalisation earns its rightful place and technology builds confidence, reliably serving our users.

On 2 March 2020, with the successful launch of the instant payment service, a new era began in domestic banking in Hungary. In order to implement the Hungarian model, which is quite unique at the international level as well, an extraordinary development project was needed, as a result of which consumers can continuously take advantage of credit transfer transactions being executed in 5 seconds all year round. Accordingly, the establishment of the system, as the most significant development in the history of domestic payments so far, was preceded by several years of hard work and preparation, in which all participants of the Hungarian payment market were involved. From the Central Bank of Hungary and GIRO, the Hungarian automated clearinghouse responsible for the operation of the central infrastructure, through various public institutions, such as the Hungarian State Treasury and the National Tax and Customs Administration, to banks and other payment service providers, as well as the IT development companies that support the payment sector, countless institutions worked together to achieve the predetermined goal. Thanks to this wide-ranging cooperation, domestic payments were raised to a new level on 2 March 2020, thus helping to improve the competitiveness of the sector and the economy as a whole. This publication was created in order to gather the recollections of the key players involved in the joint work and to commemorate this extraordinary project.

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