Operational model of the instant payment service in Hungary

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1. PURPOSE OF CREATING THE INSTANT PAYMENT SYSTEM

The basic level services of the currently operating electronic payment solutions – created on the basis of a concept that evolved gradually in the past decades – typically can be used only for a limited range of the payment situations, and the expansion of their usability to additional payment situations usually can be achieved only by increasing the complexity of the infrastructure. The operational logic of the basic level electronic payment methods – credit transfers, direct debits and payment card transactions – is essentially built on the limited communication facilities, thus it utilises the benefits of the modern communication and data transmission services, which became widely available at low costs in recent years, only to a small degree. The operational logics of the present financial infrastructures were adapted to several decades old technological solutions, thus they often use complex and slow data processing and communication processes for the handling of payment transactions, which by now may typically be deemed obsolete. As a result of the obsolete messaging methods and slow communication, the traditional payment infrastructures are able to support the innovation of payments only to a limited degree.

As regards the developments, there are essentially two directions. On the one hand, the market participants often develop solutions that bypass the limitations of the traditional infrastructures, as a result of which the complexity of the already complicated infrastructures further increases, thereby decreasing their functional efficiency. On the other hand, the new services of certain service providers are built not on the traditional infrastructures, but rather they develop an independent system operating in parallel with the other systems not interoperable with those. These contribute to the further fragmentation of the payment services market, thus they do not necessarily support the increase in the efficiency of payments, as the closed, non-interoperable services are able to offer higher service quality only within their own infrastructure, i.e. if both the payer and the payee have joined the given system. To make a solution widely used it is not sufficient if only one participant performs developments, but rather, the payment service provider of both the payer and the payee must become a member in the given system.

Due to the technological progress, the costs of the modern IT systems with high computing capacity have considerably decreased, and owing to the advanced messaging solutions, data transmission also became cheaper. As a result of this, the customer needs has also changed significantly. However, till now the payment services followed the fast technical progress and the changing customer needs only to a limited degree, primarily due to the absence of modern basic level infrastructures. However, when messages can be delivered in a matter of seconds to remote points of the world, it may soon become a basic expectation of the consumers to do the same also in the case of financial transactions, and send money almost real time. Accordingly, similarly to other areas of the economy, it would be justified for the customers to expect in respect of the banking services as well, that they should have the possibility to execute financial transactions on any day of the year and in any period of the day.

In order to address the aforementioned problems, it is advisable to create a continuously (i.e. 24 hours on all days of the year) operating payment system, which facilitates instant execution of the electronic payment transactions between the payer and payee, and the infrastructure design and operational logic of which support the development of innovative payment solutions in the long run. The instant payment service must be established in such a way that supports the possibility of electronic payments in as many payment situations as possible. In addition, it should be possible for both the payer and the payee to use the services at low costs and under low technical barriers to entry. Since the currently available electronic payment methods typically cannot be used in a wide range of payment situations, in certain payment situations cash remains the only possible means of payment. This may be addressed by creating such a modern payment basic infrastructure, building on which innovative payment solutions may be elaborated in a flexible way, thus the possibility to pay in electronic form may be created in the majority of the payment situations.

Instant payment systems have already been set up in several countries, while in other countries the introduction of the new service is in the phase of planning or implementation. Thus, with a view to preserving the international competitiveness of the Hungarian economy and payments market, it is also necessary to modernise the domestic financial basic infrastructure. In the case of the central infrastructure, the MNB has pioneered improvements before as well; this is how intraday clearing was introduced, followed by the increase in the number intraday clearing cycles,

as a result of which the interbank credit transfers at present may reach the payee's account in one hour. Although market participants did implement improvements for their own customers, it is clear, based on former experiences, that due to the high costs of the development and the structure of the domestic payment services market, it is not possible to realise, purely at the initiative of the market participants, such a comprehensive infrastructural development as the establishment of the instant payment system. This is why it must be initiated and coordinated by the MNB, in the course of which it defines the direction and scheduling of the developments.

In order to have competing, open and interoperable market solutions rather than developing additional closed systems working in parallel and used by a relatively small community, first it is necessary to define certain basic common rules applicable to all participants and to all services of those, and then a central infrastructure must be created that can serve as a base for the market participants' services. With a view to supporting developments by the market participants, the central infrastructure must be made independent to the highest degree of the layer of additional services, as this is the way to ensure the wide utilisation of the payment service facilities and the future flexible altering thereof in line with the technological developments.

Another important consideration is that it should be ensured that the new instant payment service provide the opportunity for electronic payment in most payment situations, in addition to the use of cash. The widespread usage may facilitate the channelling of an increasing part of the present cash transactions to the turnover of a modern electronic payment method. This on the one hand, may support economic growth by decreasing the social costs of the payment transactions, and on the other hand, the surplus income resulting from the higher number of electronic transactions may also compensate the payment service providers' invested development costs.

It should be considered that although the development may represent significant costs for the banks in the short run, this is the only way to make the Hungarian banking sector competitive in the long run in the market of payment services. The development may support customer retention, and the higher payment turnover generated by them may provide extra revenues in the long run. In addition, the development may also support the entry of new market participants due to the fact that they can create new payment services under low barriers to entry. The central banks also have an important role in this development, which may be regarded as a milestone. Due to the short-term increase in costs and the net-like nature of the payment market, the individual market participants typically do not initiate changes of this magnitude in the financial infrastructure, therefore it is necessary for the MNB to act as a coordinator and initiate the development, which is key to Hungary's long-term competitiveness.

In summary, it may be stated that as a result of the technological progress and the spreading of the modern and cheaper messaging solutions, the IT and communication obstacles related to the introduction of the instant payment service have been removed. These are supplemented by the regulatory changes already introduced and entering into force in the near future, which create increasing competition in the payments market through the precise definition of the range and operation of the new types of payment services, the easier changing of service provider and by facilitating the interoperability of the systems, and simplify market entry for the new participants. These two processes must be supplemented with infrastructural developments, which effectively permit the consumers, the corporate sector and the payment service providers to utilise the effects of the innovation and the regulation that supports competition.

The introduction of the instant payment services in Hungary has three fundamental objectives:

- To introduce an electronic payment service that vies with the speed, continuous availability and simplicity of cash payments, thereby creating an electronic payment alternative in an ever widening range of payment situations.
- To support innovation in the payments market.
- To prevent the creation of non-interoperable payment solutions.

In accordance with the foregoing, the MNB formulated basic requirements related to the instant payment services, which should be met to ensure that the new infrastructure supports the attainment of the aforementioned objectives to the greatest possible degree:

- continuous (24*7*365) operation;
- execution of the entire payment cycle in a matter of seconds;
- feedback on the result of the transaction;
- immediate and unrestricted usability of the amount credited to the payee;
- competition-neutral access to the basic system;
- use of secondary identifiers;
- interoperability of the payment solutions;
- possibility to create additional services.

2. SUMMARY OF THE FEEDBACKS RECEIVED AFTER THE CONSULTATION WITH THE MARKET PARTICIPANTS

The MNB presented the analysis of the instant payment concept to a wide range of stakeholders in information forums held in spring 2016, and consulted on it during the summer both in person and in writing with the affected market participants. A number of feedbacks were received after the consultation. These contained considerably diverging opinions in several topics, but in some of the areas it is possible to define common requirements for the majority of the participants. The MNB elaborated the operational model and regulatory framework of the instant payment services on the basis of the feedbacks of the consultations and the analyses performed on the subject.

2.1. Feedbacks to the instant payment concept

According to the feedbacks received in respect of the consultations, most respondents believe that the spreading of the innovative payment methods in Hungary is hindered by several factors. On the one hand, cash usage on the consumers' side is high; therefore financial literacy and awareness should be enhanced; on the other hand, this is partially also attributable to the fact that the present payment infrastructure is not sufficiently developed, i.e. part of the merchants do not provide their customers with the possibility of electronic payment. Respondents are of the opinion that in this area intervention by the state may be required, e.g. in the form of regulation. The advanced payment infrastructure and growth in the use of electronic payment methods would contribute to the whitening of the economy, and thereby to an increase in tax revenues. Respondents also believe that the changing of the transaction duty regulation by cancelling it on credit transfers would be a useful step by the state regulators, as at present this creates a less favourable situation for the consumers compared to card payments.

In the case of the individual transaction types, differentiation should be made between the transactions that are effectively executed immediately (in a few seconds) and those that are not time-critical, but may be processed in the instant payment system, thereby increasing the utilisation rate of the infrastructure. A large part of the respondents believe that only individual credit transfers, and within those particularly the small-value transactions should be executed with instant settlement. On the other hand, the respondents' opinion differed on the question whether the other transaction types should be processed in the instant payment system or additional systems (e.g. the present overnight or intraday clearing) should be operated in parallel for this purpose. At the same time, the majority of the respondent payment service providers agreed that in the first phase of the project only the credit transfer transactions should be processed in the new infrastructure, and the direct debit-type transactions should be channelled to the instant payment system only at a later stage, according to an agreed schedule. Responses to the question whether it is necessary to introduce direct debit transactions with instant clearing or it is sufficient to use the present direct debits and B2B direct debits, varied.

As regards the services provided by the individual participants, the respondents supported the idea formulated in the conceptual material, according to which the clearing and settlement, as well as the operation of the database of the secondary identifiers, would be provided by the central infrastructure. In addition, the vast majority of the respondents supported the elaboration of a uniform brand and image for the new instant payment service, but many of them also suggested that the payment providers should also have the possibility to differentiate their services

from the competitors' offers by independent corporate image elements. As regards the database of secondary identifiers, several respondents noted that it was extremely important to elaborate processes for the maintenance and updating of the database and to ensure the unambiguous management of switching banks by consumers or the replacement of the secondary identifiers (e.g. phone numbers). Opinions also varied on the issue whether account numbers or merely bank identifier codes should be allocated in the central base to the secondary identifiers, and the identification of the payee's account number should be the duty of the banks. Many respondents agreed with the idea of unified QR codes and NFC data exchange standards and that the standards should be made open, as presumably this would foster the spreading of these payment solutions. In addition, a large part of the respondents believe that it would facilitate the prevalence of the electronic payment methods, if the instant payment system supported e-invoicing and authorisation management was also fully electronically automated. The majority of the respondents believe that the transaction messages and the non-financial information should be separated in some way, but the elaboration of the optimal solutions is conditional upon further consultations. In relation to this, it should be assessed whether it is more practical to use separate messages types or certain dedicated fields of the transaction messages should be reserved for non-financial information.

2.2. Feedback on the operational model

During the verbal consultations, banks raised the issues of transaction accounting and the making of the transaction amount available for the customer, as important questions. In the written consultations many, including the larger banks, were for the option that it should be sufficient to make the amount received through instant payment immediately available for the customer, as the immediate accounting thereof in the main account-keeping system would increase the implementation costs of the system. Those respondents – mainly the smaller banks – that supported immediate accounting, argued with the timing of the accounting of the items received before close-of-business, lending to customers, complex regulation and more complicated processing.

Several banks would support the gradual phase-out of the retail payment systems outside the instant payment system, thus the termination of the systems other than the real-time gross settlement system (VIBER). However, the majority of the banks also find the parallel operation of other systems in addition to the instant payment system acceptable, what is more, in the case of certain payment transactions (e.g. corporate payments, batch transactions, direct debits), they expressly recommend it. VIBER (RTGS) and IG2 could operate in parallel, but the idea of retaining IG1 also arose. In the case of the parallel operation of the systems, the transactions could be separated on the basis of the transaction type and amount, the customer's decision, business justification and execution times. As regards the value limit, several banks support that it should be possible to execute the payments exceeding the threshold in the instant system depending on the banks' own decision. The stakeholders that are against this idea cited the anti-money laundering rules and other considerations related to the handling of frauds. It was also suggested that the instant system should initially start with a lower value limit to be gradually raised later on. The proposed method of separating the payments among the systems was clearly the introduction of regulation instead of using incentive tools.

Relatively few proposals were received to the question as to in what way the direct debits could be managed in the instant payment system without changing the business logic, of which many believe that it is not feasible. Banks essentially plan to process the intrabank payments within their own systems, but some banks believed that due to the use of the secondary identifier, it would be unavoidable to forward them to the instant system.

Among the impacts on the usability of the various clearing models, banks mentioned the issue of liquidity, and that the continuous settlement may result in higher implementation and operational costs. As regards other considerations related to the operational model, they highlighted the collateral management and cost considerations. Reliability, speed, security and redundancy were mentioned as key expectations toward the communication channel.

2.3. Feedbacks with regard to liquidity management

The market participants raised several issues to be considered in respect of liquidity management underlying the instant payment system. One of the most often mentioned topics was the issue of the absence of collateral, and based on the responses it became clear that it is particularly important that the interbank settlement of the instant payment transactions must be fully collateralized. This primarily means that the banking system would be less keen on supporting a solution based on loss sharing, while in the case of a pre-funded model, upon the exhaustion of the pre-funded balance it would deem justified to suspend the sending of transactions by the respective bank. Another frequently mentioned consideration was the relation between the instant payment system and the reserve requirements prescribed by the central bank for banks, namely that banks' liquidity management related to instant payments should have no negative impact on the reserve adequacy set by the bank at the end of the reserve period. Respondents practically agreed that upon selecting the liquidity model, the development costs of the banking system connected with the individual models should be taken into account, the daily operation of the market participants should be supported by integrated automatic liquidity management services and during the implementation time should be spent on the review of the banks' own risk management rules. According to the feedbacks by the respondents, the liquidity analysis performed and presented by the MNB proved to be of sufficient depth, thus there is essentially no need for further calculations to select the liquidity model.

There are some differences in the preferred sequence of the individual models: the majority of the respondents regard the pre-funded model as the most favourable, and only a few market participants indicated that they clearly supported instant settlement, while the model based on loss sharing was practically not mentioned by anybody. Lower liquidity needs and dedicated liquidity, as factors guaranteeing the security of the settlement, were mentioned in several instances as the advantage of the pre-funded model, and a large part of the respondents deem pre-funding on the central bank account advantageous in terms of risk. Higher operational burdens and the magnitude of the necessary development investments were typically mentioned as arguments against instant settlement, while the standardisation of the management of interbank credit transfers and avoidance of dividing the bank's liquidity were mentioned by several respondents as positive factors. At the same time, it can be stated that the liquidity volume required by the models was not always the primary consideration in the received responses, which is presumably attributable to the low interbank liquidity needs of the small-value transactions and the abundant liquidity prevailing in the market. As regards the application of value limits, several respondents noted that by eliminating the really high-value transactions the liquidity requirement could be stabilised and the omitted items typically would not be time-critical anyway. On the other hand, it was also mentioned that although the management of a model without value limit would pose larger risk management challenges, this would provide the best customer experience. It should be also noted that some of the responses mentioned the need to harmonise the solution with the European development trends.

3. DETAILED PRESENTATION OF THE OPERATIONAL MODEL OF THE INSTANT PAYMENT SERVICE

The operational model of the instant payment service summarises the most important technical and business rules, considering which it is possible to provide instant payment services in Hungary. The purpose of the operational model is to determine the framework along which interoperable basic payment services, reaching a standard service level, can be created. In addition, the model supports the creation of wide-ranging additional services built on the basic infrastructure and basic payment services, which help both the present payment service providers and the innovative service providers newly entering the market build modern financial services. The basic rules of the model are in line with SEPA's rules applicable to instant payment services (SCT Inst), while in certain cases differences and supplementations may exist due to the special features of the Hungarian market. However, these do not prevent to create payment services, considering the domestic rules, also usable in the SEPA area and being interoperable at

international level as well[1]. The rules of the operational model will be published in various laws (acts and decrees), MNB recommendations and technical descriptions. Accordingly, instant payment will be new subtype of credit transfers rather than a new payment method. In the case of a certain transaction range, it will be possible to process the payments only in accordance with the rules of the instant payment services, while in the case of part of other transactions, it will be the right of the payment service providers or their customers to decide on using the service.

The operational model does not determine the infrastructural features necessary for executing the instant transactions, thus the rules are independent from the infrastructure that processes the transactions. All service providers that provide instant payment services in Hungary must provide their service in accordance with the rules of the model irrespective of the infrastructure used by them. The MNB will publish its infrastructure improvement plans supporting the implementation of the instant payment service in Hungary in the beginning of 2017. Along these a central system will be created with the MNB's coordination, through which the execution of the domestic instant payment transactions initiated from HUF accounts in accordance with the rules detailed here, will be guaranteed.

3.1. Basic service

3.1.1. Range of transactions

Within the framework of the basic service of instant payments it must be ensured, as a minimum, that the transactions defined in the operational model can be executed between the payer and the payee in accordance with the rules of instant payments, irrespective of the number of actors participating in the payment chain. The range of transactions that definitely have to be executed in line with the rules of instant payment include the individual domestic HUF credit transfers, not requiring manual processing, initiated from a HUF payment account up to a value limit of HUF 10 million. The range of transactions also includes the items executed between payment accounts held at the same payment service provider, as well as the batch orders submitted by consumers. The value limit of HUF 10 million may be raised later on based on the experiences of the operation; upon developing the systems all affected participants must bear this in mind.

The instant processing obligation does not apply to the value-dated transactions, i.e. transactions submitted in advance and recurring standing orders, and to the batch orders submitted by corporate customers. For the purpose of instant payment transactions batch order means all orders where the payer's payment service provider receives from the payer the data of more than one transaction in a single message. Since in the case of consumers' batch payment orders each batch typically contains the data of a few transactions, the processing of those does not require the creation of major extra capacities either at the payment service provider or at the central infrastructure, thus these transactions must be processed in accordance with the rules of instant processing. By contrast, the batches submitted by corporate customers are typically much larger – containing even several hundreds of transactions – these do not fall within the instant processing obligation, with a view to avoid the sizing of the system's peak capacity for these cases, thereby significantly increasing the development costs. Accordingly, in the case of corporate customers, the instant processing obligation only applies to individual transactions. Submission methods not requiring manual processing include all solutions with the use of which the payment order reaches the payment service provider in such a way that the provider can forward it automatically, without further manual processing, to the system processing the instant payments, to the payee's payment provider. Thus it is independent of the communication channel or data carrier used by the customer for submitting the payment order to his payment service provider.

Instant processing obligation applies only to transactions initiated from HUF accounts. Since the payer's payment service provider does not know the currency of the payee's account, the amount sent must be delivered to the payee's account-keeping payment service provider in accordance with the instant execution rules, even if the

[1] With a view to maintaining the harmony with the international development trends, it is necessary to monitor the changes in the SEPA rules and if changes occur in those, the necessity of adopting them in the Hungarian rules has to be analysed.

addressee account is not a HUF account. In this case the received amount must be credited to the payee's account in accordance with the rules applicable to transactions requiring foreign currency conversion. If the customer initiates a transaction not from a HUF account, it should be processed in accordance with the execution rules applicable at present to the given transaction in the future as well, rather than according to the instant payment rules.

3.1.2. Separation of transactions

Transactions that are not subject to instant execution must be processed in accordance with their currently applicable execution rules. The transactions may be separated based on the type of the payment order, the method of submission and the transaction value. Since it will be mandatory to process the range of transactions specified above in accordance with the rules of instant execution, the separation of the transactions will be based on rules defined in legislations. If the payment service provider sends such a transactions to the instant payment system to which the instant processing obligation is not applicable, the result of the transaction processing depends on the functional features and operational rules of the payment system used and on the payee's payment service provider. If the instant payment system is capable of managing several types of payment transactions operating with different rules, the transaction can be processed there in accordance with its own rules, otherwise the system may reject the transaction. In this case the sender payment service provider must initiate the execution in a different payment system in accordance with different execution rules. The place of processing of these payment transactions and the possibility to select the place of execution must be decided on the basis of the functionality of the basic infrastructure of the instant payment system.

The central infrastructure does not have to reject the instant payment transactions based on the transaction value. Based on the regulation, payment transactions below HUF 10 million, subject to mandatory instant processing, must be executed in accordance with the rules of instant execution, and the payee's payment service provider is obliged to accept these transactions and make the sent amounts immediately available to the payee. However, payment transactions exceeding the central value limit may also be executed, irrespective of the transaction value, in accordance with the instant payment rules in the instant payment system, but the payment service provider of the payee is not obliged to accept these. Payment service providers may publicly announce or stipulate in bilateral agreements the threshold values above the central limit for which they accept transactions processed in accordance with the instant processing rules, but they may also decide on the acceptance of higher value transactions without prior notice.

In the case of payment transactions subject to mandatory instant processing, the only permitted form of execution is the processing in line with the rules of instant execution. The payment service providers may also apply limits lower than the central value limit, if based on their risk assessment they decide that at transactions with certain features they do not permit the execution of higher value transactions. Such cases may include the application of different limit for the various channels of submission or for the use of secondary identifiers. However, it should be taken into consideration that if the payment service providers apply such restrictions to transactions subject to mandatory instant execution, then in the case of the payment orders having the attributes affected by the restrictions the credit transfer service will not be available at the service provider above the lower value limit defined by the provider. This means that it will not be possible to execute the payment transactions subject to instant execution using other execution rules, even if the credit transfer service of another payment system is otherwise available in addition to the instant system.

3.1.3. Time limits

The payment transaction subject to mandatory instant execution must be executed between the payer's payment service provider and the payee's payment service provider within five seconds. The execution time must be calculated from the time when the payment order is received by the payer's first payment service provider in the payment chain, irrespective of whether or not the payer's account is managed by the given payment service provider or it participates directly in the payment system. Upon receipt, the payment service provider immediately applies a time stamp on the order, which is forwarded to all participants of the payment chain together with the transaction data. The time stamp must be assigned to the payment order before the service provide ascertains whether the

payment transaction can be executed. Thus the time needed for the cover check and other necessary verifications is included in the five-second execution time limit between the service providers. In the absence of coverage the payment order must be rejected, as no partial execution of the transactions is permitted.

In order to ensure that all participants of the instant payment system interpret the time limits applicable to the given transactions identically, the time services used during the creation of the time stamps must be synchronised among all participants of the system. Thus the five-second time limit is independent of the number of participants in the payment chain and the features of the infrastructure used for the execution of the instant transactions, and also of the clearing and settlement services used. The calculation of the execution time ends when the payment service provider of the payee customer receives the data content of the payment order and the amount of the payment transaction. Once the amount of the payment transaction has been credited to its own account, the payee's payment service provider must immediately – i.e. in real time, instantly – credit the received amount to the payee's account. This obligation to credit applies to each transaction subject to mandatory instant processing, irrespective of the number of transactions received by the service provider at the given moment. The execution deadlines are always the same for all payment transactions subject to mandatory instant processing, irrespective of the channel of submission, the use of secondary identifiers and all other attributes of the transaction. However, as regards the checks to be performed to prevent and hinder money laundering and terrorist financing, the deadlines defined in the respective laws will still be valid.

If any participant of the payment chain receives a payment transaction the timestamp of which is older than twenty seconds – i.e. the payment order was received by the payer's payment service provider by more than twenty seconds earlier – the transaction must be rejected and it must not be forwarded to the payee's payment service provider or credited to the payee's account. This rule ensures that the execution of the instant transactions takes place in a manner that is predictable for the customers and it cannot happen that upon the occurrence of any technical problem the payment transactions are executed after a longer time from the submission, even unexpectedly for the customer. The purpose of the difference between the five-second execution time limit and the twenty-second rejection time-limit is to ensure that even in the case of extraordinary situations existing for a short time the execution of instant transactions can be maintained and to avoid the rejection of instant transactions in large volumes. However, it should be noted that it is by no means acceptable if the instant payment transactions are regularly or for a longer period executed over the five-second time limit at certain payment service providers.

3.1.4. Characteristics of the crediting of the amounts received

The crediting of the amounts received via instant payment transactions must be executed in such a way that the payee should be able to freely use it immediately for the execution of any payment transaction for the execution of which the payment service provider is open, or to use it for any other services that are otherwise available at the given time at its account-keeping service provider. Accordingly, the crediting may be performed in the payment service providers' primary account management systems or in an auxiliary system connected to it. Irrespective of the registration system used, the received amount may be deemed to have been credited when the payee's payment service provider applies a value date to the payment transaction amount, makes the amount of the payment transaction available in such a way that the payee can immediately dispose over it in full and the payee's claims against the payment service provider has been irrevocably increased with the amount of the payment transaction. From the payee's point of view the payment can be deemed settled when it is credited to his payment account. Upon using an auxiliary system mentioned above, the primary account management system is not necessary to be prepared for the continuous, real time processing of the payment transactions.

Since the crediting of the transactions must be ensured in real time on a continuous basis, for the purpose of the instant payment transactions each calendar day will be working day and also value date for interest calculation. In order to ensure that the recording of the payment transactions takes place in a uniform manner within the sector, i.e. there is no difference between the date of the debit and credit entry, it is necessary to determine a uniform close-of-business time for the instant transactions. This time is expected to be between 6 p.m. and midnight; the exact time will be published later. That is, in respect of the instant payment transactions all payment service

providers will have to switch value date at that time. For the purpose of registering the transactions on the customer account the time of the timestamp assigned to the transaction by the payer's first payment service provider and the date of the debit and credit must be determined on the basis of this.

Accordingly, in the case of transactions bearing a timestamp that is after the uniform close-of-business time, the date of the transaction's registration on the customer's account will be the next calendar day. Irrespective of this, in the case of these instant payment transactions, the received amount must be immediately credited to the payee's account, even if the uniform close-of-business time is before midnight, and thus it is not identical with the end of the calendar day. It should be noted that it applies only to the instant payment transactions that all calendar days will be working days; the execution of the other types of payment transactions shall be governed by their original rules. Nevertheless, based on the decision of the market participants and system operators, and also on the functions of the instant payment system, other types of payment transactions may also be processed in the instant payment system also outside the normal business hours of banks.

3.1.5. Responses on the transaction processing

The payee's payment service provider must send feedback on the result of the execution of the instant payment transactions to the payer's payment service provider in all cases. No matter whether the processing of the transaction succeeded or failed, a positive or negative feedback must be sent immediately after the processing of the payment transaction, and it must reach the payer's payment service provider within five seconds. The payee's payment service provider will immediately send the feedback to the payer's payment service provider, once it has ascertained that the received amount can be credited to the payee's account or it cannot be credited and thus the payment transaction must be rejected. If the execution of the transaction failed, the payer's payment service provider must notify the payer on this immediately after receiving the feedback. Since the availability of the communication channel and notification devices between the payment service provider and its customer may be independent of both the payment service provider and the customer, no time limit applies to the receipt of the response by the customer; the rule only applies to the payment service provider's obligation to send the notice to the payer immediately. However, it is important that the payment service provider must inform the customer through such communication channel and device at which it can be assumed that the customer receives the negative feedback within a short time. In the case of successful execution, it is not mandatory to inform either the payer or the payee; this shall be governed by the agreement between the payment service provider and the customer, i.e. if the payment service provider is able to provide such service and the customer requires it.

If the transaction is not executed within 20 seconds and any participant of the payment chain rejects it due to the expiry of the deadline, a response on this must be sent to the payer's payment service provider immediately. If the payer's payment service provider receives no response at all on the transaction execution result within 20 seconds after it received the payment order, it must assume that the payment transaction was executed successfully. However, with a view to ascertain the result of the execution, it may start a standardised investigation process, in which the payee's payment service provider and the other participants of the payment chain are obliged to cooperate. If as a result of the investigation it is found that the payment transaction failed, the amount of the payment transaction debited to the payer's account must be reversed (credited).

Responses in the instant payment system

	Positive response	Negative response
From the payee's payment service provider to the payer's payment service provider	Mandatory Must arrive within 5 seconds	Mandatory Must arrive within 5 seconds
From any member of the payment chain to the payer's payment service provider	Not required	Mandatory Must be sent immediately after the rejection that follows the 20-second time limit
From the payer's payment service provider to the payer	Optional As agreed between the service provider and the customer	Mandatory Must be sent immediately to the payer after the receipt of the response by the payer's payment service provider
From the payee's payment service provider to the payee	Optional As agreed between the service provider and the customer	Not applicable

3.1.6. Access to the basic infrastructure

With a view to creating widely usable payment services relying on the basic infrastructure of the instant payment system, it must be ensured that the widest possible range of the affected institutions have access to the basic infrastructure. The clearing and settlement functions of the payment system are accessible for the payment service providers (credit institutions, payment institutions, including third party providers such as payment initiation and account information providers). In addition to these, it is also worth to provide access to the system's messaging level for the institutions providing additional services and for the technical service providers. This may facilitate that in relation to the operation of the extra services related to the payment services, these institutions also can use the infrastructure where the payment service providers process the related payment transactions among them.

3.2. Secondary account identifiers

The instant payment transactions may be initiated in the traditional way, i.e. by specifying the payee's account number, but in addition, it will be also possible to use other, unique identifiers on the payment orders instead of the account number. Secondary account identifiers are identifiers linked with the payment accounts, which unambiguously identify the payee's account that the sent amount should be credited to. The purpose of using secondary account identifiers is to ensure that the instant payment service can be used more widely and in more payment situations than the present credit transfer solutions. The range of eligible secondary identifiers will be defined in legislation. The customers may link the account number of their own payment account to the secondary identifiers, and these data can be stored in a central database operated by one or more duly authorised market participants in such a way that those can be accessed by the payment service providers involved in the transaction only in relation to the execution of the payment transactions.

Any payment service provider may initiate transactions with the use of the secondary identifiers with predefined structure. The structure of the identifiers that may be registered in the central databases is defined in advance to ensure that the technical rules of these are clear for all service providers during the development of the services. The range of the eligible secondary identifiers must be defined centrally to ensure the interoperability of services; however, in technical terms the databases must be created in such a way that the range of identifiers can be flexibly expanded in the future in accordance with the market requirements. At the launch of the system it is useful to keep the number of identifiers low, thus at that time it will be possible to use the mobile telephone numbers, the e-mail

addresses and at least one public identifier, to be defined later. Presumably, with these identifiers it will be possible to initiate transactions in a number of payment situations, between private individuals, in commercial situations and also for payments related to the state. Upon selecting the identifiers, it is an important consideration that they should change rarely, it should be possible for the payees to disclose them to the payers and to unambiguously link them to a customer and to the customer's registered payment account. The secondary identifiers stipulated in the law will qualify, similarly to the account number, as unique identifiers, hence the payment transactions can be initiated in the same way as in the case of using account numbers. Thus within the execution time limit specified above the mapping of the secondary account identifiers with the account numbers must be also performed. On the instant payment orders, the payer may only indicate one unique identifier, i.e. either the account number or a secondary identifier. However, the payment transactions received by the payee's payment service provider already must contain the payee's account number in all cases.

The customers may register the account identifiers in the central databases via their own account-keeping payment service provider, and the links between the identifiers and the accounts can be modified also via the account-keeping service providers. This solution can ensure the checking of the identifiers and the account numbers during the registration, and the safety of the registration. Since certain identifiers may change in the longer run, and in the case of mobile phone numbers it may happen that after a longer inactive period they are allocated to new subscribers, it may be necessary to review the links between the identifiers and the account numbers regularly. In order to ensure the unambiguous execution of the transactions, each secondary identifier may belong only to one payment account. On the other hand, several identifiers may be allocated to a single account, which also supports the widespread use of the services built on the instant payment system.

3.3. Additional services

3.3.1. Data entry solutions

The basic service of the instant payment system's basic infrastructure facilitates the real time execution of the payments between payment accounts; however, this only creates the fundaments of the widespread use, but on its own it does not ensure that the new payment service can indeed be used in a variety of payment situations. This requires active cooperation by the market participants, i.e. payment service providers, third party providers, technical providers, which elaborate modern payment services – either competing or cooperating with each other – built on the instant payment infrastructure. The basic infrastructure must be designed in such a way that by connecting to it the widest possible range of the service providers can build services under low barriers to entry. In respect of the creation of additional services, it must be borne in mind that it should be possible to maintain the interoperability of services, even if those are created or operated by different service providers. In respect of the payment services built on the instant system, those solutions that create services addressing identical needs, operating in parallel, but technically not being interoperable, are not acceptable[2]. With a view to supporting this, common technical standards must be elaborated for the data entry solutions expected to be used the most often, and they must be made freely available to all stakeholders. These common technical standards must be elaborated and maintained in cooperation with the market participants, and the publication of the common requirements may take place in MNB recommendations, MNB decrees or in some other form. However, it is important to ensure the technical interoperability of the services even in the case of the less often used technical solutions, not having common standards. To ensure this, the service providers using such solutions must disclose the technical details of their data entry solution and it should be freely usable by all other service providers.

[2] This may include the retail acquiring solution based on contactless technology (e.g. Near Field Communication – NFC), when the mobile applications of the individual payment service providers apply different message structures, and due to this the merchant needs to install more than one technical devices. In this case the service providers are expected to use, in relation to the given data entry solution, mutually interpretable solutions.

3.3.2. Request to pay

In connection with the initiation of instant payment transactions, request to pay message types may be sent. Using this message, the payee may send to the payer, prior to launching the transaction, all information that may be necessary for the launching of the transaction and for the processing thereof at the payee's end[3]. The purpose of the request to pay is to minimise the need for manual intervention on the payer's side to create the payment order. Since it may be solved that the payer receives all necessary data in the interface used for approving and launching the transaction, after checking them he may approve the automatically created payment order and launch the transaction.

The structure of the messages containing a request to pay must be identical at all service providers to ensure that all institutions providing such services can process such requests. To ensure the predictable processing of the requests, the execution of those is governed by similar rules as those applicable to the instant payment transactions. Thus it must be delivered to the payer's service provider within 5 seconds from the receipt thereof by the service provider of the initiator of the request, and there it must be made available to the payer immediately. A response on having made it available must be sent to the initiator service provider within 5 seconds. Requests to pay may be processed not only by payment service providers; this service can be provided by other types of institutions as well. The payment transaction launched on the basis of the request must be executed in accordance with the rules of the given transaction. At the institutions providing such services, the processing of the requests to pay must be ensured continuously, in real time, similarly to the instant payment transactions.

3.4. Clearing and settlement of transactions

The transactions subject to mandatory instant execution must be cleared in the space between the payment service providers – in the same way as the service providers' internal payment transactions – in real time, on a continuous basis, at transaction level in HUF. The settlement of the transactions also takes place on a continuous basis, at transaction level. The message flow related to the instant payment system must be implemented with the use of the ISO 20022 standard. This can ensure the interoperability of the service even at international level, thus the domestic payment service providers may as well become capable of providing international instant payment services in other currencies, or other international infrastructure providers may also participate in the processing of HUF transactions.

4. DIRECTIONS OF THE BASIC REGULATORY CHANGES NECESSARY FOR THE OPERATION OF THE INSTANT PAYMENT SYSTEM

The instant payment system can attain the goals formulated and expected by the MNB in respect of the spreading and usability thereof – i.e. its widespread, mandatory and accountable application along common principles, keeping the consumers' interest in mind – if the conditions and detailed rules thereof are laid down in the payment regulations and other relevant laws. In Hungary there are no such standard rules to the individual payment methods as e.g. the SEPA Rulebook in the case of the euro credit transfers, which can ensure the uniform application of the given payment method along standard principles; instead these are defined in laws. Therefore, in Hungary, similarly to the other payment methods, the execution rules applicable to instant payments must be determined in regulations. Although the purpose of SEPA and the domestic legal regulation is identical, differences comparing the domestic regulation to the SCT Inst rules may exist. In parallel with the elaboration of new rules, the current legislative environment should also be reviewed to ensure that it can provide the safest possible background for operation. Accordingly, the regulatory issues point beyond the payment rules in the narrow sense. Bearing all this in mind, the implementation of the instant payment system requires new regulation in a number of points, or the reconsideration and/or modification of the existing rules.

[3] The payee's account number or secondary identifier, the transaction amount, transaction ID and a variety of other information may be sent to the payer in the request to pay.

One of the main pillars of the regulation is the definition of the basic service within the instant payment system. The range of payment transactions subject to mandatory instant processing – thus in particular the type of the payment order, the method of submission and handling, value limit, currency, payer – are determined separately in the relevant regulation. However, it is possible that based on the market participants' common decision or the functions of the instant payment system, the payment transactions that are not subject to the basic mandatory instant processing, will also be cleared in the instant payment system. On the other hand, it is not the goal of the regulation to define and regulate the range of other payment transaction that may be cleared in the instant payment system.

In accordance with the Payment Services Directive[4], the regulation of the execution of the instant payment transaction takes place along the regulatory logic applicable to the execution of other payment transactions. As a first step, the maximum time limit for the execution between the payer's payment service provider and the payee's account servicing payment service provider will be regulated. For the purpose of calculating the execution time limit, the time when the payment order is received by the payer's payment service provider will be defined. In this case, however, the payer's payment service provider is not necessarily the account servicing payment service provider of the payer, but it also may be a different, third party payment service provider (e.g. payment initiation service provider). Accordingly, during the execution of the payment transactions the payer's payment service provider is the payment service provider that directly receives the payment order from the payer. It should be noted that the execution time limit of the payment transactions subject to mandatory instant processing is also independent of the fact whether the payer's payment service provider or the payee's payment service provider relies on the services of another payment service provider (correspondent bank) for the clearing of the payment transaction, i.e. the execution time limit is independent of the number of payment service providers participating in the payment chain.

Bearing in mind that the settlement of the payment transactions between the payment service providers take place immediately on a continuous basis and simultaneously with the clearing of the payment transactions, thus in fact it also means crediting the amount of payment transaction to the payee's payment service provider's own account, simultaneously with the clearing. Therefore, the presently effective rules of making the amount of payment transaction available to the payee should be applied accordingly. Accordingly, the amount of payment transaction must be immediately credited to the payee's payment account once it has been credited to the payee's payment service provider's own account. However, in connection with this, it will be defined precisely that the joint fulfilment of which conditions are regarded as crediting.

It follows from the above that the presently valid execution time limits remain unchanged in the case of payment transactions not subject to mandatory instant processing, thus in particular the 4- and 6-hour rule of the Payment Decree[5], applicable to the execution of payment transactions on payment accounts between payment service providers. Thus, among others, in the case of credit transfers that are recurring, value dated, submitted by non-consumer customers in batches, requiring currency conversion on the payer's side, or requiring manual processing, business to business direct debits, direct debits, the presently effective rules applicable to the execution of those will remain in force even after the launch of the instant payment system.

New service elements will include the obligation or possibility to send messages on the non-execution or execution of the payment transaction by the payee's payment service provider to the payer's payment service provider, or by the payer's or payee's own payment service provider to the payee or the payer. In addition, other rejection rules (e.g. the process of sending rejection messages, handling of payment transaction exceeding the upper value limit or requiring conversion between currencies), and the investigation process related to payment transactions with no response, will be also new elements. Similarly to the execution of payment transactions, detailed rules will be also determined for the request to pay, a new message type sent by the payee to the payer before initiating the payment

[4] Payment Services Directive: PSD 2 – Directive (EU) 2015/2366 of the European Parliament and of the Council on payment services in the internal market, amending Directives 2002/65/EC, 2009/110/EC and 2013/36/EU and Regulation (EU) No 1093/2010, and repealing Directive 2007/64/EC

[5] Payment Decree: MNB Decree 18/2009 (VIII. 6.) on Payment Services Activities

order and containing the details of the payment order, thus in particular for the time limits applicable to the sending of the message and making it available. The detailed description of the new types of messages and processes entail the corresponding modification and supplementation of the liability regime.

The working day of the instant payment, its value date that governs interest calculation and the uniform close-of-business time of working days will be also regulated. The definition of secondary identifiers, the process of their registration and modification, as well as the related liability regime will be also defined uniformly bearing in mind primarily the protection of the consumers' interest and the prevention of abuses. In order to ensure their widespread usability and interoperability, the individual data entry solutions, their use and, in certain cases, their basic technical rules will be also stipulated. There is no need to modify the rules applicable to the prevention and hindering of money laundering and terrorist financing due to the launch of the instant payment system, as compliance with those can be ensured after the launch of the new system as well.

As regards the mandatory data content of the payment order, the effective regulations should be revised in any case, particularly in respect of the payment order initiated with the use of secondary identifiers, to ensure that payments can be initiated more flexibly than at present. It follows from the operational logic of the instant payment system that it will not be possible to execute payment orders partially, which should be also laid down in regulation. After the detailed elaboration of the operational model, it may be necessary to regulate or modify other issues as well. Accordingly, it may become necessary to modify certain laws in relation to bank holidays, the data management authorisation related to the database of secondary identifies, calculation of minimum reserves, or the close-of-business of the given day in bookkeeping and accounting terms.

5. CHARACTERISTICS OF THE INSTANT PAYMENT SERVICE

Basic service	
Payment orders subject to instant processing obligation	Individual domestic credit transfer orders that are not requiring manual processing, initiated from HUF payment account in HUF currency up to HUF 10 million value limit, except value-dated (recurring or submitted in advance) payment orders, including payment orders to be executed between payment accounts held by the same payment service provider, as well as consumers' batch payment orders.
Execution time limit of payment transaction processing between payer and payee	The data of the payment order and the amount of the payment transaction must reach the payee's payment service provider in 5 seconds following the receipt of the payment order by the payer's payment service provider. 20 seconds after the payer's payment service provider received the payment order it must be rejected by any participant in the payment chain.

Time of crediting the amount of the payment transaction on the payee's payment account	Once the amount of the payment transaction has been credited to its own account, the payee's payment service provider must immediately credit the received amount to the payee's payment account. Crediting shall be deemed fulfilled when the following conditions are met simultaneously: 1) the payee's payment service provider ensures to value date the amount of payment transaction; 2) payee's payment service provider makes the amount of the payment transaction available in such a way that the payee can immediately dispose over it in full; 3) and payee's claim against its payment service provider has been irrevocably increased by the amount of the payment transaction. The crediting may take place in the main account management system or in an auxiliary system (only if the auxiliary system is able to perform the crediting in accordance with the above). For the purpose of the instant payment transactions each calendar day will be working day and also value date for interest calculation. A single (common) daily close-of-business time must be defined for instant payment transactions.
Time limit for making the amount of payment transactions available for the payee	The obligation of making the amount available in accordance with the immediate crediting exists irrespective of the load of the IT network (the number of incoming payment transactions).
Usability of the amount of payment transactions executed in the instant payment system by the payee	As a result of the crediting, the payee may use the amounts received via instant payment system freely for execution of any payment transaction for the execution of which the payment service provider is open, or use it for any other services that are otherwise available at the given time at its payment service provider (e.g. in the case of credit institutions, placing of deposit, purchase of securities).
Response on the result of the payment order and payment transaction execution to the payer's payment service provider, to the payer and the payee	The payee's payment service provider must send a positive or negative message to the payer's payment service provider after processing of the payment transaction received, which message must arrive in 5 seconds. The payer's payment service provider must send the negative message to the payer immediately; sending positive message is optional (only if the payment service provider is capable of sending it and requested by the payer), sending positive message to the payee is also optional (only if the payment service provider is capable of sending it and requested by the payee). Negative message on the rejection after the 20-second deadline must be sent immediately to the payer's payment service provider.
Handling of payment transactions with no response	The payer's payment service provider must deem the payment transaction successful, if no response on the result thereof is received by it within 20 second after the receipt of the payment order. It may launch a standardised process to investigate the result of the execution of the payment transaction.
Institutions with technical access to the basic infrastructure of the instant payment system	Payment service providers (credit institutions, payment institutions including third party payment service providers as payment initiation service providers and account information service providers), institutions providing additional services, technical service providers.

Secondary account identifiers	
Range of secondary account identifiers eligible for registration and their structure	Predefined identifiers in predefined structure. It must be possible to expand the range of identifiers eligible for registration in flexible manner. Initially, mobile phone numbers, e-mail addresses and a state identifier are expected to be used.
Registration and modification process of secondary account identifiers	Through the account servicing payment service provider, even with the contribution of other market participants. It may be necessary for the customer to review the registered identifiers regularly (e.g. because of the reissuance of unused phone numbers).
Number of secondary account identifiers and payment accounts that may be linked	Several secondary identifiers may belong to a single payment account, but only one payment account can be allocated to each secondary identifier.
Additional services	
Definition of the technical standards of widely used data entry solutions	In cooperation with the market participants uniform technical and business rules should be defined and these should be published, even as an MNB guideline or an MNB decree.
Regulation of the operation of additional data entry solutions	Technical standards must be made open.
Request to pay (a message sent by the payee to the payer prior to initiate the payment order, containing the data of the payment order)	
Execution time limit	5 seconds from the receipt of the request to pay by the payee's payment service provider until the delivery of the request to the payer's payment service provider; the payer's payment service provider must make the request immediately available to the payer and send a response on this to the payee's payment service provider in 5 seconds. By approving the request to pay, the payer submits a payment order, which must be executed in accordance with the rules of instant payment.
Scheduling of execution	Continuously
Separation of instantly processed payment orders and other payment orders	
Basis of separation of payment orders	Type of payment order, method of initiation, value limit.
Regulation of the separation of payment orders	Based on the provisions of law.
Handling of inappropriate separation	Rejection by the central infrastructure or the payee's payment service provider.
Upper value limit	The central value limit is HUF 10 million, payment orders below the value limit must be sent to and accepted in the instant payment system. The central value limit may be raised based on operational experiences.
Handling of payment orders and payment transactions exceeding the upper value limit	The payer's payment service provider may also send payment orders exceeding the central value limit in the instant payment system, but the payee's payment service provider may reject those ones in the instant payment system.
Possibility to apply lower value limit	Based on its own risk assessment the payer's payment service provider may set value limit lower than the central limit (e.g. for different submission channels or when secondary account identifiers are used), but this has no impact on the range of payment orders subject to mandatory instant processing.

Payment transactions' clearing and settlement	
Manner of payment transaction clearing	Continuous, instant clearing.
Processing of payment transactions	Individual processing by payment transaction.
Clearing currency	HUF
Message standard for clearing and for information processing of additional services	ISO 20022
Scheduling of the settlement of instant payment transactions	Continuous
Method of settlement of instant payment transactions	On gross basis, by payment transactions.

OPERATIONAL MODEL OF THE

INSTANT PAYMENT SERVICE IN HUNGARY

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