Euro Retail Payments Board (ERPB)

Report from the ERPB Working Group on EIPP solutions

ERPB Meeting 29 November 2017

Contents

1. Executive summary

Scope and deliverables of the ERPB Working Group

In 2015 the ERPB started to follow the developments in e-invoicing services closely related to payments in Europe, on the basis that electronic retail payments in euro are more and more connected to e-invoicing schemes and infrastructures and that it is of utmost importance that proliferating national solutions do not result in market fragmentation which would also affect the euro retail payments market. Therefore, a pro-active approach has been considered needed to foster pan-European solutions.

In November 2016, a first ERPB Working Group on "E-invoicing solutions related to retail payments" presented its report to the ERPB, identifying the main issues and barriers preventing the take-up and integration of e-invoice presentment and payment (EIPP) solutions at pan-European level.

Following up on the report, the ERPB decided to continue the work on the subject of "E-invoicing related to retail payments" with a view to support the development of harmonised EIPP services with pan-European reach for consumers and businesses.

The scope of this further work was limited to making proposals about interoperability and reachability issues for EIPP to improve the potential for integration and scalability of current and future EIPP solutions at national and pan-European level; in turn, these proposals could have positive effects on the business case for EIPP providers and the customer value proposition for EIPP users.

The current ERPB Working Group was set up in Q1 2017 and tasked to:

- develop minimum payment-related requirements for business rules and technical standards that, on top of addressing the interoperability and reachability issues,
- cover the creation/transmission of request-to-pay messages (enabling automatic generation of payment orders) and
- support integration of existing and new EIPP solutions at domestic as well as pan-European level.

For identifying and proposing the minimum requirements, the Working Group conducted an in-depth analysis of the applied business rules, practices, technical standards and implementation guidelines of some of the existing EIPP solutions.

Findings of the Working Group

Following the introduction in Chapter 2, Chapter 3 provides an analysis of some of existing EIPP solutions, selected by the Working Group and identified in the survey conducted by the previous Working Group.

This work was useful in terms of identifying common features and points of difference arising in the present environments. There is clear evidence of the attractiveness of the EIPP proposition, but also of current disharmony in rules, standards, procedures and practices that is impeding interoperability and scalability.

The Working Group concluded that at the basic service level the EIPP functionalities, at minimum, should enable:

(i) the Payee to send e-invoices for presentment along with requests-to-pay (RTP) in the Payer PSPs' secure electronic channel, process and reconcile received payments related to e-invoices/requests-to-pay sent;

(ii) the Payer to receive, view and pay seamlessly the e-invoices in its PSP's secure electronic channels.

This basic service level description formed the basis for further analysing business processes and technical messages relevant for interoperability, subsequently allowing the Working Group to identify what needs to be harmonised and propose minimum requirements in that respect.

In Chapter 4 the Working Group has pin-pointed those aspects of EIPP that would benefit from minimum harmonisation covering:

- roles and responsibilities of involved actors;
- supporting infrastructures for EIPP service delivery and processing;
- the request-to-pay and other EIPP-related messages;
- EIPP service provider switching;
- EIPP service rulebooks or frameworks, supporting the delivery of the service.

The aspects pinpointed for harmonisation are further developed in Chapter 5 in the form of proposals for minimum requirements at the level of business rules and technical standards that could support integration of existing and new EIPP solutions.

These aspects and their related proposals are summarised below:

- **Roles and responsibilities of involved actors**

  Tasks, roles and responsibilities of the actors in the EIPP eco-system should be defined and agreed in a collaborative manner within the applicable regulatory and supervisory environment on the basis of the description of common functions of any EIPP solution.

  Ensuring security and trust must be among the actors' responsibilities as well as the commitment to enable pan-European reachability and to provide guidance for interoperability to existing and new EIPP solutions.

  The definitions should not make assumptions about the actors carrying out such roles as these may be carried out individually or in combination by specific parties.

- **EIPP delivery and processing**

  To achieve a harmonised EIPP eco-system for exchanging EIPP messages, the market stakeholders should leverage the existing tools and networks provided by the e-invoicing and EIPP services industry as well as by the existing payments infrastructures and networks.

  Market stakeholders should analyse and agree on how to create a trusted and secure EIPP eco-system, guaranteeing reachability and interoperability, so that actors can transact safely, processing and delivering EIPP messages throughout Europe, on a widely distributed basis

  In this EIPP eco-system there should be a minimum common set of guiding principles or rules for addressing, routing, business continuity, straight through processing, and security.

- **Request-to-pay (RTP) and other additional EIPP service related messages**

  The RTP was identified by the Working Group as the key linkage and integration component in EIPP solutions.

  Therefore, this message should be uniform in the EIPP eco-system and, considering its proximity to the payment, especially on the Payers' side, it should be harmonised at the pan-

European level with the view to support SEPA payments and should be included in the ISO 20022 standard.

For a complete functioning EIPP eco-system, additional messages for enrolment, activation and responses should also be harmonised.

Further analysis is needed to decide whether these messages should be part of the same standardisation framework as the RTP.

- **Switching of PSP and EIPP service provider**

Considering the context of Payment Accounts EU directive (2014/92/EU) and the need to avoid "lock-in" effects for consumers and billers (issue already pointed out in the 2016 report), the EIPP service provider switching should be enabled both for Payees as well as Payers.

In the EIPP eco-system, the Payees should then be able to easily change their EIPP service providers without onerous switching costs and the Payers to change the EIPP service provider or the PSP, both without any loss of reachability or of the established relations between suppliers and their customers.

Therefore, to ensure a smooth transition and continuity of the EIPP services, the market stakeholders should describe and agree on common rules for EIPP provider switching and consider the need to develop harmonised technical messages in support.

- **Framework for a minimum set of rules to be included in agreements relevant for interoperability**

The market stakeholders should consider the development of a common European EIPP service framework with the view to define and harmonise minimum common elements of the processes and service agreements relevant at national as well as pan-European level. In due course, this could evolve into a rulebook.

In developing such a framework, the alignment of existing practices and the above pinpointed requirements should be undertaken.

In Chapter 6, the Working Group outlined its conclusions on the way forward as the basis for the ERPB further decisions. These conclusions include the proposals detailed in Chapter 5 and the Working Group opinion that there is a need to encourage the take-up of EIPP services among critical user segments.

The development of the governance framework for pan-European EIPP solutions should be addressed and the future work should be based on a multi-stakeholder approach, capitalise on existing solutions, be open to innovation, and establish a level playing field for all regulated players.

2. Introduction

In November 2016, based on the report1 of the previous "ERPB Working Group on e-invoicing solutions related to retail payments", the ERPB concluded that e-invoice presentment and payment (EIPP) solutions are inherently attractive to billers and consumers. It was, however, noted that there are substantial issues that need to be addressed by the relevant market stakeholders to support the adoption and integration of EIPP solutions and services both in terms of deepening the use of solutions at domestic level and widening the adoption at a pan-European level. These issues are often related to the access to the EIPP services such as their cost and complexity, or the degree of digital inclusion in many markets or customer segments. However, the report also revealed that these issues are also related to diverging business rules and lack of an EU-wide eco-system for connectivity or of more interoperable standards.

To address the issues related to the business rules and standards an ERPB Working Group was mandated to develop minimum payment related requirements for business rules and technical standards that explicitly address interoperability issues between EIPP providers and support integration of existing as well as new EIPP solutions at domestic and pan-European level. Such requirements should also cover the creation/transmission of request-to-pay messages that enable automatic generation of payment orders. Issues related to the implementation of these minimum requirements are not in the scope of the current Working Group.

The Working Groups believes that addressing interoperability could have a positive effect on improving the access to the EIPP solutions. Reducing fragmentation by proposing common rules and standards could help the EIPP providers to enlarge their potential customer base and the Suppliers (Payees) to be able to propose EIPP services to more Buyers (Payers). More volumes could be reached if the EIPP exchanges were possible beyond the current services' boundaries. Making the services available to more various customer segments would also motivate the service providers to better address the end-user centricity objective by strong focus on trust achievement, multi-channel availability and ease of use.

A deeper penetration of the use of EIPP at Member State level will be a pre-requisite for the creation of a wider and integrated pan-European EIPP eco-system. Consequently, the use of harmonised business rules and technical standards is relevant at both Member State and pan-European level.

For establishing the minimum requirements, the actions undertaken by the Working Group have been organised as follows:

- In-depth analysis of applied *business rules*, *practices*, *technical standards* and *implementation guidelines* of the already operational EIPP solutions. The result of this phase was the identification of a reference model of a generic EIPP solution with its common building blocks and the way it has been implemented.
- The reference model has then been examined and a set of aspects for harmonisation has been selected among the building blocks.
- These aspects have been detailed as minimum requirements for business rules and technical standards.

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[1] The ERPB report (click here) and the statement (click here) of 28 November 2016 ERPB meeting are publicly available.

3. Analysis of current business rules, practices and technical standards of EIPP solutions

For producing a generic description of EIPP services helping in the identification of the aspects that need to be harmonised, the Working Group agreed to first thoroughly analyse the business rules, practices, technical standards and implementation guidelines of some EIPP solutions. In particular, the focus was on EIPP solutions operating in five countries 2and on the detailed results of the survey conducted in 2016 by the previous "ERPB Working Group on e-invoicing solutions related to retail payments", which identified over thirty distinct solutions.

The analysis revealed that all examined practices share a common understanding of the basic EIPP functionalities that comprise concrete services, enabling the Payees/Billers to send requests-to-pay together with e-invoices for presentment in the Payer PSPs' secure electronic channels and process received payments related to e-invoices/RTPs sent, and the Payers to receive, view and pay e-invoices/RTPs. At technical level two major implementation practices were identified, either based on (i) the structured machine-readable XML e-invoice messages enabling the Payer's PSP to extract and present RTP orders and human readable invoices (e.g. PDF), or (ii) the machine-readable request-to-pay messages linked to e-invoices enabling the Payer's PSP to present human readable invoices as well as delivery of the XML e-invoices.

Other major characteristics as basis for pan-European approach of the analysed solutions, related to interoperability, are:

- The "4-corner" model has been adopted by all solutions, making them ready for interoperability.
- The trust chain is guaranteed by the Payment Service Providers (PSPs). The entities enabling the e-invoices/requests-to-pay delivery on Payee side and receipt on Payer side are PSPs and, sometimes, E-invoicing Solution Providers (EISPs) are suppliers of the PSPs for the EIPP components.
- Multilateral or bilateral agreements are in place to allow entities to operate EIPP services.
- Request-to-pay, when used as a separate message, can be used as standalone basis for claiming payments. Various implementations and formats have been adopted for this request.
- Various addressing schemes and participants identifiers are used.

As initial input, the Working Group has considered issues and conclusions related to reachability as well as the need for interoperable standards detailed in last year "ERPB Working Group on e-invoicing solutions related to retail payments" report.

For developing the minimum requirements promoting interoperability the following step-by-step approach was taken:

- Identification of the basic functionalities of EIPP services.
- Identification of the roles and responsibilities of the entities involved.
- Identification of the EIPP services building blocks: features, rules, practices and models that the EIPP service implements.

The result of this analysis and conceptual grouping is a list of building blocks grouped into functional areas.

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[2] Estonia, Finland, France, Spain, Sweden. The detailed analysis of these solutions can be found in the Annex…

The Working Group has subsequently selected for each area the aspects that need harmonisation. This selection is illustrated in chapter 4.

3.1. The basic functionalities of EIPP services

The common functionalities of existing EIPP solutions may be grouped into three main categories as presented in the following table.

Category	Description of basic EIPP service functionalities
A. EIPP enrolment and activation	The service enables the Payee and Payer enrolment. The PSP's secure electronic channels enable the Payer e-invoice activation request and termination management The service enables the Payee to receive e-invoice activation requests via the interconnected EIPP providers' network.
B. On Payee side, e-invoices delivery and processing of payments received	The service enables the Payee to present e-invoices/requests-to-pay linked to an e-invoice in the Payer PSPs' secure electronic channels. The service enables reconciliation between e-invoices/requests-to-pay sent and payments received. Optionally the service may enable archiving of sent e-invoices.
C. On Payer side, presentment and payment of e-invoices in the PSPs' secure electronic channels	The service enables the consumer Payer to view the e-invoice in a human readable way (e.g. .html/.pdf) The service enables the business Payer to view the e-invoice in a human readable way (relevant for SMEs and microenterprises) and to export a machine-readable XML e-invoice to the ERP/accounting system of the company. Hybrid e-invoices combining XML and human-readable formats are also possible. The service enables the Payer to archive e-invoices. The service may facilitate one-off and/or automated e-invoice payments (depending on the provider and the conditions of the EIPP solution either with a SCT/SCT Inst, SDD or card payment) without the need for the Payer to type in any payment related data. The service may facilitate reconciliation of the account statement (i.e. the payment transactions) with e-invoices/requests-to-pay received.

In addition to the functionalities listed above some examined solutions have additional features such as the payment by a third-party, payment means specific to some market, Supply Chain Finance features, etc. The Working Group considers them as belonging to competitive space and therefore left out of the analysis' scope.

3.2. Functions and responsibilities of actors in the EIPP solutions

The analysis showed that many current national EIPP solutions have been developed in cooperation between PSPs and EISPs. To ensure uptake, in some markets the Payee can choose whether it would like to use EIPP via its PSP or the EISP. In practice, it is usual that SMEs and micro enterprises outsource the e-invoicing steps to specialised providers in case their own PSP does not enable this

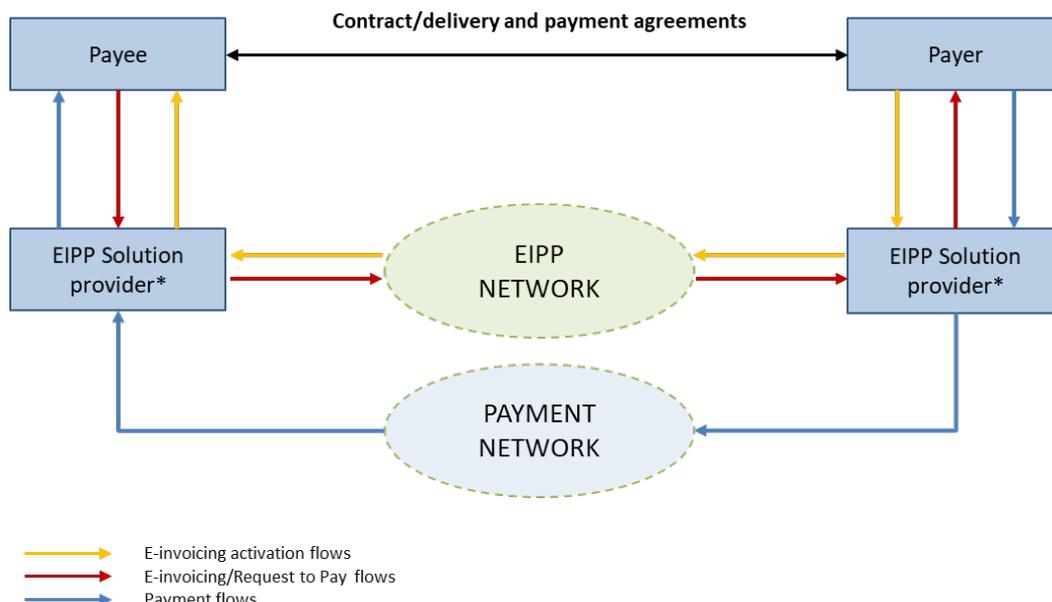through its internet banking interface. The EISP have in many cases played a role by routing e-invoices and other EIPP related messages between the actors in the EIPP eco-system and enabling the Payee to send e-invoices through a single point of entry.

An EIPP solution that interlinks different EIPP providers into one eco-system requires active involvement of PSPs, EISPs, Payees and Payers. In the specialised terminology (see also the Glossary of terms in the Annex 7.3) these entities collaborate in a "4 corners" model. Nevertheless, the e-invoicing market is composed not only of implementations of this model but also of direct models (Supplier or Buyer) or 3 corners model.
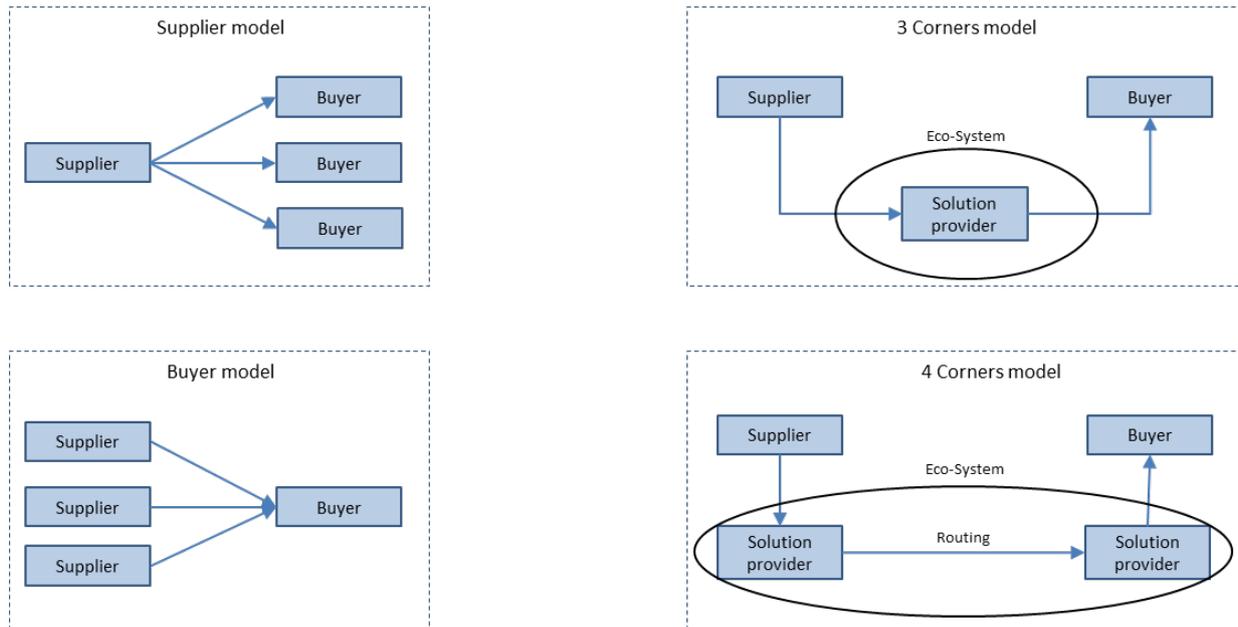
For the current analysis, the Working Group focused on the 4-corner model as it covers most EIPP solutions currently available.

The diagram below depicts the stylised message flows and relations within the EIPP eco-system, covering the routing of e-invoice and other EIPP-related messages, processing of enrolment and E-invoicing activation orders from the Payers.

Contract/delivery and payment agreements

E-invoicing activation flows
E-invoicing/Request to Pay flows
Payment flows

*For payment processing the EIPP Provider is always a PSP

The following table describes the common functions and responsibilities of each actor in the EIPP context.

| Actor	Functions and responsibilities in the EIPP context
Payee	The Payee is responsible of monitoring and managing incoming EIPP activations, preparing and sending e-invoices/requests-to-pay to the Payer's EIPP service provider.
Payer	The Payer starts the whole EIPP process with the EIPP activation, receives e-invoices/requests-to-pay and initiates the payments.
EIPP provider	**On the Payee's side:** - enables the Payee's enrolment into the EIPP eco-system and makes it visible by other EIPP services participants. - delivers or makes available to the Payer's EIPP provider e-invoices or e-invoices and requests-to-pay, through electronic channels - facilitates reconciliation of e-invoices delivered and payments received, and enables the Payee to monitor the status of outstanding and paid e-invoices. **On the Payer's side:** - facilitates the access to the directory of EIPP-enabled Payees - enables the Payer to activate EIPP services and delivers EIPP activations to the Payee's EIPP service provider - enables the Payer to receive, view, archive and process e-invoices (full dataset or human readable format) - enables the Payer to receive, view and generate payments order from a requests-to-pay - initiates payments and associated functions, depending on the payment instrument connected to the EIPP. **Other functions:** - ensures the chain of trust between EIPP participants (other Providers, Payees) - facilitates exchange and routing between EIPP providers - host EIPP participants directories and facilitates interconnection between directories.

3.3. EIPP building blocks essential for a successful end-to-end solution

To ensure an in-depth analysis the Working Group concluded that there are five key categories of building blocks that have proved essential for an efficient EIPP solution and underpin the EIPP processes.

This categorisation is derived by mapping the basic functionalities with the entities involved:

1. To start using EIPP services the entities need to be **enrolled** and the EIPP flows **active** in the eco-system
2. The entities need to be **reachable** and **to communicate**
3. The messages exchanged are e-invoices/requests-to-pay circulating from a sender to a receiver, having their own **lifecycle**
4. **Data** contained in the messages are exploited for E-invoicing and payment purposes
5. The e-invoices and requests-to-pay enable the generation of **payment** orders

The following diagram illustrates the above-mentioned categories and the coverage of the typical EIPP processes by these categories:
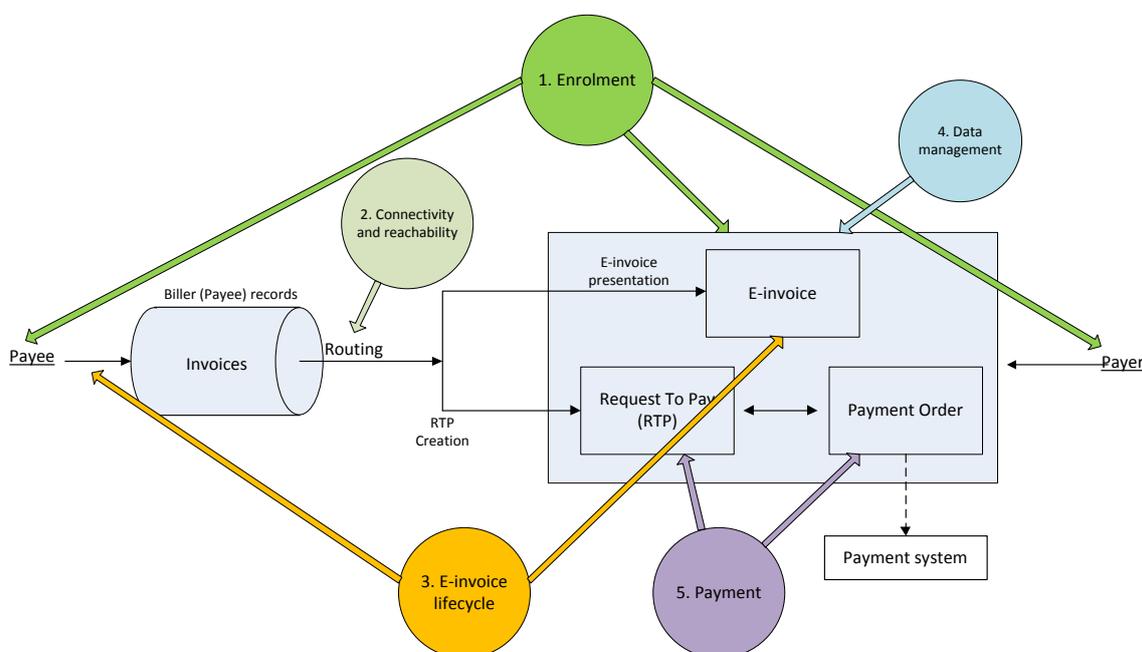
Considering that the overview of each building block under the identified categories could be used by the market stakeholders in the future, the Working Group decided to annex the details of the analysis and in the following only present the aspects that form the basis for interoperability between different EIPP providers and ensure reachability for Payees and Payers. For the current analysis, the aspects related to the underlying networks enabling the e-invoicing and payment are left out of scope.

After establishing the "reference model" of EIPP services, composed of the map of building blocks, the Working Group analysed their relevance for harmonisation aiming to achieve interoperability.

4. Aspects of business rules and technical standards that will need to be harmonised

This chapter sets out the Working Group's conclusions pinpointing those aspects of business rules and technical standards for minimum payment-related requirements for EIPP that will need to be harmonised, as requested in the Working Group's Mandate. These are then deepened in Chapter 5.

The previous Chapter 3 has summarized the results of an analysis of a number of successful EIPP systems operational in Europe today. This analysis includes the applied business rules, practices, technical standards and implementation guidelines of these already operational EIPP solutions. The analysis includes the identification of a number of "building blocks", which are commonly present in current EIPP solutions and recommended for inclusion in future solutions and their integration.

In focusing on aspects requiring harmonisation, the Working Group selected those aspects where collective action to implement common rules and standards is essential to the delivery of a consistently functioning eco-system. This leaves the management of other aspects identifiable in the "Building Blocks" mapping to the individual actions of EIPP solutions, to competitive forces, or for subsequent collective actions as such requirements are identified in future.

The aspects requiring harmonisation have been pinpointed as follows:

4.1. Definition of Roles and Responsibilities

The definition of roles and responsibilities of parties in the EIPP eco-system is essential for providing clarity for end-users, for providers of all kinds, and for those engaged in management and governance. This also constitutes the basis for governing legal agreements and service level agreements set out below.

The definitions should not make assumptions about the actors carrying out such roles as these may be carried out individually or in combination by specific parties, subject to the avoidance of conflicts of interest.

It is not expected that brand-new roles need to be defined but draw on currently used definitions in existing EIPP systems.

4.2. EIPP delivery and processing

Some key elements of EIPP processing need to be harmonised to achieve reachability in the EIPP eco-system. Reachability is defined as the ability of Payers and Payees using EIPP to transact with each other safely and securely irrespective of their geographical location or access channel. It involves the creation and sustainability of network effects based on minimum business rules and technical standards that should ensure a complete end-to-end trust chain.

In this area these business rules and technical standards will cover connectivity and interoperability, the addressing and routing of messages, identifiers for all parties, multiple identities, and appropriate directories and discovery mechanisms.

Best practices appropriate to the transmission level in both payment-related and invoice-related applications should be identified and observed.

4.3. Request-to-pay and other EIPP related messages

The request-to-pay (RTP) message is singled out for attention as it is a key linkage and integration component in the EIPP system.

The requirements identified for business rules and standards should cover the creation and transmission of request-to-pay messages that enable automatic generation of payment orders. This should be designed to permit the inclusion of payment related information themselves and other required components as are required such as the e-invoice in a number of (optional) formats.

In addition to the RTP message a number of other essential messages for the operation of the EIPP system are required. These include:

- Message for enrolment of actors in the EIPP eco-system.
- Message for EIPP service activation messages, i.e. enabling a link between a Payee and a Payer for e-invoices and requests-to-pay delivery.
- Related to the abovementioned messages, their corresponding response, rejection and amendment messages.

4.4. EIPP Provider switching

Attention needs to be paid to the ability of Payers and Payees to move from one provider to another with minimum effort. Minimum business rules and technical standards requiring harmonisation include a common switching process and where feasible and drawing on best practice in the payments industry include the option to conserve the identifiers after switching if this is possible for payment accounts. These provisions should be designed to avoid "lock-in" effects

4.5. Framework for a minimum set of rules

There is a need for the harmonisation of elements of agreements relevant for interoperability, between parties to EIPP including Payers, Payees and their providers, between providers, and in the context of governance. The latter should be based on a set of recommended governance principles. The harmonisation should also extend to elements of service level agreements. All agreements need to be consistent with the roles and responsibilities defined under the section 4.1 above.

The minimum elements requiring harmonisation should leave out those aspects, especially in agreements between end-users and their providers, that belong to the competitive domain and where centrally agreed provisions are not appropriate or needed.

Since issues related to the implementation of these minimum requirements are not dealt with by the Working Group, they are, where identified, simply noted to enable follow-up at the appropriate level.

5. Minimum requirements

This chapter focuses on the key aspects that need to be addressed and harmonised by relevant market stakeholders for establishing an interoperable EIPP eco-system. The outlined requirements detail -at minimum- what needs to be covered and agreed at the level of business rules and technical standards to support integration of existing and new EIPP solutions as well as reachability at national, cross-border and ultimately pan-European level.

The following builds on the conclusions of the analysed existing EIPP practices and the identified aspects that should be harmonised.

Concretely the Working Group puts forward minimum requirements covering (i) the roles and responsibilities of involved actors, (ii) the supporting infrastructure for EIPP delivery and processing, (iii) the request-to-pay and other EIPP-related messages, (iv) EIPP provider switching, and (v) the need for a common EIPP framework supporting the delivery of the basic service.

5.1. Roles and responsibilities

The Working Group identified that the existing EIPP solutions share common functionalities underpinning the basic EIPP service, which enables (i) the Payee to send requests-to-pay together with e-invoices for presentment in the Payer PSPs' secure electronic channel, process received payments related to requests-to-pay/e-invoices sent, and (ii) the Payer to receive, view and pay e-invoices/request-to-pay in its PSP's secure electronic channels. It is also acknowledged that in order to deliver those functionalities to the payment service users at national level the market stakeholders have had to define and agree on the roles and responsibilities of each actor.

In this respect, clearly defined roles and responsibilities are the foundation of an efficient and secure EIPP solution that the Payees and Payers trust. Therefore, based on the current market practices the Working Group outlined the functions and responsibilities which should be carried out by relevant market stakeholder to deliver the basic EIPP service. However, for enabling EIPP at pan-European level, first the whole eco-system allowing inter-connecting existing as well as new EIPP solutions should be established. This may have further implications that need to be considered when agreeing on the common roles and responsibilities that would be applicable for EIPP solutions throughout Europe.

For developing well-functioning EIPP solutions at domestic as well as pan-European level, in the business rules the market stakeholders are required to:

a) **Define and agree on common tasks, roles and responsibilities of the actors in the EIPP eco-system. This should be done in a collaborative manner within the applicable regulatory and supervisory environment, on the basis of:**

- the basic EIPP service description provided in this report (see 3.1.);
- the description of the common functions and responsibilities of actors in the existing national EIPP solutions outlined in this report (see 3.2.).

b) **Ensure security and trust by clearly defining and agreeing on common responsibilities for:**

- liability distribution;
- dispute resolution between the EIPP service users (e.g. in case of incorrect invoices etc.);
- fraud protection, covering measures for the EIPP service users (e.g. in case a fraudster sends a request-to-pay which is then authorised by the Payer);
- identifying the involved supply side stakeholders including authentication requirements.

c) **Comply with the EU regulatory frameworks related to payments (e.g. PSD2 and SEPA end-date regulation), data protection (e.g. GDPR), e-Identification (e.g. eIDAS) and taxation.**

    d) **Commit to deliver the basic EIPP service following the agreed common business rules to facilitate pan-European reachability.**

    e) **Provide guidance on interoperability of existing, new and future pan-European EIPP solutions (e.g. in the form of specific guidelines).**

5.2. EIPP delivery and processing

The Working Group noted that in case of existing national EIPP solutions, interoperability and reachability has been achieved in cooperation between PSPs, EISPs and other technical service providers (e.g. accounting software providers). In several cases for establishing the supporting infrastructure for EIPP delivery and processing the stakeholders have agreed on a scheme-like interoperability framework that leverages on the existing "national" e-invoicing and SEPA payments infrastructures. However, despite the fact that the national EIPP solutions deliver the same basic functionalities and in many cases the stakeholders share similar roles there are differences at the delivery and processing level, which impede cross-border interoperability.

The existing EIPP practices revealed - in principle - two ways how the EIPP messages are delivered and processed.

The success of EIPP solutions, as presented in chapter 3, has been based on the trust between the PSPs and Payees/Payers. This implies that EIPP processing and delivery is done in a four-corner model setup with the PSPs having agreements with the Payees/Payers, whilst e-invoicing solution providers may enable technical support to the Payees for creating and sending e-invoices as well as requests-to-pay.

Alternatively, there are practices where the Payee does not need to have an agreement directly with its PSP, but can "outsource" the e-invoices/requests-to-pay creation and delivery to E-invoicing solution providers. In practice this relates to bilateral arrangements/links between the PSPs and third parties (e.g. e-invoicing solution providers) to create trust for sending e-invoices/requests-to-pay into the Payer PSPs' electronic channels.

The Working Group acknowledges that in a relatively small market such bilateral arrangements may be feasible to ensure trust between the stakeholders, but underlines that in the cross-border context this would not be scalable. Based on the technical capabilities, some Payees may want to decide whether to have a direct agreement with the PSP or outsource the e-invoice/request-to-pay creation and delivery to an EISP. Therefore, it would be feasible to further analyse how to best create a trusted and secure EIPP eco-system that would build on multi-lateral arrangements to allow identifying the involved PSP and non-PSP EIPP providers.

As regards Payer and Payee identification as well as routing EIPP-related messages, the Working Group noted different practices in the naming conventions and available routing directories. For instance, in the Nordic-Baltics the Payer may be identified by the IBAN or personal identification code, whereas in France - for data protection reasons - proxies to IBANs (i.e. tokenization) may be used. The practice how the directory of EIPP-enabled Payees is made available to the Payer PSPs for integration within their EIPP interface is currently different as well. In addition, there seem to be different needs regarding EIPP-related messages that are essential before and after the Payee sends the e-invoice to the Payer's EIPP interface (e.g. this relates to different response messages).

For facilitating an infrastructure for EIPP delivery and processing at domestic and pan-European level (EIPP eco-system), in the business rules as well as technical standards the market stakeholders are required to

a) **Leverage the existing e-invoicing and SEPA payment infrastructures for exchanging EIPP messages as the European EIPP eco-system could benefit from the established e-invoicing solution providers', possibly also ACH/CSMs' networks and existing messaging channels.**

b) **Further analyse and agree on how to create a trusted and secure EIPP eco-system guaranteeing reachability and interoperability that allows for processing and delivery of EIPP messages throughout Europe. In particular considering that, the EIPP eco-system should:**

- ensure continuity and flexibility for all use cases (B2B, B2b, B2C, etc) by allowing to transmit machine readable XML messages together with human readable formats (PDF);
- support technical validation of incoming EIPP messages and - in case of need – conversion of outgoing XML messages into the preferred technical format of the Payer's PSP to allow end-to-end straight-through-processing;
- agree on a qualified naming convention for users (considering the need for proxies) and providers to allow routing and switching;
- agree on the minimum service level elements (such as processing and delivery times etc.) in order to ensure a consistent and harmonised user experience.

5.3. Request-to-pay and other EIPP related messages

Request-to-pay

The Working Group acknowledges that the European Commission wants to see broad-scale adoption of e-invoicing (as defined in Directive 2014/55/EU) by 2020 and published the European e-invoicing standard (EN 16931) as adopted by the European Standardisation Body (CEN) together with two interoperable technical syntaxes3 in the Official Journal of the European Union. In this respect, what is currently being done in the business-to-government and business-to-business domains should have spill-over effects – e.g. through EIPP - on SMEs, micro-enterprises and consumers.

With this background, it could be feasible to suggest using the full XML e-invoice messages as the basis for collecting payments with EIPP (e.g. through a Core Invoice Usage Specification for EIPP based on the European e-invoicing standard).

However, considering that on the receiving side the PSPs have different technical capabilities and it would be too burdensome to require that all PSPs need to process received full XML e-invoices the Working Group has taken a more pragmatic approach by favouring harmonisation of the request-to-pay messages.

In principle, this would also support the uptake of e-invoicing, because on the sending side the Payee having implemented e-invoicing could create the RTP and the human readable version of the e-invoice (e.g. PDF) in its accounting system or with help of an EISP based on the XML e-invoice data. On the receiving side the majority of PSPs should be capable of processing an ISO 20022 based RTP message, which is coupled with a human readable version of the e-invoice (e.g. PDF) and in case the Payer is a SME possibly also with the original XML e-invoice file.

Therefore, to facilitate smooth uptake of EIPP (in particular on the receiving PSP side), the Working Group suggests that the request-to-pay message should be adapted for EIPP and harmonised at

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[3] UBL and UN/CEFACT Cross Industry Invoice (CII)

the pan-European level, with the view to support SEPA payments as well as the general uptake of the European e-invoicing standard. In this harmonisation work, the market stakeholders should consider the following requirements:

[Applicable to business rules]

- The request-to-pay should be an EIPP technical message, associated with an e-invoice, issued by an entity of EIPP eco-system (Payee, PSP, EISP), routed through the EIPP network and reach the Payer's PSP for processing.
- Its purpose is to enable the automatic initiation of payment and in this respect the data it contains should be self-sufficient for payment initiation. It should be agnostic regarding the format of the underlying e-invoice.
- In the light of GDPR directive, it must by compliant with data protection regulations applied to its own data and to the attached or referenced data, in particular the data of the underlying e-invoice to which the Payer should always have access.
- It should contain a minimal set of data elements enabling payment initiation:
  o Parties' identification.
  o Payment instrument.
  o Amounts, dates, additional information by payment instrument.
  o Taxation.
  o Remittance information for the reconciliation between the payments and e-invoices on Payee's side .
- It must allow identification and access to the associated e-invoice.
- Additionally, it could contain an attachment or reference to the human readable format of the e-invoice and other supplementary data such as such as E-signatures, multiple identifiers (e.g. in case of Payer different from Buyer, Payee different from Supplier).

[Applicable to technical standards]

- As the RTP's purpose is to enable payment initiation and considering the existing SEPA standardisation in e-Payments, the request-to-pay should be part of ISO 20022 standard. Further work is needed to assess the most appropriate ISO business area, reusability of existing similar messages, submission and maintenance process, etc..
- It could be part of an XML "envelop", together with the e-invoice full dataset, or could be a standalone message containing e-invoice full dataset as an attachment .
- Human readable formats such as PDF or images should be supported as attached additional data.
- Alternatively, references to full e-invoice dataset and human readable format should be possible as secure URLs.

Other EIPP-related messages

The Working Group notes that the other EIPP-related messages supporting service activation, deactivation and different reporting purposes are essential for an efficient and trusted EIPP solution. As noted in existing EIPP solutions the supporting messages are proprietary, thus currently not interoperable. As stated in the chapter 4 above, and as a consequence of responsibilities recognised for EIPP actors, those – servicing messages - should be harmonised in existing and implemented in new EIPP solutions. These messages are pre-requisites for interoperability, regardless how the market stakeholders will decide to organise the eco-system for EIPP delivery and processing.

Therefore, to facilitate smooth uptake of EIPP, the Working Group suggests that the EIPP-related servicing messages should be harmonised on pan-European level. In this harmonisation work, the market stakeholders should consider the requirements as detailed under each servicing message:

1. EIPP Provider enrolment message:
   - Applicable to PSPs and E-invoicing providers (EISPs), aims to insert the provider identity in the EIPP directories.
   - As the frequency of this message is not expected to be high, its functions can be implemented by other means than standardised messages such as periodical update of the eco-system with the updated list of providers.

2. Payee enrolment message
   - Sent by the Payee or its EIPP provider, it aims to insert the Payee identity in the EIPP eco-system (directories).
   - It should at least contain the necessary dataset needed for identification (including EIPP and payment capabilities) and routing.

3. Activation message
   - Sent by the Payer or by its EIPP provider, it aims to communicate to the Payee that the Payer is ready to accept e-invoices/RTPs.
   - The most important element of this message is the Payer identifier. Enriched with the identity of the Payer PSP and received on the Payee it allows to establish a mapping with the Payee's record (Customer ID).
   - It can be sent as a response to an "invitation" from the Payee and in this case the message should contain the Customer ID of the Payer on the Payee side.
   - EIPP flows can be executed without explicit activation, if the Payee already knows the Payer full EIPP identity.
   - Corresponding deactivation message for ending the E-invoicing relation of the Payer with the Payee.

4. In addition to the messages of types 1,2 and 3 abovementioned, corresponding messages should be defined for responses, rejections and amendments (changes).

Further work is needed to decide whether the servicing messages should be designed and maintained within the same standardisation framework as the request-to-pay. The possibility to use already standardised messages employed in payment systems should be evaluated and any requirements for adaptation identified.

5.4. Switching of PSP/EIPP provider

The Working Group noted that in the existing EIPP solutions there are no options for the Payee nor the Payer to change its EIPP provider in a smooth manner. As identified in the previous ERPB report of 2016, the businesses and consumers may experience a "lock-in" effect because it is difficult to move from one provider to another without losing their data and without high organisational effort.

Considering that the EIPP service is perceived by the consumers as a service enabling payment of e-invoices/requests-to-pay, parallels could be drawn to the Payment Accounts EU directive (2014/92/EU) which established the rules covering payment account switching. However, in this

respect, to avoid "lock-in" effects, the Working Group considers that EIPP provider switching should be enabled both for Payees as well as Payers.

In principle, the Payees should be facilitated to switch EIPP providers without onerous implementation costs for request-to-pay/e-invoice sending and the Payers to change the EIPP provider without the need to re-enter all request-to-pay/e-invoice applications and payment specifications.

Therefore, to ensure a smooth transition and continuity of the EIPP services, the market stakeholders should describe and agree on common rules for EIPP provider switching and consider the need to develop harmonised technical messages in support.

5.5. Framework for a minimum set of rules to be included in agreements relevant for interoperability

As set out in the previous sections, depending on the responsibilities of entities, currently there are various ways to implement EIPP services. The existing agreements reflect this diversity and made possible EIPP services' take-up in some markets. These also facilitate and formalise the entrance procedures for new Payees or EIPP providers. Nevertheless, pan-European interoperability is difficult to achieve on the basis on the existing national frameworks, as these are linked to specific institutions, standards or legislations.

The Working Group considers that a common framework for EIPP related agreements at pan-European level would be necessary. This framework could be formalised as a rulebook and should contain at least the elements essential for interoperability.

Therefore, to facilitate development of interoperable EIPP solutions, the Working Group suggests that the market stakeholders consider agreeing on developing a common European EIPP framework with the view to harmonise the processes and service agreements relevant at national as well as pan-European level, which could evolve into a rulebook.

In developing such a common framework, the market stakeholder should in cooperation first align themselves as much as possible with existing practices and tackle the key issues as pinpointed in the requirements throughout this chapter.

6. Way forward

Based on the harmonisation needs and proposed minimum requirements thereof the following next steps could be envisaged:

- First, a technical ISO 20022 based message for request-to-pay should be adopted for EIPP and harmonised together with the EIPP servicing messages to form a "common language" for communication between different EIPP providers.
- Second, a common EIPP framework could be developed consisting of a minimum set of rules, to support integration of existing and give guidance to emerging EIPP solutions in delivering harmonised EIPP services. Further development of the minimum set of rules should be considered in due course.
- Third, an interoperable delivery and processing eco-system needs to be established based on multi-lateral arrangements to ensure reach at national as well as pan-European level.

- Fourth, minimum rules for enabling EIPP provider switching and required technical messages should be developed to allow Payees and Payers moving from one provider to another without onerous switching costs or effort.
- Fifth, the take-up of EIPP services should be encouraged among the critical user segments including large billers, digitally enabled consumers and small businesses, and the public sector.

The future work on next steps and the minimum requirements should capitalise on existing solutions, be open to innovation, and establish a level playing field for all regulated players.

During the potential next phase of work, the governance framework for EIPP solution covering the above areas of action has to be developed reflecting a multi-stakeholder approach.

7. Annexes

7.1. Existing solutions: features' matrix

•	Sweden	Finland	France	Spain	Estonia
Governance role	Swedish Bankers' Association	Finance Finland	SEPAmail	CaixaBank	Estonian Banking Association
Agreements	Multilateral between PSPs and Payee/Payer with PSPs	Bilateral between PSPs and Payee/Payer with PSPs	PSPs with SEPAmail, Payee/Payer with PSPs	Payee with Caixabank, Payer with 3rd party or Caixabank, Caixabank with 3rd parties	Bilateral between PSPs and Payee/Payer with PSPs
Model	4 corners	4 corners	4 corners	3-4 corners	4 corners
Request-to-pay	Yes, EFB-files, via banks only	Yes, ePI (e-payments initiator) embedded into ebXML e-invoice dataset	Yes, ISO 20022 format in SEPAmail envelop with e-invoice in attachment	Yes, payment information extracted from the e-invoice by Payer EIPP under payer authorization	Yes, ("PaymentInfo data" subset embedded in the XML e-invoice dataset)
Identity	Decentralised; social sec ID/VAT ID + agreement no + bank ID + country	IBAN, VAT ID	QXBAN (Tokenised IBAN) and ICQX for Payee	Government eID	IBAN, Government eID
Reachability	Via PSPs	Via PSPs	Via PSPs	Via PSPs	Via PSPs and EISPs
Payment means	domestic	SCT, cards	SCT	SDD, (S)CT, SCF programs (factoring, confirming)	SCT
E-invoices format	Any	Finvoice (ebXML)	Any	Facturae	Estonian e-invoice
E-invoicing service providers	Yes, technical suppliers	Yes, for B2B	Yes, technical suppliers	Yes, technical suppliers	Yes, independent or technical suppliers

7.2. Building blocks: detailed analysis

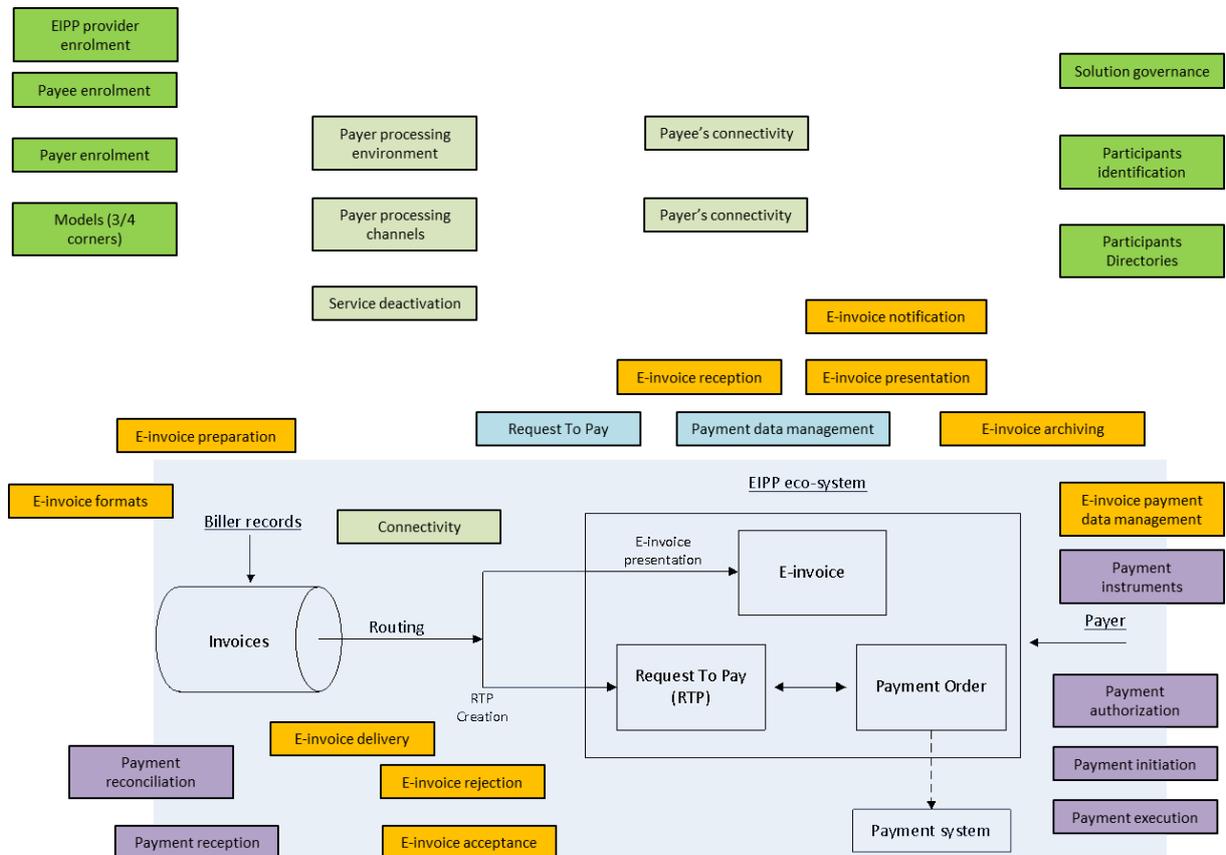**Building blocks categories (areas):**
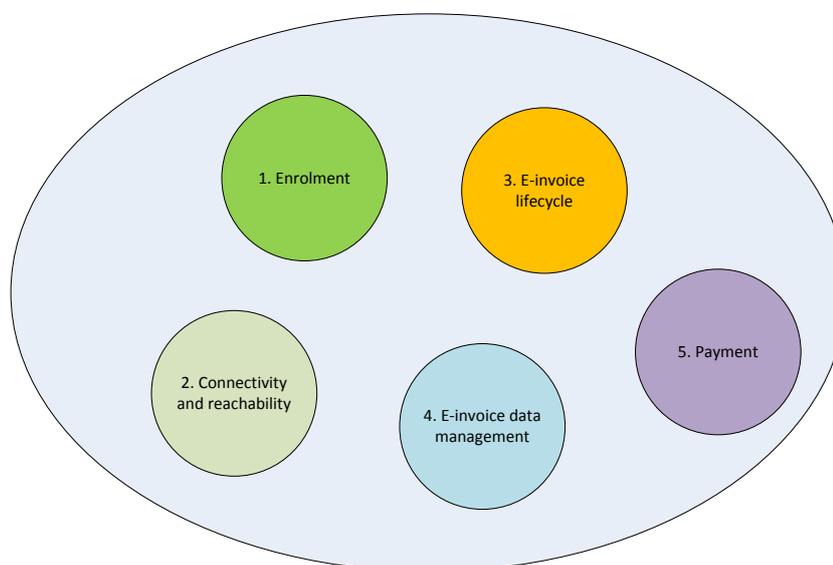
Some of the building blocks in several areas are out of scope of the initiative related to interoperability, either because they are in the "competitive space", either because they are beyond the boundaries of core analysis encompassing the Payment and Presentation of the e-invoices.

The table below presents a list of "in scope" building blocks of each area:

	Building block	Description
1.1	EIPP provider enrolment	What an EIPP provider needs to do in order to participate to the EIPP eco-system.
1.2	Payee enrolment	How a Payee can start to use the solution for issuing and sending e-invoices and receiving payments.
1.3	Payer enrolment	How a Payer can start to use the solution for receiving and paying the e-invoices.
1.4	Service activation/deactivation	How an individual customer on Payer side activates/deactivates the service for a Payee.
2.1	Connectivity	How the e-invoices can be sent from the Payee to the Payer (reachability, underlying network used).
2.2	Models (3/4 corners)	E-invoicing model implemented by the solution
2.3	Participants identity	How a participant is identified, addressing modes and patterns
2.4	Participants directories	Where identities are stored and how they can be retrieved
3.2	e-invoice reception	How the Payer EIPP Provider receives the e-invoice
3.3	e-invoice presentation	How the Payer receives the e-invoice from its EIPP provider

3.6	e-invoice delivery	From the Payee perspective, how the Payee delivers the e-invoice to its EIPP provider.
3.7	e-invoice rejection	How the solution processes the rejection of an e-invoice previously sent.
4.1	Payment data management	What fields from e-invoice dataset related to payment are extracted and used.
4.2	Request To Pay	How the request for payment is created by the Payee or EIPP provider.
5.1	Payment instruments	What payment instruments are supported (SEPA schemes, card payments, cash, other national payment means)
5.2	Payment initiation	How the solution implements the payment initiation on the Payer side
5.4	Payment reconciliation	On the Payee side, what the solution proposes to facilitate the reconciliation between the e-invoice and the payment. The processing in Payee's ERPs is out of scope.
5.5	Payment reception	How the Payee receives the payment of the e-invoices.

Depending on the logical place in the EIPP chain, the building blocks of each area can be situated as follows:

7.3. Glossary of terms

Term	Definition	Remark/background*
EIPP	<u>E-Invoice Presentment and Payment solutions</u> These solutions combine e-invoicing services and payment services. They are facilitated directly/indirectly by payment service providers and/or e-invoicing service providers, enabling: • **The Payer** to flexibly receive and manage e-invoices and/or requests-to-pay and to <u>pay them with existing payment instruments</u> (i.e. credit transfers, direct debits, card payments) <u>without the need to manually copy paste or type in data for initiating the payment</u> • **The Payee** to digitalise processing of its invoices and to <u>send/route them to the Payers</u>.	This is in the scope and focus of work by the ERPB WG on EIPP solutions. EIPP service role can be played by several actors fulfilling the minimum requirements, e.g. PSP, EISP, Payee
EIPP provider	<u>Service provider offering EIPP services</u>	This term covers PSPs and E-invoicing solution providers (EISP)
EISP (E-invoicing solution provider)	Company offering E-invoicing solutions and services, such as creation, delivery, routing of e-invoices and requests-to-pay, automatic reconciliation of e-invoices with payment data, conversion services, interfaces with ERP applications, etc.	Used in this report for non-PSP EIPP providers
ERP (Enterprise Resource Planning) system	Business process management software that allows an organization to use a system of integrated applications to manage the business and automate many back office functions such as procurement, production, technology, accounting and support services, and human resources.	
Supplier/Payee/Sender/Issuer/ Creditor	In the EIPP context it is the originator of the e-invoice. It is also the provider of the goods and services and the beneficiary of the funds transferred in the payment flow.	These terms may be interchanged, although the term Payee is the most used.
Consumer/Payer/Receiver/Debtor/ Buyer	In the EIPP context it is the recipient of the e-invoice. It is also the party receiving the goods and services and the originator of the funds transferred in the payment flow.	These terms may be interchanged, although the term Payer is the most used.
PSP	Payment Service Provider	This covers the entities operating in the payments industry as defined by PSD2
PSU	Payment Service User	A person or company making use of a payment service in the capacity of Payer, Payee or both.
B2C **B2B/B2b** **B2G**	Business To Consumer Business To Business Business To Government In the current context, these terms represent the 2 parties involved in EIPP as a process in the trading exchange.	B2B and B2b are here differentiated with respect to the size of the beneficiary of the goods and services part. In both cases they are companies. In a B2B (B to "uppercase B") relationship the beneficiary is a large company. In B2b (B to "lowercase B") relationship the beneficiary is an SME or a microenterprise.
Electronic invoice (e-invoice)	An invoice that has been issued, transmitted and received in a structured electronic format which allows for its automatic and electronic processing. (Directive 2014/55/EU)	E-invoices must be machine readable and enable fully digital/automatic processing, without any need for manual intervention for inserting or amending data – i.e. copy-pasting or typing in data.
E-invoice presentation	A representation of an e-invoice in a human readable format (e.g. PDF)	It is also often the sole version of the invoice presented to Payers. It is also possible, although not optimal that the visual representation is the sole version of the

		invoice created in the issuer's system. Another variation is a visual presentation in which a structured electronic format is embedded.
Request-to-pay	An EIPP technical message representing a claim for payment.	This forms a message to the Payer in an EIPP solution giving the minimum information allowing the initiation of payment without the need to type in any payment related data.
European Standard on e-invoicing	It establishes a semantic data model of the core elements of an electronic invoice. (Directive 2014/55/EU)	The standard describe the core elements which an electronic invoice must always contain, thus facilitating the sending and receipt of electronic invoices between systems based on different technical standards (syntaxes). This has been developed by the European Committee of Standardisation (CEN).
Semantic data model	A structured and logically interrelated set of terms and their meanings that specify the core elements of an electronic invoice. (Directive 2014/55/EU)	This has been defined by CEN. The semantic model focuses on public procurement invoicing by public and private sector organizations. It may be used for invoicing between private sector enterprises and it also facilitates harmonisation of the basic elements for e-invoicing in the B2C domain.
Core elements of an electronic invoice	A set of essential information components which an electronic invoice must contain in order to enable cross-border interoperability, including the necessary information to ensure legal compliance. (Directive 2014/55/EU)	This has been defined by CEN. Including also fiscal compliance.
Syntax / syntax bindings	Syntax is the machine-readable language or dialect used to represent the data elements contained in an electronic invoice. Syntax bindings are guidelines on how a semantic data model for an electronic invoice could be represented in the various syntaxes. (Directive 2014/55/EU)	Examples of syntaxes: - UN/CEFACT Cross Industry Invoice - UBL - ISO 20022 Financial Invoice - EDIFACT
E-invoicing models	In the current context, the categorisation of e-invoicing solutions based on the number of intermediary platforms involved in the presentation and payment processes.	• **Supplier Direct**. The Supplier creates, stores and manages the entire lifecycle of the e-invoices. The Payer must access the Supplier platforms in order to get access to its invoices. There is no intermediary in the presentation flow. Typically, the e-invoicing solutions embedded in the Supplier web portals belong to this category. • **Buyer (Receiver) Direct**. The Suppliers post the invoices into platforms on Buyer side. There is no intermediary in the presentation flow. • **Network model: 3 corners**. Between the Supplier and the Buyer, a 3rd platform exists, E-invoicing service provider. Both the Supplier and the Buyer have access to this platform. • **Network model: 4 corners**. Each participant in the flows (Supplier and Buyer) have their own E-invoicing provider. The e-invoicing flows are routed between the 2 platforms.
SCF	Supply Chain Finance	Use of financing and risk mitigation practices and techniques to optimise the management of the working capital and liquidity invested in Supply chain processes and transactions.

7.4. Composition of the Working Group

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