



Study on interoperability of immediate payment systems

EACHA Innovation Group

Version 1.3

January 2015

Content

- 1 Management summary 3**
- 2 List of terms and abbreviations 4**
- 3 Introduction 5**
- 4 Market overview 6**
 - 4.1 Definition of real-time or immediate payments 7
- 5 Interoperability solution for immediate payments..... 8**
 - 5.1 Functional requirements 8
 - 5.2 Legal aspects 9
 - 5.3 Settlement..... 10
 - 5.3.1 X-border IPS message flow 10
 - 5.3.2 Settlement mechanism..... 12
 - 5.3.3 Other functions: 12
 - 5.4 Technical aspects..... 12
- 6 Immediate payment systems in Europe..... 13**

1 Management summary

EACHA through its membership wishes to facilitate for ACHs the development of real-time payment interoperability capabilities. This document is a neutral discussion paper, prepared by the EACHA Innovation Group, describing:

- A possible interoperability model based on existing real time payment systems in different currencies.
- How interoperability could work between IPSs in a model where more than one IPS would exist for the same currency.

The solution described in this document anticipates a foreign exchange mechanism provided by banks to their customers. The settlement mechanism is based on the assumption, that liquidity in the receiving system would be provided within the rules of this system by its members representing participants of the sending system on the basis of bilateral agreements. The sending system would only be responsible for routing of transactions.

In the opinion of the Group this proposed solution for the cross-border IPS service would present many practical advantages:

- It is a simple mechanism enabling final execution of intra-system payments according to current rules of the receiving immediate payment system,
- The interoperability process should allow transactions to be executed within seconds as defined in the Functional requirements (see page 15),
- Implementation of the solution would increase the transaction volumes in the participating systems,
- Sponsoring mechanism based on correspondent banking eliminates the problem of foreign exchange risk which is very sensitive from the banks perspective,
- From the legal point of view the new service should be treated as the new, cross-border functionality of existing and certified systems rather than a new system,
- Banks should be interested in this concept as it creates the possibility of offering very innovative and efficient cross-border solutions for their customers, at the same time providing new usage of correspondent banking relations,

The solution can be established within a reasonable timeframe as currently there are 4 immediate payment systems in operation in European Economic Area (EEA), which could be connected on the basis of the proposed rules.

If the concept is positively received further work is necessary to address all potential aspects.

2 List of terms and abbreviations

- Term	- Meaning
- ACH1	- Automated Clearing House, operator of IPS in the sending country
- ACH2	- Automated Clearing House, operator of IPS in the receiving country
- IPS	- Immediate Payment System
- Payee	- a natural or legal person who holds a payment account and who is the intended recipient of funds which have been the subject of a payment transaction
- Payee Agent	- bank or other institution which maintains Payee's account,
- Payer	- a natural or legal person who holds a payment account and makes a payment order to a payee's payment account
- Payer Agent	- bank or other institution which maintains Payer's account
- Sponsoring Member (SM)	- member of ACH2, which has an appropriate agreement with Payer Agent for providing funds necessary to process transactions in the IPS of ACH2

3 Introduction

The main aims of EACHA (European Automatic Clearing House Association) are to be an information forum for members of the payments processing industry, to advance the views of members on issues of general interest, and to work jointly on specific issues of choice. Since its creation the main focus of EACHA has been on developing common guidelines facilitating interoperability of SEPA payments between members. As a tangible result of cooperation, EACHA interoperability rules for SEPA payments have created a level playing field for healthy competition between members, enabling all of them, irrespective of their size, to participate in the common European market.

Facing increasing consumer expectations, particularly regarding the speed of payment execution and the fact that some members already operate systems processing on the real-time basis EACHA decided to investigate possibility of providing interoperability of immediate payments. The reason for that is to facilitate the development of real-time payment interoperability capabilities of members and to enable the pan-European scope of those services.

EACHA recognizes that there may be several providers of such services in the Eurozone and thus providing interoperability is of crucial importance.

This paper presents the concept of possible interoperability mechanism between different providers of immediate payments and should not be otherwise interpreted. In particular it does not represent a declaration of implementation, proof of feasibility or intention to create a new payment scheme.

The EIG study on interoperability of immediate payment systems offers an initial idea of how interoperability could look like. At the same time EACHA is open to look at other models also based on more centralized approach. More detailed analysis of the concept presented in this paper are also necessary to verify its legal, technical and business viability.

The study on interoperability of immediate payment systems was prepared by the EACHA Innovation Group (EIG) which was created to extend EACHA's scope of activity to foster information sharing, interoperability and cooperation between members in the selected areas of innovative payments and value-added services. The scope of the solution covers the whole EU, the euro and other domestic currencies. It is important to note that an efficient mechanism for immediate payments could be used as a basis for delivering solutions in the area of mobile payments (especially mobile P2P transfers) and e-payments (for e-commerce transactions). The Group is aware that bilateral agreements between Payer Agent, Sponsoring Member and Payee Agent could be burdensome, so further work will be also undertaken to describe possible interoperability based on a multi country, multi ACH centralized model.

4 Market overview

The payment market has been changing rapidly in recent years. Consumer habits are changing leading to fast emergence of new payment instruments, especially related to e-commerce and m-commerce. New technologies (mobile, cloud computing) and regulatory changes have spurred innovators and the entry of new players. EACHA as an association of European payments processors is in the centre of this evolution.

The main trends visible in the payment industry are:

- Speeding up of money transfers due to customer and regulatory requirements
- Switch in initiation channels from branch to internet and mobile
- Fast growth of e-commerce resulting in new forms of payments designed for this market (e-payments)
- Growing market of non-bank payment providers intermediating between banks and customers

In this paper an immediate (retail real-time) payment is an interbank account to account payment posted and confirmed to the originating bank within one minute. In recent years a number of dedicated immediate payment systems have been established in different parts of the globe.

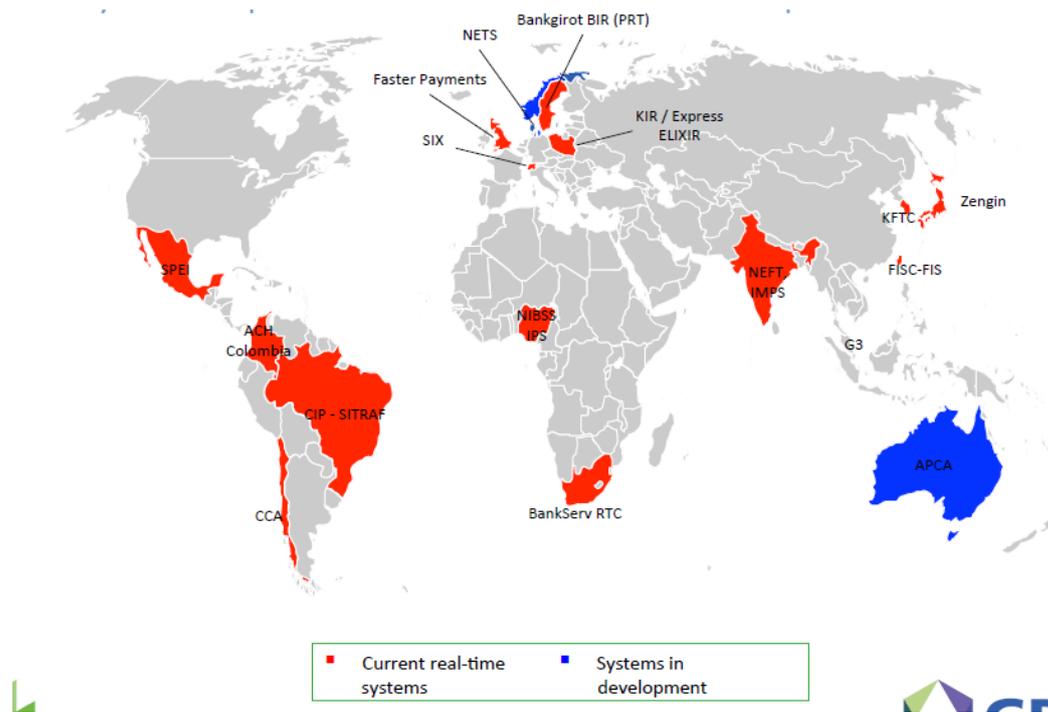


Chart 1 Current state of development of real-time retail systems. Source: Lipis & Lipis GmbH, <http://www.lipis.net/>

The main drivers for immediate payments are¹:

- Customer demand for real-time payments
- To enable new business models like low-value lending or C2B payments for used goods
- To enable efficiencies – reduced cash usage
- Reduction of settlement risk

¹ Source: Lipis & Lipis GmbH, <http://www.lipis.net/>

Benefits for banks are:

- Higher level of service
- New revenue streams
- Reduced cost of cash and cheque processing
- Lower risk
- Compete against Mobile Network Operators, cards, non-banks
- Keeps the bank account at the center of the payment relationship

The group stands in the position that immediate retail payments are an important step in the evolution of the payment market, due to increasing customer demands. Offering such payments enables differentiation from competitors (including non-bank providers) as at the moment it is an innovative value-added product. These payments may also be used in the rapidly growing area of mobile payments (where the mechanism converting mobile telephone numbers to bank accounts is necessary) and e-commerce, as they could provide the functionality of immediate finalization of purchase (where the business model different from standard credit transfer may be necessary to create incentives for banks to participate).

4.1 Definition of real-time or immediate payments

What are real-time or immediate payments? There are many different definitions of real-time or immediate payments.

The functionality can be broken down into three functional layers;

- End user functions, authorization approval and notification
- Interbank functions, transfer, posting and availability of funds
- Settlement functions, real-time or deferred settlement

In a true real-time system all three layers are performed in real-time. Many different hybrids exist in the market. The amount and business situations (use cases) determine the need for the type of real-time payment and require different features in the terms of funds availability, payee and payer certainty and notification. If the system is designed to only handle small amounts, the functionality can be limited to real-time notification to the payee with a slower process for availability of funds and deferred settlement. In any case settlement must be protected, it could be done i.e. by loss-sharing agreement or prefunding. If the amount is larger and the payee is not inclined take on any credit risk first and second layer must be performed in real-time. If then the transaction value and volume is high the payee bank has an interest to reduce the credit exposure on the payer bank, which then have an impact on the third layer to also need be in real time. From experience in current implementations the challenge is in the second layer on the payee bank to perform immediate posting with a confirmation sent to payer bank and the payer. Most new systems harmonies around ISO20022 and real-time settlement mostly involves pre-funded settlement account in or outside of the domestic RTGS system.

In the interoperability model described in this document it is assumed that the functionality of the two systems involved is not changed with one exception. Interoperability between two systems using the same currency the sending system must be enabled to initiate transactions to be executed in the receiving system. Clearing and settlement would not be affected. In a dual currency situation the sending system must be both enabled to initiate transactions to the receiving system but also handle the currency conversion vs the payer for transactions forwarded to the receiving system. The settlement would in this scenario not be performed in the sending system but in the receiving system. Please see further chapter 5.3 Settlement for description of the two settlement models.

5 Interoperability solution for immediate payments

The EIG proposes a decentralized model for cross-border immediate payments, based on a bilateral exchange between EACHA members. The most important arguments for this choice are:

- connecting existing and future IPS's would be fully in line with the main EACHA mission and would promote cooperation between its members,
- the solution – which would be unique on the European scale- gives EACHA members the possibility to increase their competitive position and offer new, innovative products,
- the solution does not require a new payment scheme to be created as it would be based on bilateral agreements between EACHA members, which makes the implementation faster and less risky,
- exchange of transactions between two ACH's could be measured in seconds.

The most important shortcoming of the solution seems to be the restricted geographical scope, which at the beginning would be limited to existing immediate payment systems (UK, Sweden, Poland, Norway and Denmark). It should be underlined that at the moment there are no such systems in the Eurozone, but Eurozone ACHs separately or jointly are expected to provide these services in near future.

Taking into account the above mentioned issues, the bilateral model of exchanging immediate payments among EACHA members seems to be the optimal solution.

5.1 Functional requirements

During the discussion the Group prepared real time requirements of the new service, based on customer use cases:

Criteria	Payment use case			
	P2P face to face = RT	P2B RT	P2B Non RT	B2B RT
REM Data	Not structured	Structured or unstructured	Structured	Structured
Value	Low (€100)	Medium (€1000)	Medium	No limit
Availability	24x7x365	24x7x365	Payer : 24x7x365 Payee: 9am – 5 pm	24x7x365
Currency	Any	Any	Any	Any
Execution time	RT, 3-5 seconds	RT, 3-5 seconds	RT to payer, settlement in hours for payee	RT to payee
Payee notification	YES	YES	NO	YES
Payee ID (part of the initiation process)	Easy e.g. using an alias	Alias or from the structured data	Easy	?

Payer notification	YES	YES	YES	YES
Availability of funds	If possible	NO	NO	NO
Secure initiation	YES	YES	YES	YES

-
- P2P = person to person
- P2B = person to business
- B2B = business to business
- RT = real time

On this basis, the functional requirements of the new service are proposed as follows:

- execution time limit from the payer order to the crediting of the payee's account should be measured in seconds,
- only immediate credit transfers would be processed (no direct debits),
- value of the single transaction would be limited and also depends on the type of transaction (P2P, P2B, B2B)
- the new product should be available in any currency of the EEA. Payer should be debited in her/his account currency and respectively, the payee should be credited in her/his account currency. It is highly desirable that both sides of the transaction should have ability to initiate/receive payment by mobile devices. When the basic payee's identifier should be the bank account number (IBAN), from the customer point of view the possibility of using "pure" mobile payment (using the phone number of Payee instead of banking account number) seems to be very attractive, so creation of such a mechanism should also be considered during the implementation phase. Such a mechanism could work on the basis of current and planned proxy databases linking telephone numbers with the bank account numbers for a given territory. This is to be further investigated.
- the Payee's Agent should confirm that its customer's account is credited or inform the Payer Agent that the transaction has not been realized, i.e. because the account number was incorrect. Transaction could reach the Payee Agent before or after the settlement – it depends on the solution in ACH2. In the latter case mechanism of returning the funds to the ACH1 must be created.
- FX conversion services are handled outside the service by the Payer Agent.

5.2 Legal aspects

Legal aspects of the solution would be similar to the current connections between EACHA members. Each EACHA member who has the immediate payment system and is interested in participation (cross-system exchange) should be eligible for participation provided the respective overseer (typically central bank) does not object. A new agreement between the participating payment processors (ACH's) would be needed, with the clear description of the payment mechanism, duties and liabilities of both parties.

For settlement purposes Payer Agents should have an appropriate agreement with the member of the receiving system (Sponsoring Agreement) in case they do not participate directly in this system. This could be based on the correspondent banking model. The ACH2 would provide a list of members of ACH1 participating in the service and their respective Sponsoring Members in ACH 2, based on the declarations of Sponsoring Members. The table is necessary for both the ACH1 to validate cross-system payment orders and ACH2 to pass transactions to its IPS on behalf of the Sponsoring Member of the Payer Agent.

The final legal provisions of the interoperability between two systems should be created on the basis of detailed legal analysis of those system rules including ECB expectations in this matter. Some changes in the rules of ACH2 (i.e. funds return to ACH1 in the case when the transaction reaches Payee Agent after the settlement and is incorrect) may be necessary to make the interoperability work smoothly.

The proposed model should be regarded as compliant with existing regulations because it does not create the new payment system but only propose links and settlement methods between existing and legally certified IPS, adding the new, x-border functionality, as in the current EACHA Interoperability model.

5.3 Settlement

This part of report describes clearing and settlement for x-border transactions in real-time in a x - currencies and single currency situations. The flow chart covers the message flow from Payer to Payee and all actors in between. All activity between Payer and Payer Agent is out of the scope but is shown for the sake of completeness. The sending clearinghouse (ACH1) takes the role of technical facilitator between the Payer Agent and the clearinghouse in the receiving country (ACH2). It is assumed that one existing participant takes the role of Sponsoring Member (settlement agent) in the settlement process in the ACH2 for one or several Payer Agents from ACH1.

The clearing and settlement model in x-currencies is based on the following assumptions:

- every single payment is initiated in the currency of the receiving country (exact amount),
- payment message is sent by ACH1 to ACH2 (operators of immediate payment systems),
- leg 2 of clearing (including final settlement) is executed in the IPS of receiving country (ACH2) according to its rules,
- payment is directed to the receiving IPS by ACH1 using the routing table (during the settlement SM is debited, Payee Agent is credited), provided that Payer Agent does not participate directly in ACH2 system.

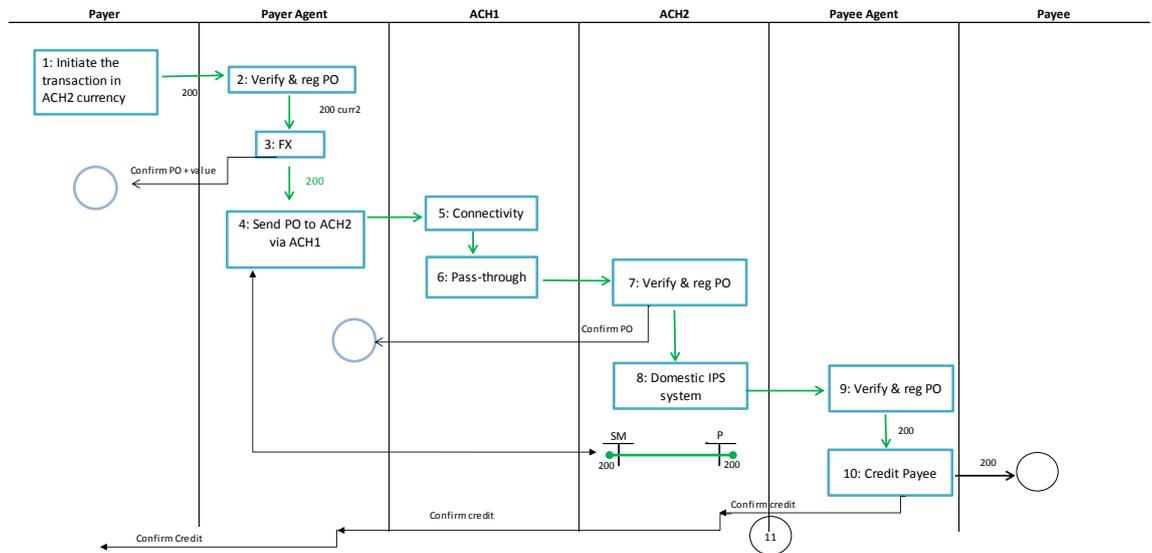
In a single currency situation the clearing and settlement is based on the following assumptions:

- every single payment is initiated in the currency of the receiving country (exact amount),
- payment message is sent by ACH1 to ACH2 (operators of immediate payment systems),
- leg 1 of clearing (including initial settlement) is executed in the IPS of sending country and the funds are credited temporary to an account in favor of ACH2,
- payment is directed to the receiving IPS by ACH1 using the routing table.
- leg 2 of clearing (including final settlement) is executed in the IPS of receiving country and settlement is debited to an mirror account in favor of ACH2 at ACH1.
- transfer of balance between ACH1 and ACH2 is agreed separately

5.3.1 X-border IPS message flow

Use case: Payer makes a transfer in real-time to a Payee located in another IPS system. Sending and receiving IPS's are using different currencies. Settlement process used in ACH2 applies, although settlement model may vary from pre-funded settlement accounts to deferred settlement. Payer Agent must accept these rules either by own membership in ACH2 or through an existing member in ACH2 (Sponsoring Member) providing such a service. FX needed between Payer and Payer Agent is out of scope, but is used when two

currencies are involved. Payer can use his account in the receiving currency or buy this currency in Payer Agent.



Step	Description
1	Payer initiates transaction in receiving system currency through one of the Payer Agent's offered channels
2	Payer Agent verifies, accepts and registers the transaction
3	Payer Agent executes currency exchange if necessary (outside scope) and debits Payer's account
4	Payer Agent submits transaction to ACH1 using agreed domestic message format and technical standard.
5	ACH1 validates and provides connectivity to ACH2 using communication and interoperability message standard, agreed between all involved clearinghouses.
6	Pass-through ACH1 to ACH2 or settlement at ACH1 before submitting settled transaction to ACH2
<i>Functionality in steps 5-6 may vary between ACH's</i>	
7	ACH2 verifies the transaction
8	ACH2 passes the transaction to the domestic IPS system on behalf of Sponsoring Member of the Payer Agent. ACH2 uses special Routing Table for all ACH1 members using this cross-border functionality linking them with respective Sponsoring Members. Sponsoring Member has the right to set a value limit for transactions generated by respective Payer Agents he sponsors. Transactions denominated in the same currency is debited to the mirror account held by ACH2 at ACH1
9	The transaction is processed in the domestic IPS system like any other domestic transaction. Payee Agent accepts and registers the transaction. The account of Payee Agent in ACH2 is credited according to ACH2 system rules.

Step	Description
10	Payee is credited
11	Confirmation back to all previous actors

5.3.2 Settlement mechanism

In the proposed dual currency model there are, in fact, two different and independent settlements. The first one between the Payer Agent and his Sponsoring Member, the second (if needed) between Sponsoring Member and Payee Agent.

The settlement between Payer Agent and Sponsoring Member may be based on correspondent banking model (NOSTRO account of Payer Agent in SM). Conditions for using such an account to real-time cross-border payments depends on the agreement between two interested parties and are out of scope of the scheme. It could be the Payer Agent's obligation to keep the exact balance of such an account, credit line or other agreed solutions.

If the Payee Agent is a different institution than a Sponsoring Member appointed by Payer Agent, transaction is passed to ACH2 (receiving IPS) in the name of SM on the basis of his agreement with Payer Agent and executed (including the settlement between SM and Payee Agent) according to the rules of ACH2.

In the proposed single currency model there are also two different and independent settlements. The first one between Payer Agent and the temporary settlement account set up in favor of ACH2 at ACH1, the second between an mirror account at ACH2 of account held at ACH1 and Payee Agent. Then on a regular basis funds are moved between ACH1 and ACH2 debiting temporary account held by ACH2 at ACH1.

5.3.3 Other functions:

Reconciliation

ACH2 sends statements or similar reports to ACH1 via the technical link established between ACH2 and ACH1. Payer Agent takes on the responsibility of reconciling and reporting any open items.

Interoperability

The message flow between ACH1 and ACH2 is built on a framework similar to the existing EACHA Interoperability framework. ISO 20022 message standard should be used in steps 6 to 7 and step 11 and downwards.

5.4 Technical aspects

The payment message would be based on the ISO 20022 standard. The subset of fields would be chosen to enable smooth processing. The decision will take into consideration experiences of systems currently in operation. Minimization of changes in existing systems would be one of the highest priorities.

Messages would be exchanged on the basis of dedicated telecommunication lines or public network (Internet). The adequate level of security should be provided.

6 Immediate payment systems in Europe

The comparative table below presents the basic description of immediate payment systems in Europe currently in operation. The table focuses on aspects which are most critical from the interoperability point of view.

	Description	System name			
		Faster Payments	BiR	Realtime 24/7 (launch Nov. 2014)	ExpressELIXIR
Operator		FPS with the technical system provided by VocaLink	Bankgirot	Nets	KIR
Country		United Kingdom	Sweden	Denmark	Poland
Currency		GBP	SEK	DKK	PLN
Governance	Governance of payment system	Based on a non-profit scheme company (FPS Ltd) where the members of the system are shareholders. The scheme sets the rules, ensures compliance with	Separate advisory product board for the BiR payment system and BiR Settlement system. The scheme sets the rules, ensures compliance with scheme rules, procures the infrastructure and	Scheme owned by Danish Bankers Association. Nets developed, owns system and IPR as well as operates.	System operator is KIR, joint-stock company owned by 12 commercial banks, National Bank of Poland (central bank) and Polish Banking Association. KIR sets the rules,

		scheme rules, procures the infrastructure and legally is the system operator. Central bank provides oversight.	legally is the system operator. Central bank provides oversight.		procedures and ensures compliance with scheme rules. System is certified and over sighted by the central bank.
Criteria for participation	Minimum requirements for participation	Must hold account at central bank, must be a Payment Service Provider and must comply with the technical and operational requirements of the System	BiR payment system member must be a PSP BiR Settlement system the member must be a financial institution and must comply with the technical and operational requirements of the System.	Bank or financial institution and connected to the national infrastructure	Banks or financial institutions provided they have the current account in SORBNET-2 system (RTGS system operated by the central bank)
Categories of participation	categories of participants (eg. direct, indirect)	As follows: <ul style="list-style-type: none"> • Direct participants (the members) • Sponsored (tier 2) banks with direct access to the system • Sponsored corporates with direct access to 	BiR payment system <ul style="list-style-type: none"> • Only direct participants BiR Settlement system <ul style="list-style-type: none"> • Direct participants • Indirect participants Nb All end customers access the service	Direct and indirect participants	Only direct participants

		<p>the system</p> <ul style="list-style-type: none"> • Tier 2 banks, personal and business customers who access the system indirectly via their bank 	through the direct participant or through a direct participant sponsored access		
System accessibility	Time frames the system and participants are accessible	Direct participants must be available 24x7x365 although some annual planned outages are permitted	24/7/365	24/7/365	24/7/365
Transaction limit		£100,000 although this is likely to increase in the next 12-18 months	No limits exist in payment system. Amount limits may exist at the end customer level	Currently 500.000 DKK (about 67.000 EUR)	100.000 PLN (about 25.000 EUR)
Payment flows supported		Scheduled payments (Standing Order Payments - SOPS) these are payments the customer has set up in advance and are processed	Payer Agent initiated or Payer initiated through a sponsored access. The second involves debit authorization by the Payer Agent	(Customer) Payer Agent initiated	Payer Agent initiates transaction, which is authorized by the Payee Agent. "Acknowledge debit" and "Acknowledge credit" instructions

		asynchronously Immediate payments (Single Immediate Payments – SIPS) which are processed synchronously			sent by Express ELIXIR to Participants. Debit and Credit confirmation sent by Participants in the last step.
Receiving confirmation	Does the system provide confirmation from Payee Agent to Payer Agent in real time	Yes, there is an SLA for the service i.e. customer should receive confirmation within 10 seconds	Yes. There is a mutual agreement. Payee Agent should respond immediately. An alert is raised if Payer Agent is not responding within 10 s. However no time-outs exist towards the Payee Agent.	Nets' real time 24/7 system sends confirmation to both payer and payee upon payee agent confirmation.	Yes. There is an SLA for the service (maximum timeouts 50 s), however delivery confirmation to customer is on Participants side.
Message standards and structure	Message standards used	Based on ISO8583 formats and Standard 18	Based on ISO20022. pain, pacs and camt messages are used. Financial flow use SWIFT MT.	ISO 20022	Participants may choose one of the 2 message standards: 1. Based on ISO 20022 (pacs messages) 2. csv format

Payee's identification			Alias or IBAN. Alias can be a mobile number or other payee identifier	National Account Number.	IBAN. The proxy database converting telephone numbers to IBANs is under development.
Settlement mechanism	Settlement mechanism	Deferred net settlement at central bank until November 2014. After that date pre-funded settlement will be introduced	Settlement in real-time on pre-funded settlement account backed with central bank money held at the central bank on an escrow account in favor of the BiR Settlement system.	DNF, currently 6 daily cycles. Settlement prefunded by dynamically exchanged liquidity allocations. Multi clearing system netting module to optimize banks liquidity needs.	Prefunded model (funds on escrow account maintained for Express ELIXIR in the central bank (SORBNET-2 system). Clearing in real-time with the usage of internal accounts (evidence held by Express ELIXIR for each Participant). Once a day (only working days) executed liquidity adjustment process.
Sponsored banks	Does system support sponsored agent banks	There are 2 options for tier 2 banks i.e. - Indirect access: send payments via	BiR Payment system is one tier system. BiR Settlement system is a 2 tier system where the sponsoring bank opens up a		Not supported

		<p>an FPS member</p> <ul style="list-style-type: none"> - Sponsored direct access: direct technical access sponsored by a payment system member. Settlement performed by member. 	<p>separate settlement account for the sponsored member</p>		
Timing and timeouts	<p>What are the time SLAs for Payer Agent, central system and Payee Agent</p>	<p>Payer Agent - 2.5 seconds</p> <p>Central system - 1.4 seconds</p> <p>Payee Agent - 3.5 seconds</p> <p>Central system - 1.1 seconds</p> <p>Payer Agent - 1.5 seconds</p> <p>Total - 10 seconds</p>	<p>Payer Agent must respond within 10 sec when debtor initiated message flow is used.</p>	<p>Timeout feature to ensure that no transactions within undefined status.</p>	<p>Timeouts:</p> <p>Payer Agent to KIR - 10 seconds;</p> <p>KIR to Payee Agent (authorization) - 20- seconds;</p> <p>KIR to Payer and to Payee Agent (while sending acknowledgments) - 20 seconds</p>
Fraud aml	<p>Fraud AML checking</p>	<p>Responsibility of the banks, mainly</p>	<p>Responsibility of Payer Agent</p>	<p>Value added module, system prepared for</p>	<p>Responsibility of Payer Agent</p>

		the Payer Agent		implementation.	
Reconciliation Files		Participating direct members can download reconciliation files for each settlement cycle	Business day 00:00 to 24:00 divided into three periods, with an option to receive a fourth statement during the last period 15.45 - 24.00. After each period one camt.053 or MT950 per account is sent to the participant	All direct participants receive file after completion of settlement.	Reconciliation files provided on daily basis to all participants via FTP
Communication	Network, protocols, etc	Socket, MQ, Web Services, TCP	MQ, SWIFTNet FIN, SWIFTNet FileAct	Channel agnostic. Currently based on MQ and/or web services.	Participants and KIR connected via dedicated network. Services invoked using secured Web Services.