



# 1. Introduction to PEPPOL, what it does and where it spreads

André Hoddevik

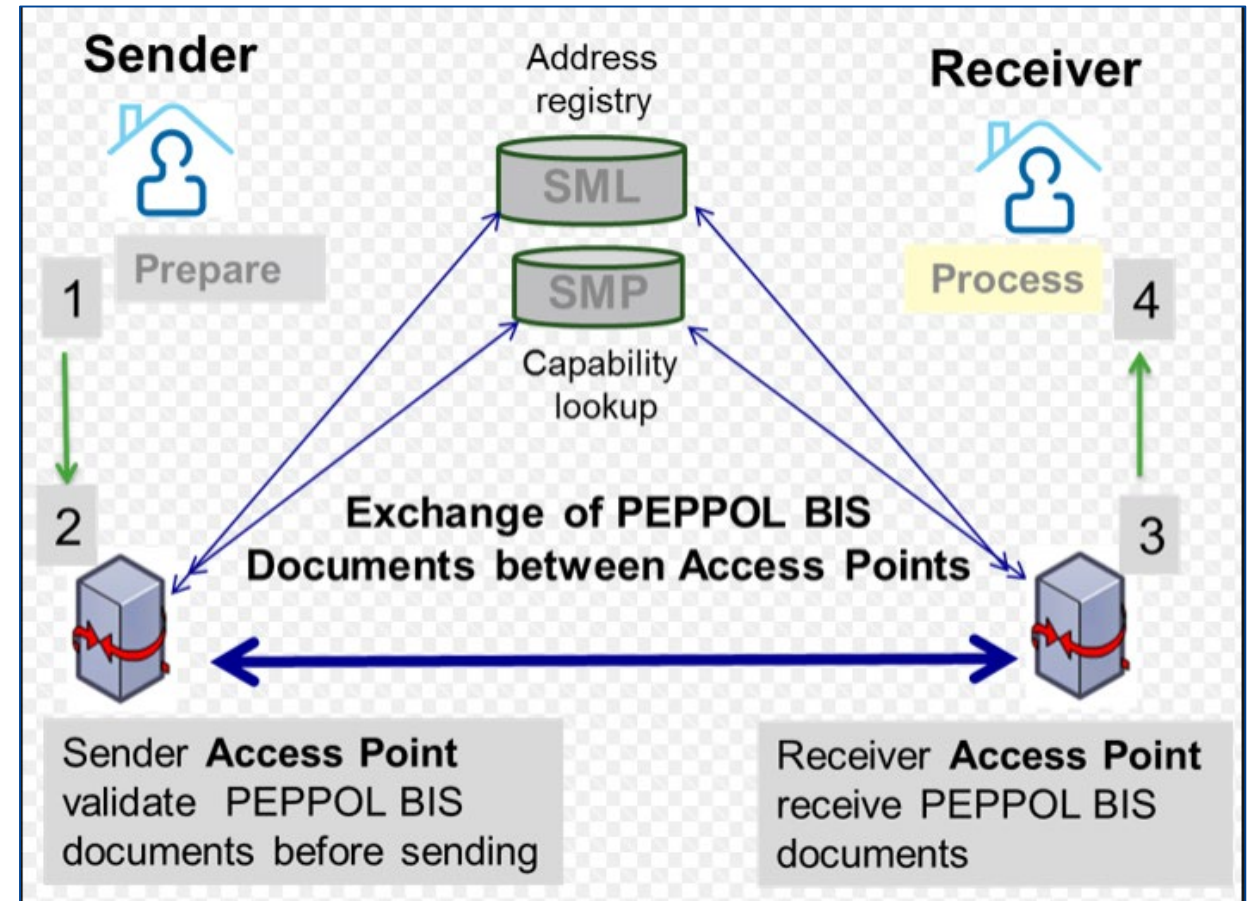
Secretary General, OpenPEPPOL

Head of eProcurement Unit

Agency for public management and eGovernment (Difi), Norway

# About PEPPOL

*PEPPOL integrates business processes by standardising the way information is structured and exchanged, based on our 'four-corner' model*



# Current use of PEPPOL

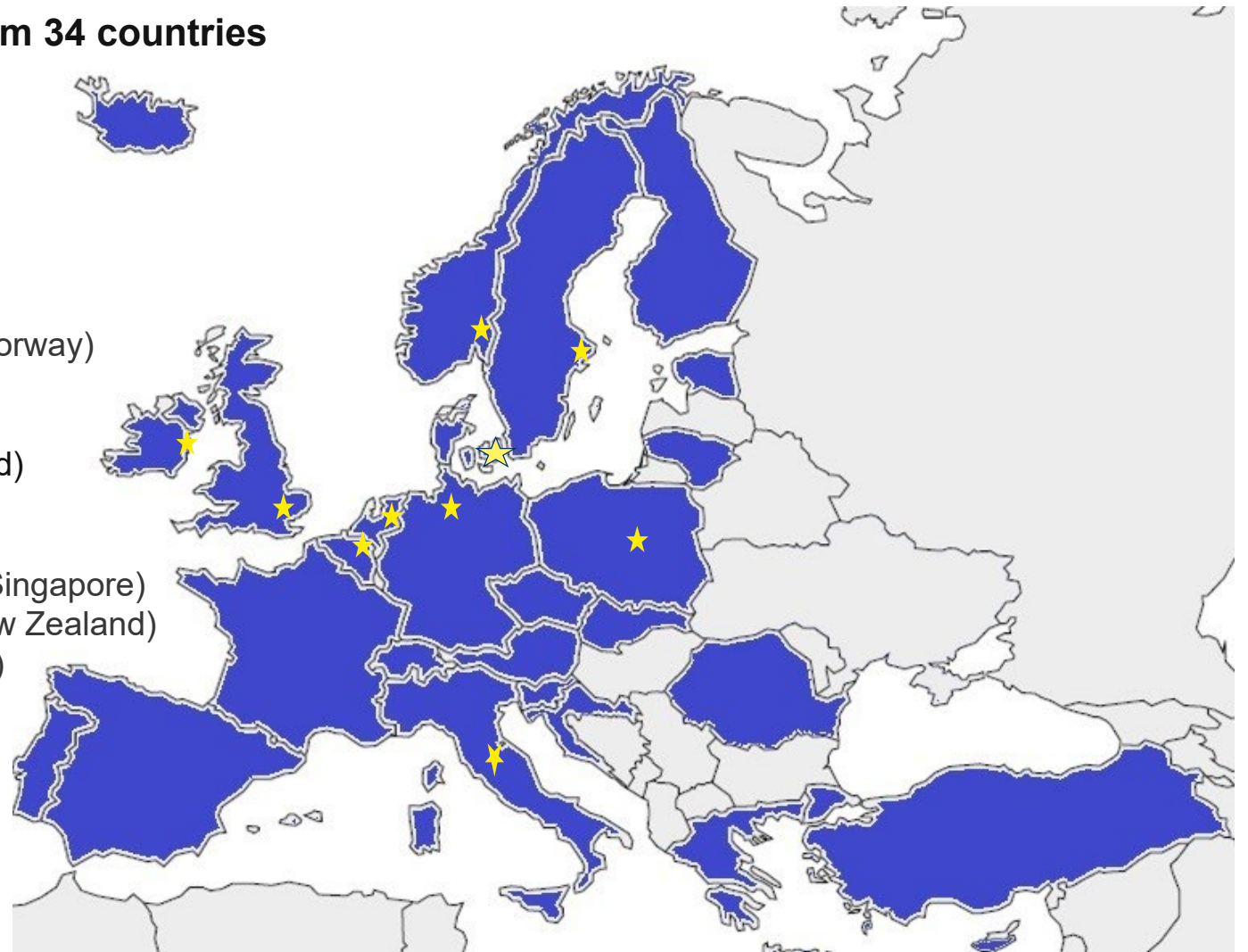
**369 OpenPEPPOL members and observers from 34 countries**

**248 Certified Access Points in 29 countries  
in Europe, North America and Asia**

## **13 PEPPOL Authorities**

- ▶▶ Agency for Digital Government (Sweden)
- ▶▶ Agency for Digital Italy (Italy)
- ▶▶ Agency for Public Management and eGovernment (Norway)
- ▶▶ Danish Business Authority (Denmark)
- ▶▶ Department of Health and Social Care (UK)
- ▶▶ Department of Public Expenditure and Reform (Ireland)
- ▶▶ Federal Public Service Policy and Support (Belgium)
- ▶▶ Free Hanseatic City of Bremen – KoSIT (Germany)
- ▶▶ Info-communications Media Development Authority (Singapore)
- ▶▶ Ministry of Business Innovation and Employment (New Zealand)
- ▶▶ Ministry of Entrepreneurship and Technology (Poland)
- ▶▶ SimplerInvoicing (Netherlands)
- ▶▶ OpenPEPPOL AISBL

Member Countries where Access Points are not yet certified: Australia, Mexico, New Zealand, Romania and Slovak Republic



# PEPPOL going global

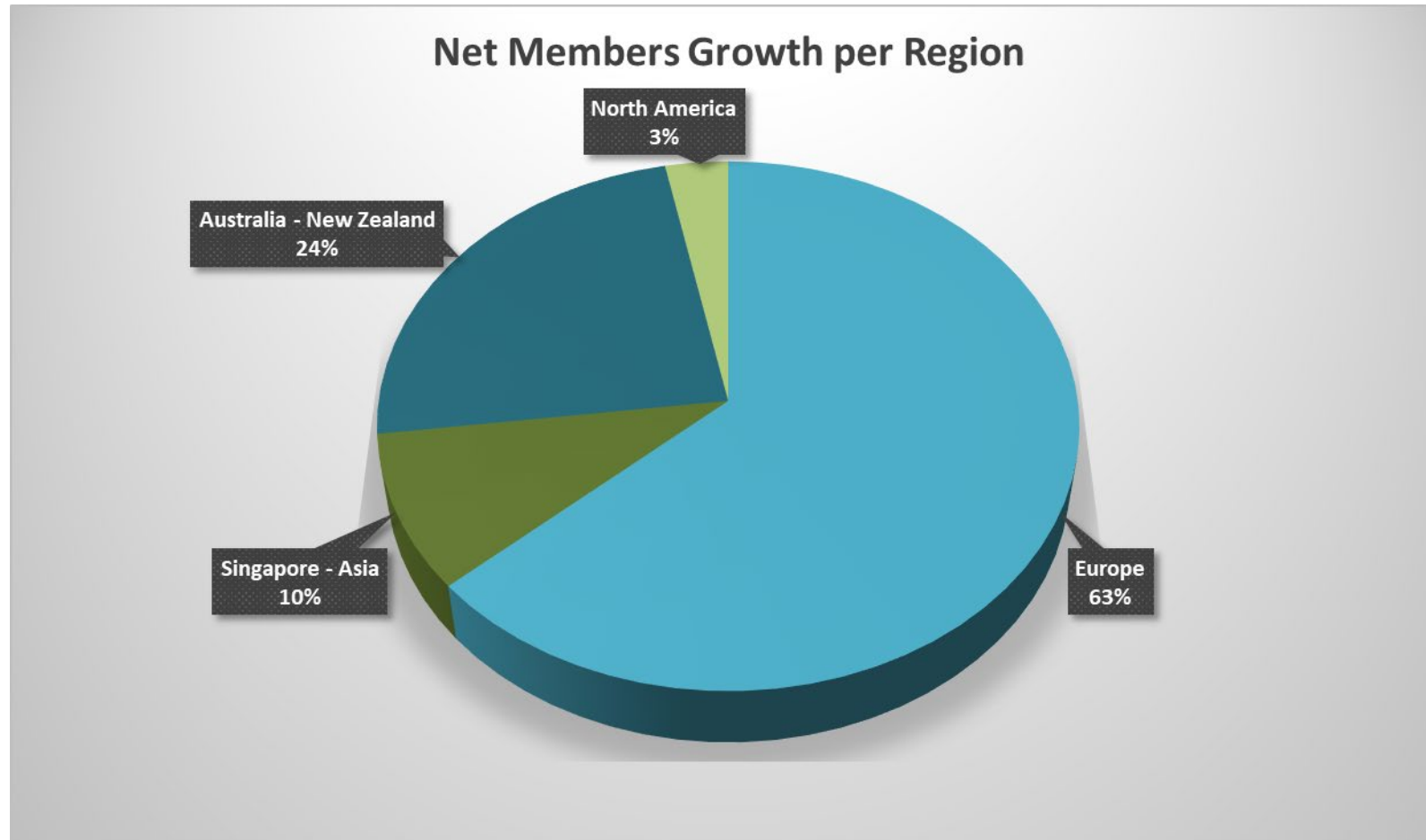
- ▶▶ South-East Asia
  - ▶▶ Singapore: Official launch was in January 2019
    - ▶ The first PEPPOL Authority outside Europe
    - ▶ Helping to engage other ASEAN countries
  - ▶▶ Malaysia may be next – hopefully by late 2019
- ▶▶ Trans-Tasman region
  - ▶▶ New Zealand already joined, Australia joining soon
  - ▶▶ The two countries coordinate and align their requirements
  - ▶▶ Planning to go live late 2019
- ▶▶ How do we engage other regions?
  - ▶▶ Establish understanding of the PEPPOL approach
  - ▶▶ Formulate value proposition on focus (eg market-driven/government-driven)
  - ▶▶ Accommodate regional requirements, maintain compliance with PEPPOL principles



# Membership Net Growth per Region



- ▶▶ More than 1/3 of the growth comes outside Europe





# Top countries in growth (Global)

▶▶ Ranked by absolute numbers

Country		Number of Members		Net Growth	% Net Growth
		31/12/2018	Today		
1	Italy	28	41	13	46,43%
2	Australia	0	9	9	-
3	Germany	17	24	7	41,18%
4	Sweden	24	30	6	25,00%
5	Singapore	12	18	6	50,00%
6	New Zealand	0	6	6	-
7	Greece	3	7	4	133,33%
8	Netherlands	31	35	4	12,90%
9	Denmark	16	18	2	12,50%
10	France	9	11	2	22,22%
11	Norway	55	57	2	3,64%
12	Switzerland	1	3	2	200,00%

# Growth in Europe per country

►► Ranked by absolute numbers

Country		Number of Members		Net Growth	% Net Growth
		31/12/2018	Today		
1	Italy	28	41	13	46,43%
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4	Greece	3	7	4	133,33%
5	Netherlands	31	35	4	12,90%
6	Denmark	16	18	2	12,50%
7	France	9	11	2	22,22%
8	Norway	55	57	2	3,64%
9	Switzerland	1	3	2	200,00%
10	Austria	3	4	1	33,33%
11	Croatia	1	2	1	100,00%
12	Turkey	4	5	1	25,00%

# Digital interface with our suppliers

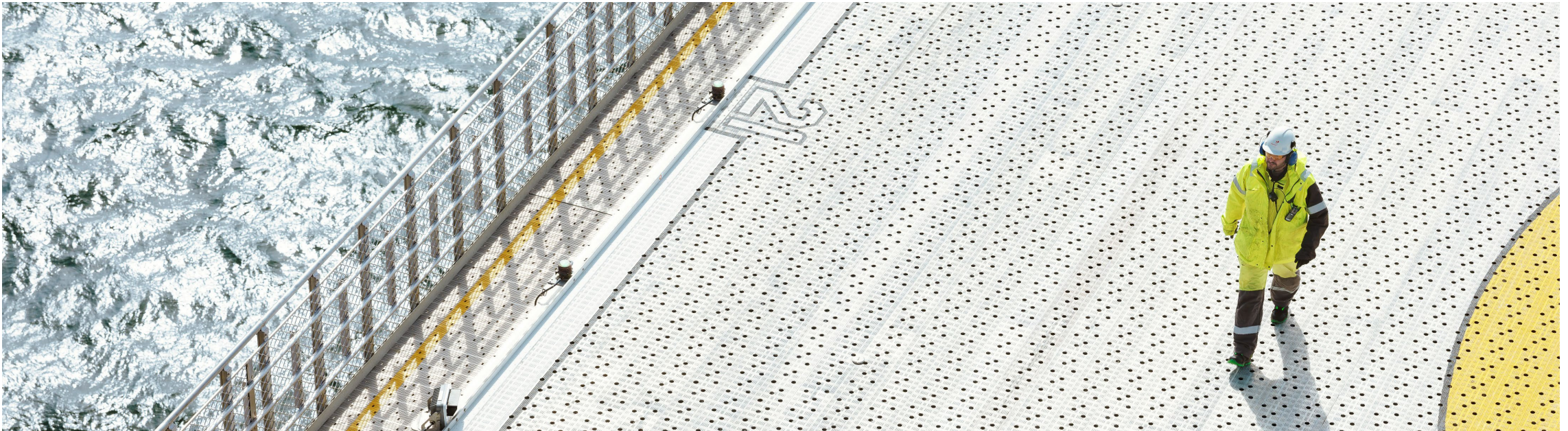
Use of electronic commerce format - EHF/PEPPOL to replace a paper based transaction flow (Sep 2019)





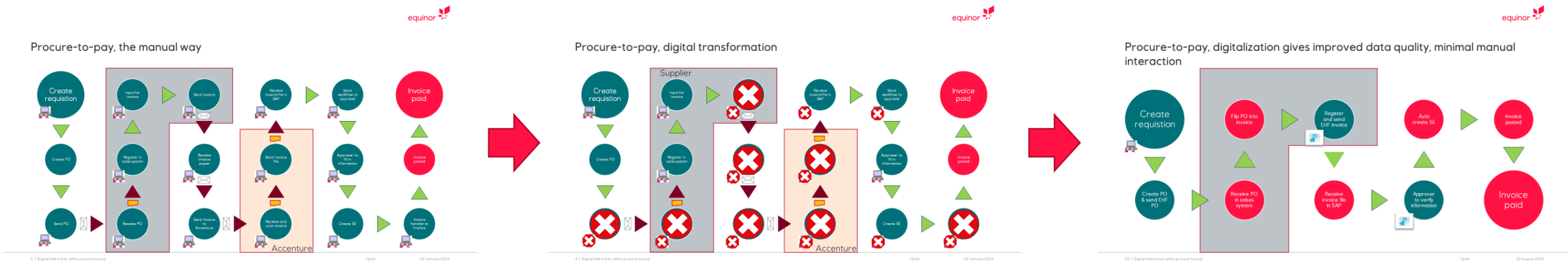
This is our goal with a digital interface towards our suppliers

- Achieve a touchless digital interaction between Equinor and the suppliers with exchange of structured business transactions
- Remove outdated business requirements that relies on manual, paper based transaction flows



# Experiences from Supplier Integration Solutions 2016

- Replacing just parts of the paper based transaction flow with a digital interface lead to major cost and time savings for both Equinor and suppliers (high ROI)



## Equinor is standardising on EHF\*/PEPPOL

Enable a broad foundation for automation and simplification of work processes and interfaces.

### Equinor currently supports:

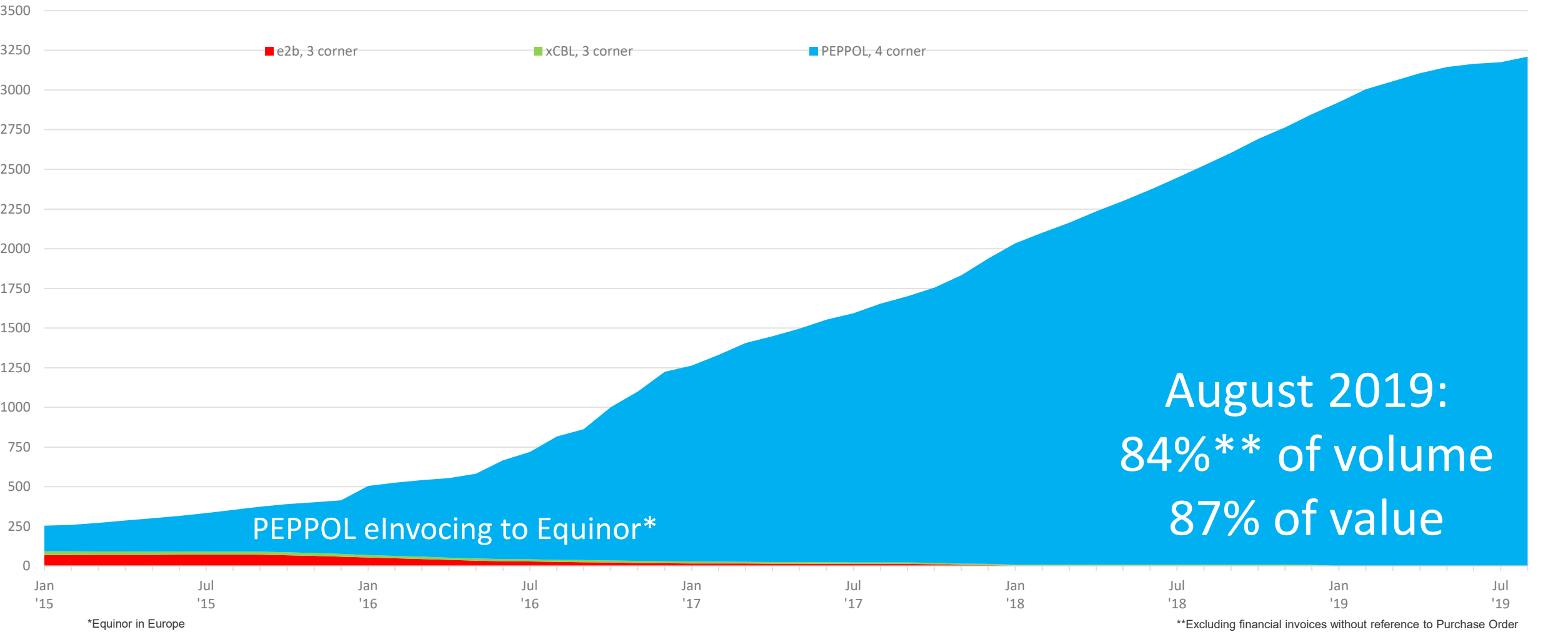
- Purchase order
- Purchase order response
- Invoice\*\*/Credit memo
- Invoice certificate
- Purchase order change (pilot production)
- Advanced purchase order response as Variation order requests etc. (pilot production)

### Equinor is adding:

- Despatch advice (Advance shipping notification) (Jun 2020)
- Catalogue/Pricebook (Oct 2020)
- Invoice response (approved/rejected) (Jun 2020)
- More to come...

\*EHF: Elektronisk handelsformat. \*\*EHF eInvoice is expected to become mandatory to use between commercial entities in Norway

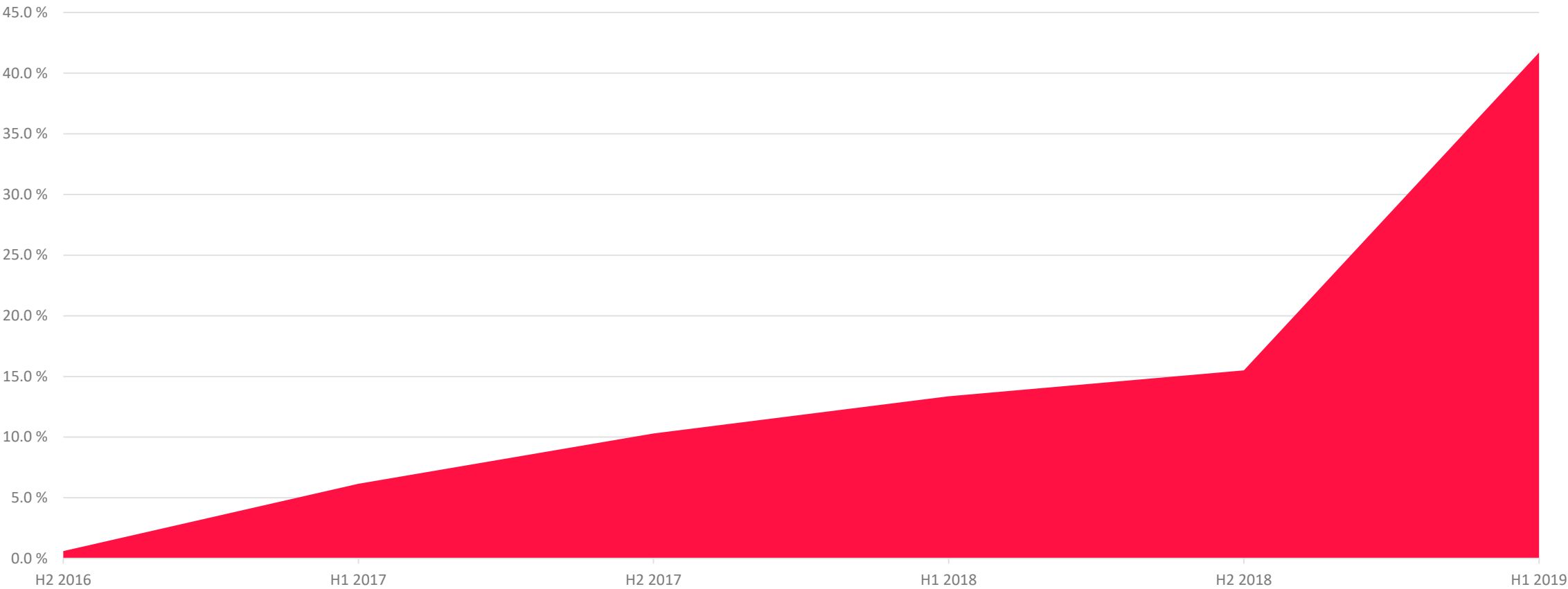
# PEPPOL enabled unprecedented rapid adoption of digital exchange



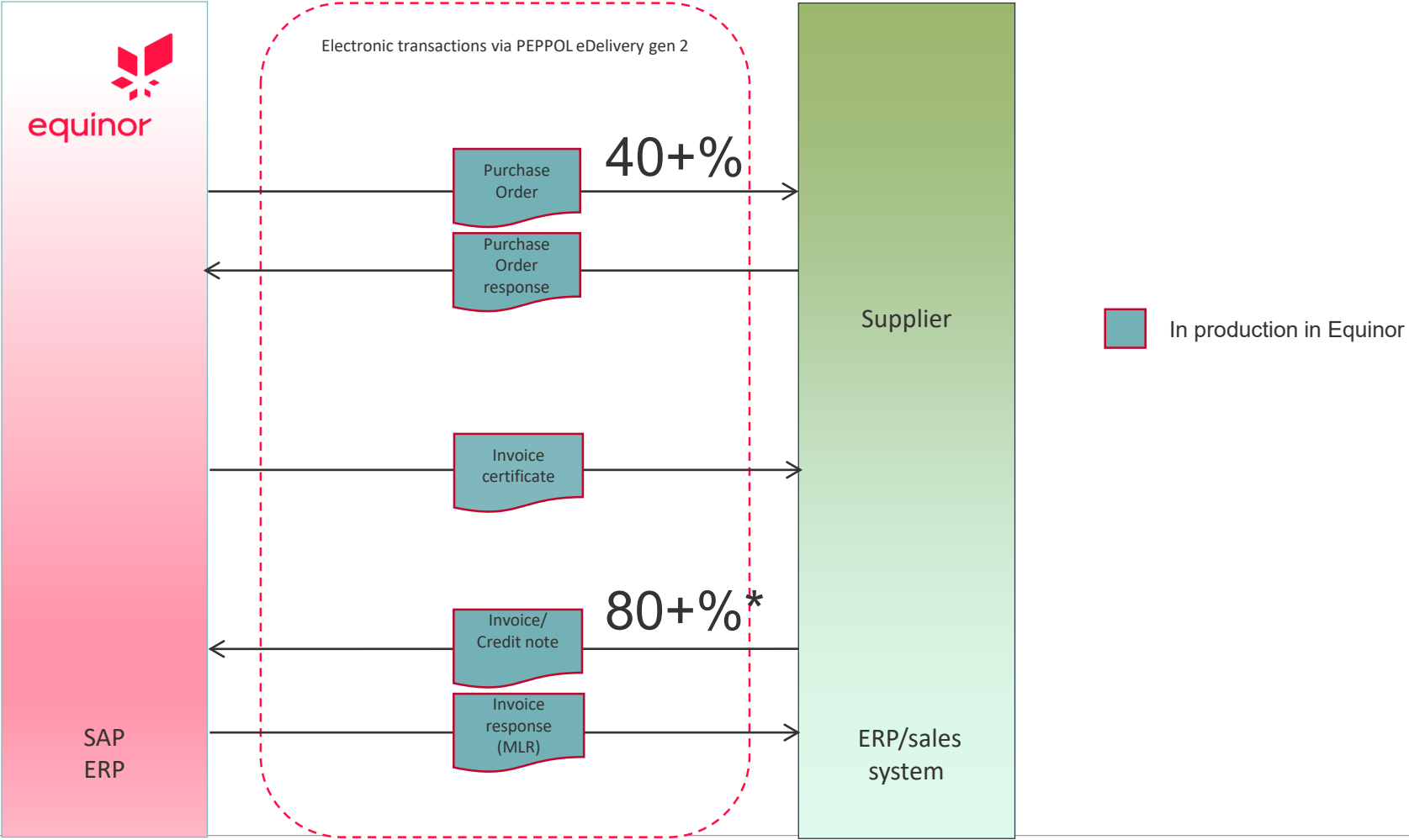


# PEPPOL enabled unprecedented rapid adoption of digital exchange

PEPPOL Order

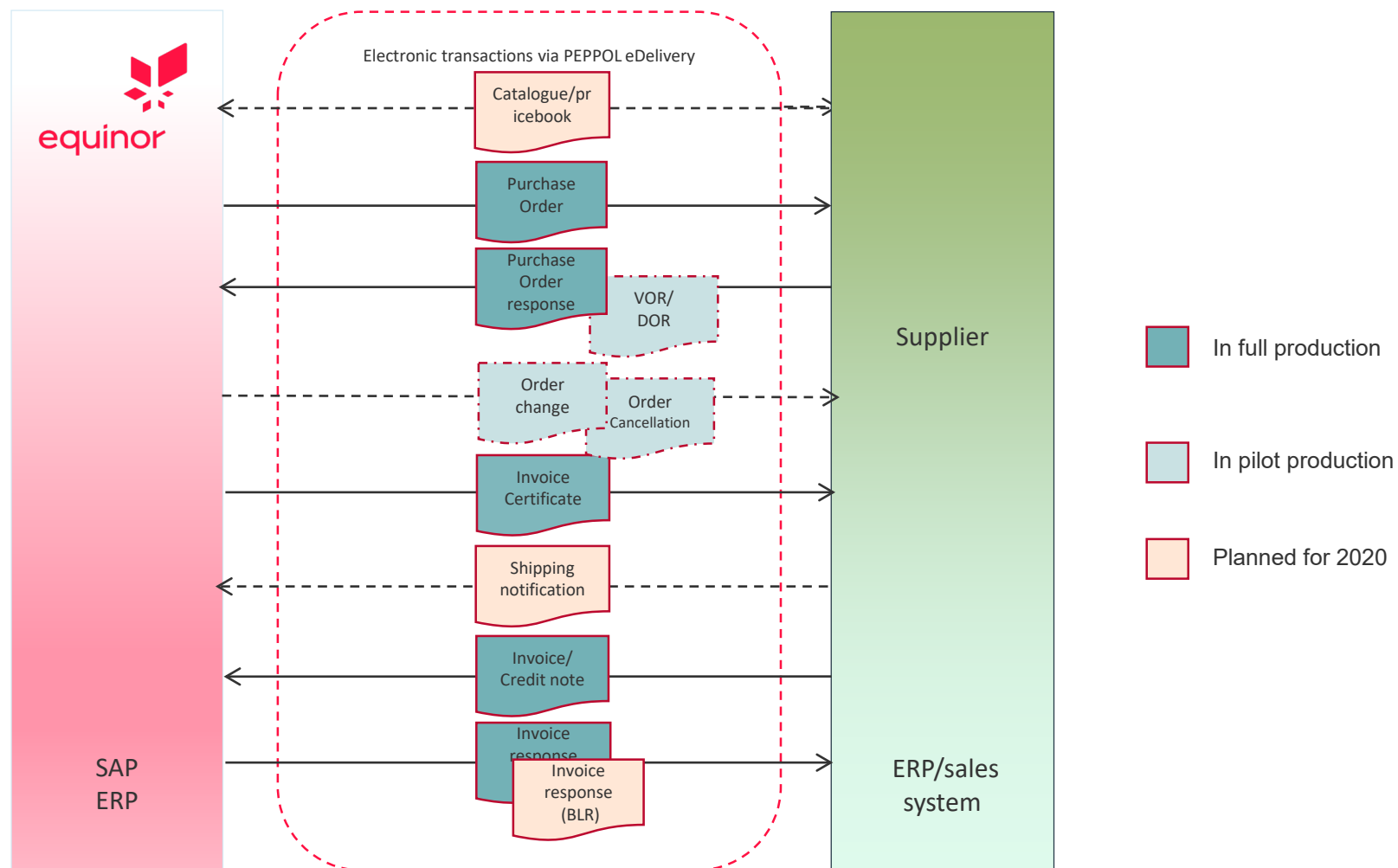


# Digital interaction with our suppliers Sep 2019

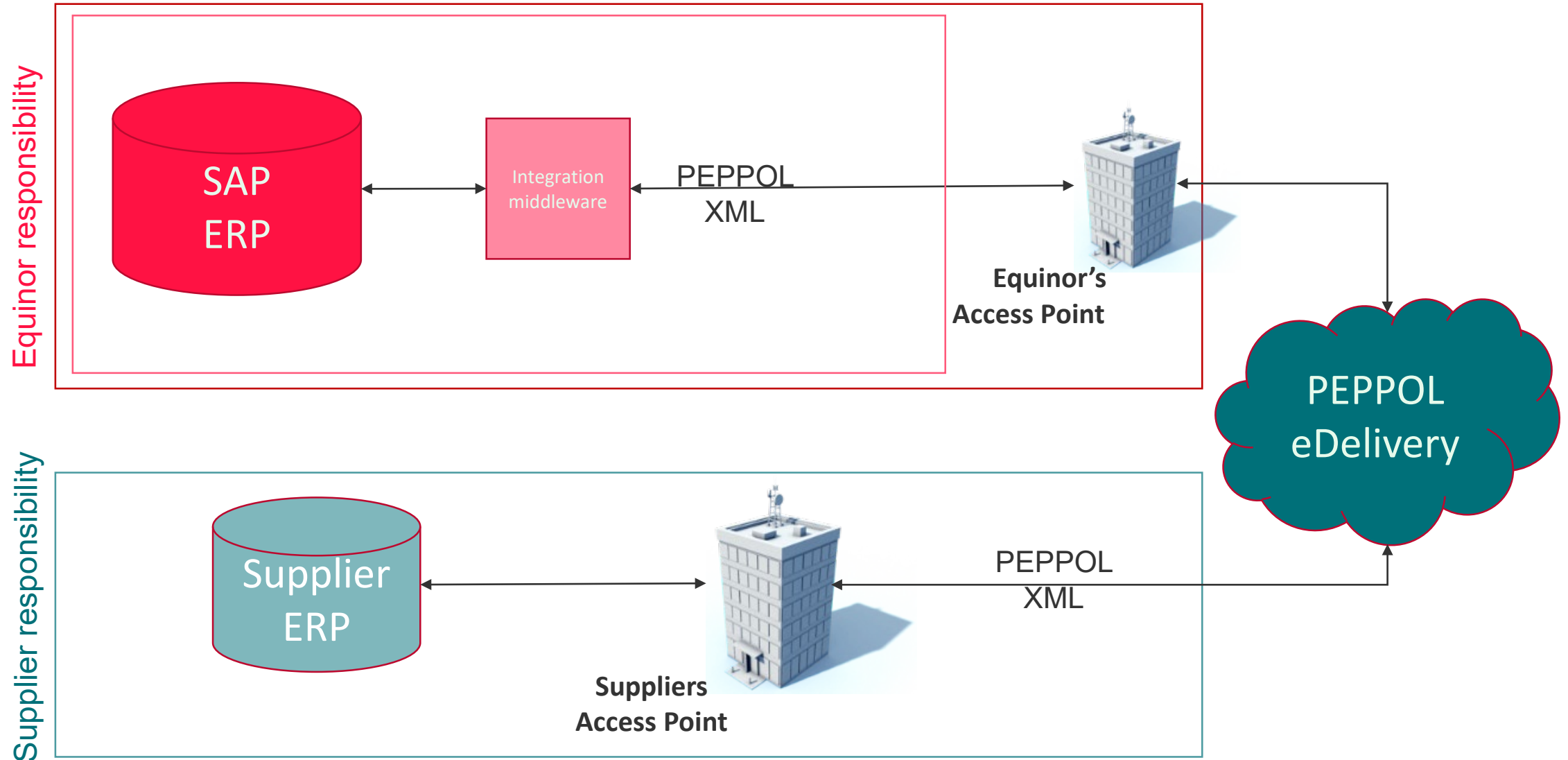




But we can digitize much more...



# Responsibilities; e-commerce via PEPPOL



## Strong focus on digital supplier interface using electronic commerce format

- Why we should put digital supplier interface on the digital agenda:

§

Compliance with  
authorities

\$\$\$

High NPV and ROI

Evergreen format via  
open source  
specifications

Possibly the only digital  
initiative exposed to all  
suppliers

No commercial  
lock-in; can be used  
with any future ERP  
solution

Equinor won't become  
fully digital if we  
maintain outdated  
manual requirements

Foundation for  
automation, planning  
and data mining



## Digital interface with our suppliers

Arne Johan Larsen, team lead eCommerce team

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University of Piraeus  
Department of Digital Systems

# PEPPOL adoption in the public sector: case study of Greece

1/10/2019

Prof Andriana Prentza  
UPRC Greece  
aprentza@unipi.gr

E-Invoicing Exchange Summit 2019, OpenPEPPOL Seminar  
“Invoicing and Procurement Through PEPPOL – What Is the Value?”



# Who we are...

- Involved in PEPPOL project
- Member of OpenPEPPOL
- Work in pre-award, eDelivery, eInvoicing
- Coordinated the “Interoperable eInvoicing in Greece – GRinv” Action funded by Connecting Europe Facility (CEF)





# How the EU supported Greece

- Interoperable eInvoicing in Greece – GRInv project
- CEF eInvoicing Action
- Duration: 20 months (1/10/2017-31/05/2019)
- Objective:
  - To introduce standardized electronic invoicing in the Greek public sector regarding its internal processes and its cooperation with the private market of suppliers
- Partners:
  - 3 public authorities (all responsible for eInvoicing in Greece)
  - 3 private providers
  - UPRC (Coordinator and main technology expertise provider on PEPPOL and eDelivery)



# Results

- National strategy and implementation study
- Architecture based on the 4-corner model
- Semantic model – PEPPOL CIUS + national rules
- Setup of Access Points in public entities and private providers
- Adaptation of existing systems to receive invoices compliant to the EN



# Process

- Gap analysis of the national requirements for eInvoicing and how these are met by PEPPOL CIUS
- Consultation process
  - B2G workgroup with all relevant public stakeholders under the chair of the Ministry of Digital Policy running in parallel with GRinv
  - B2B working group – considerations of how to generalize a future mandate



# Starting point Challenges

- Semantic models in relation to standards
  - The CIUS concept – restrictions and extensions to a standard, in order to fit national requirements
  - Interoperability risks from narrowly national approaches to CIUS
  - Understanding and leveraging the PEPPOL CIUS approach on integrating country-specific rules
- Governance models and best practices in other Member States

# Specific Challenges (1)

- Invoice and payment procedures in the Greek public sector are really complex
  - Requiring actors to receive the invoice for completing payment
    - The Entity that made the order (Contracting Authority)
    - The Entity which is billed
    - The Entity that will ultimately pay
    - The person responsible for monitoring the process
    - The Entities responsible for auditing
  - All the above entities wish to insert codified references into the Issued Invoice
- Resolution:
  - Fields found in EN were profiled to fit such information in the Invoice

# Specific Challenges (2)

- Routing the invoice to back-end systems
  - Depending on the source of funding (Investment Budget vs General Budget)
  - Depending on the Buyer Entity
  - Depending on the project budget (different procurement procedures above and below threshold)
- Resolution:
  - Using fields, in a codified manner, in Project Reference, Order Reference and/or Buyer Reference, we managed to provide all the necessary metadata inside the invoice for proper internal routing



# Specific Challenges (3)

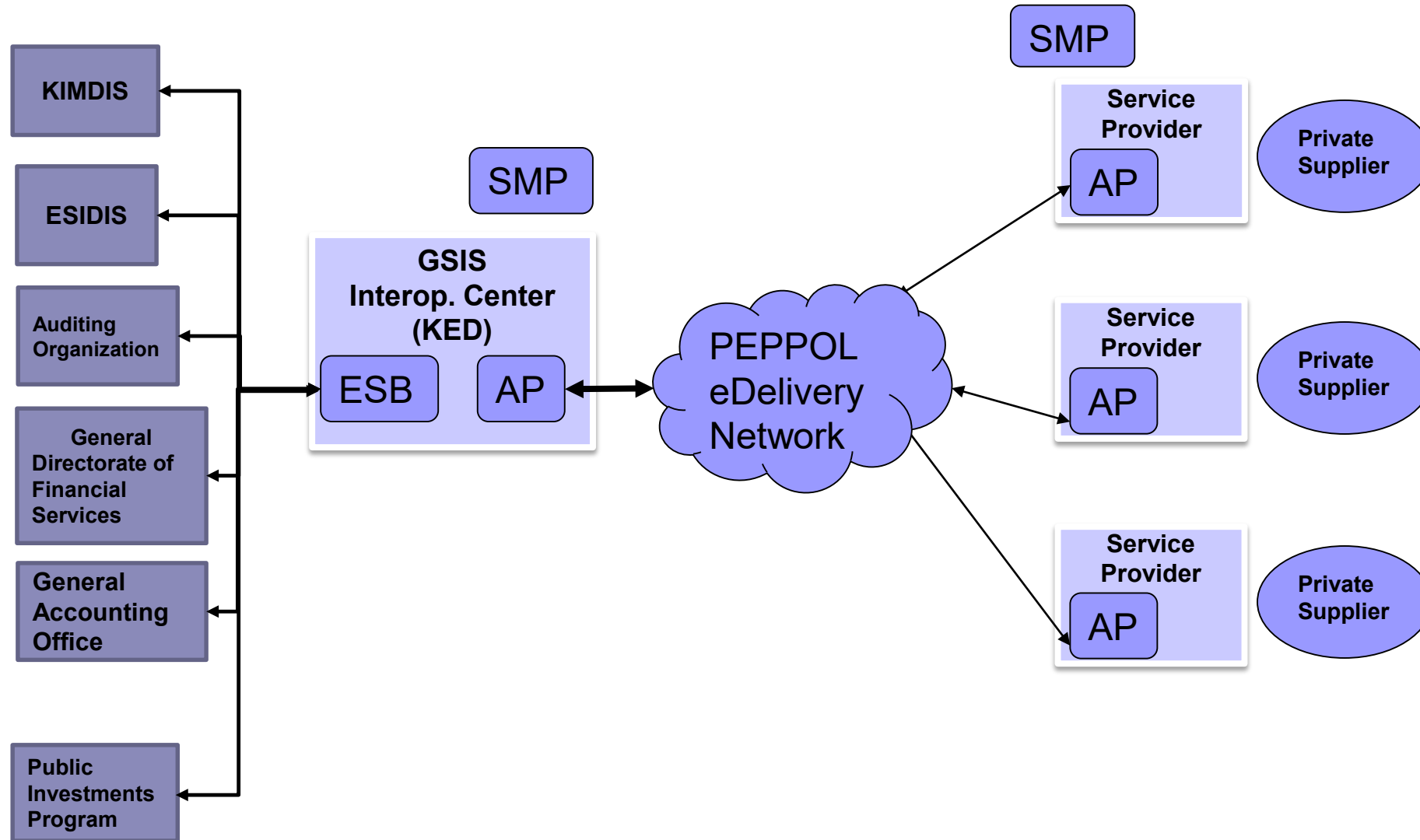
- Identification of all Contracting Authorities in the public sector using existing identification schemes is not possible
  - Not all public entities have VAT Number or other universally used Identifier from an official identification scheme
- Resolution:
  - Billing Entity, which always has a VAT number became mandatory and also the VAT number is mandatory
  - A more comprehensive Identification Scheme will be generalized for all Public Entities and will be published in the OpenPEPPOL Identifier Schemes




# Specific Challenges (4)

- The invoice must be authenticated with a unique ID per issuer
- Resolution:
  - The invoices are to be generated, on behalf of the issuer, by a Service Provider that is using the PEPPOL eDelivery network
  - The service providers, sign on behalf of the issuer, a set of metadata that is used to authenticate the invoice
  - Through the use of the eDelivery network, non-repudiation of the technical artifacts is guaranteed

# Architecture Overview





# Architecture – essentials

- One PEPPOL AP for receiving the invoices for Central Government and Central Procurement Bodies
- AP will be connected to KED (central interoperability layer for public sector owned by Ministry of Digital Governance)
- KED is specialized in developing web services
- KED will transmit the eInvoices to Central Government Contracting Authorities, Central Procurement Bodies and other public IT systems

# Legislation – current status (1)

- Adoption of Law 4601/2019 (published on 9/3/2019) for the transposition of the European Directive on eInvoicing (2014/55/EU) into Greek legal framework.
  - The transposition aligns with the text and scope of the Directive
- Two cross-ministerial legislative working teams were mandated to draft the two Joint Ministerial Decisions (currently pending):
  - Architecture for the Central Government
  - National Semantic and Syntax Model for Public Procurement

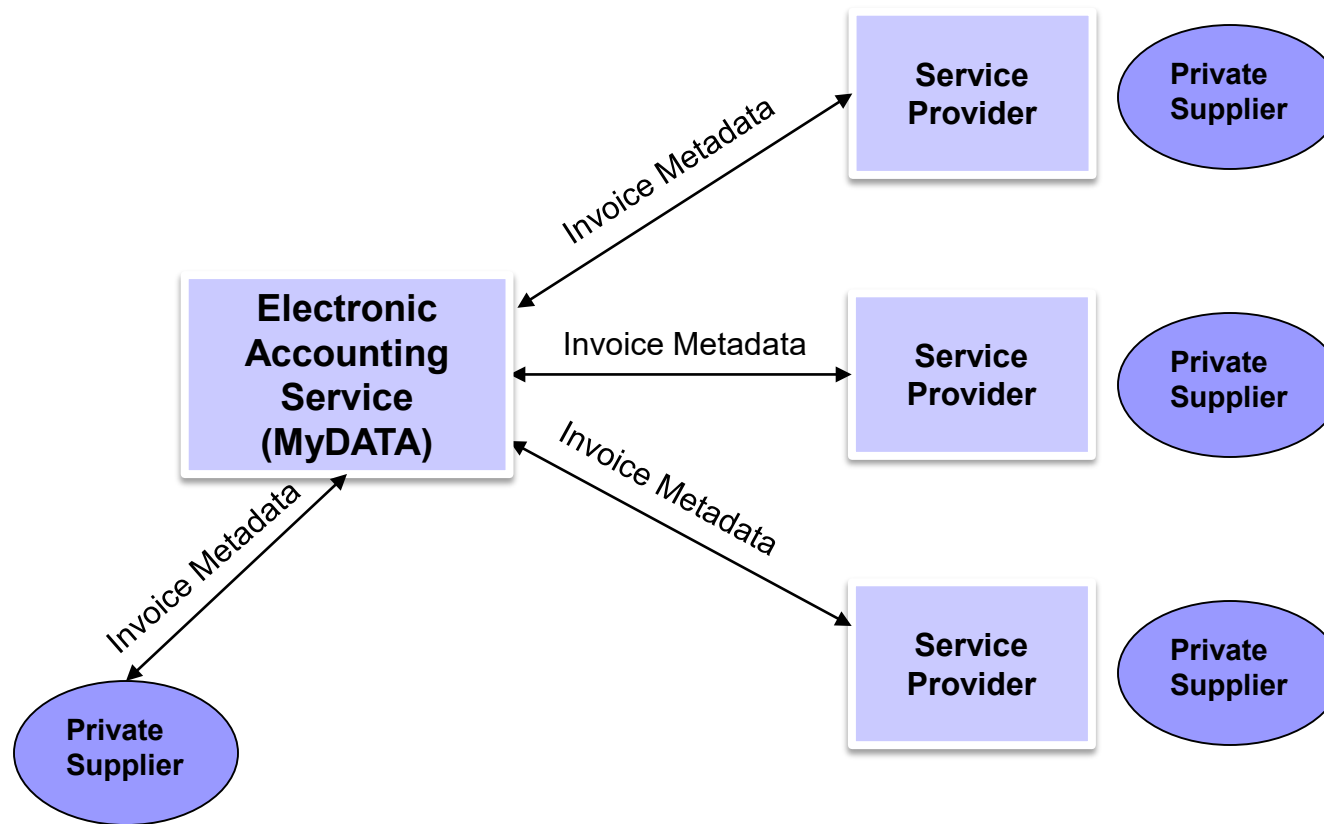
# Legislation – current status (2)

- Adoption of Law 4623/2019 (published on 9/8/2019)
  - General Secretariat of Information Systems for Public Administrations:
    - PEPPOL National Authority
    - Functions as the sole point of receipt for Public Procurement and eInvoicing and as the node for routing their data into the information systems of the competent bodies through the Interoperability Center
- Generalization of mandate considered for B2B



# Connection with tax reporting

- MyDATA application (eAccounting)





# How to align tax reporting with eInvoicing

- Stick to the 4-corner model between supplier and buyer
  - No routing of invoices through the tax authority
- Align MyDATA tax reporting and EN/PEPPOL format
- No pre-emptive clearance
- No real-time reporting
  - Batch submissions of invoice data by service providers through a parallel channel
  - Using PEPPOL for reporting may be explored

Thank You!





# Clearance model usage together with Peppol Network

Idea proposal

# Peppol Network on the way to support clearance model for e-Invoicing

## Why?

1. Big share of the new models developed in the world of E-Invoicing are based either on some kind of a clearance models on real-time reporting.
2. Clearance model recommended over real-time reporting is by the industry professionals.
3. Clearance model is already widespread in many countries.
4. Clearance model has no usually regulation for transport infrastructure of E-Invoices (clear strength of Peppol eDelivery network).
5. Clearance models are nowadays very local – Peppol usage would help to make them globally more universal.
6. Support for globally common clearance model fits well with Peppol's international invoice and globalization strategy.

## Why not?

1. Clearance models are usually based on local invoice message standard, developed by local tax authorities what will in a short term force Peppol to support more standards next to BIS.

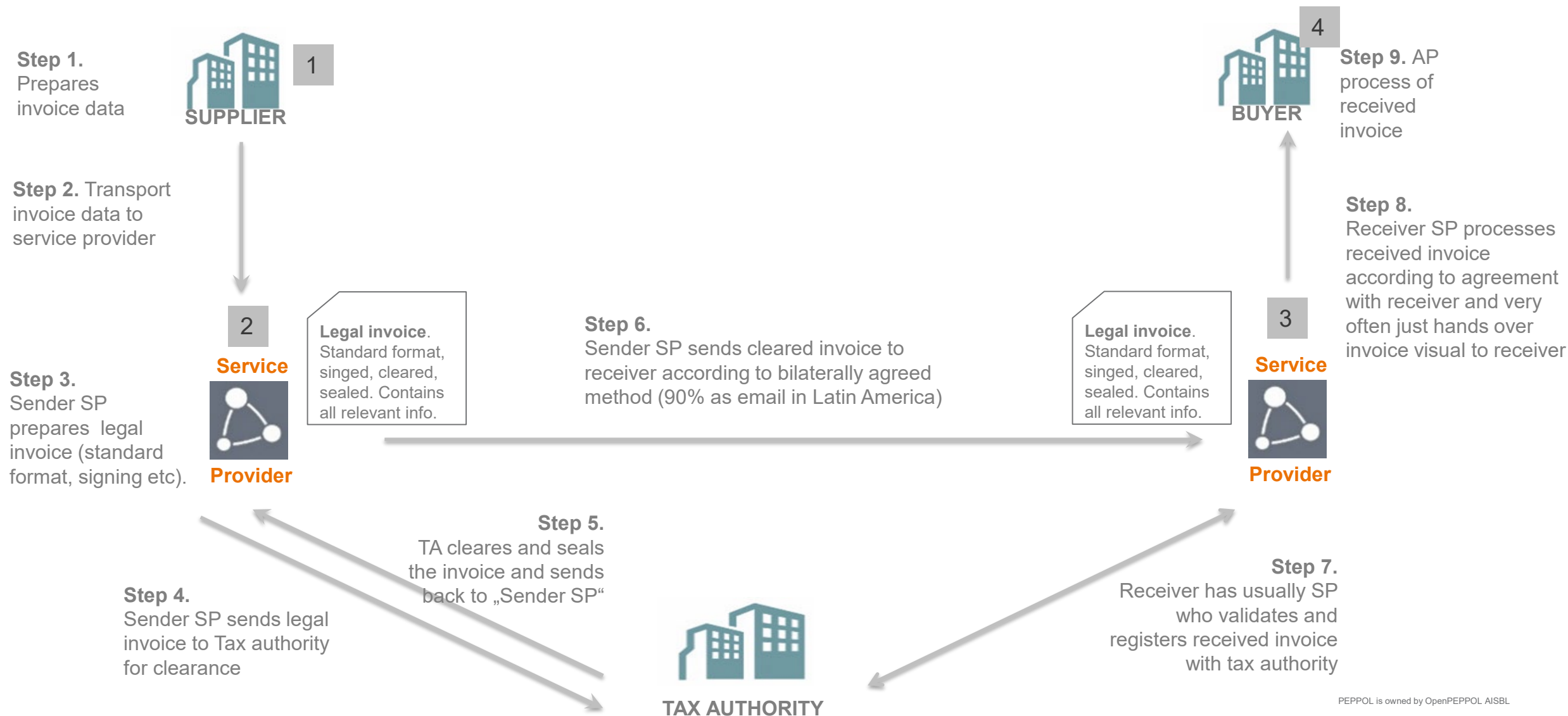
# Characteristics of clearance model

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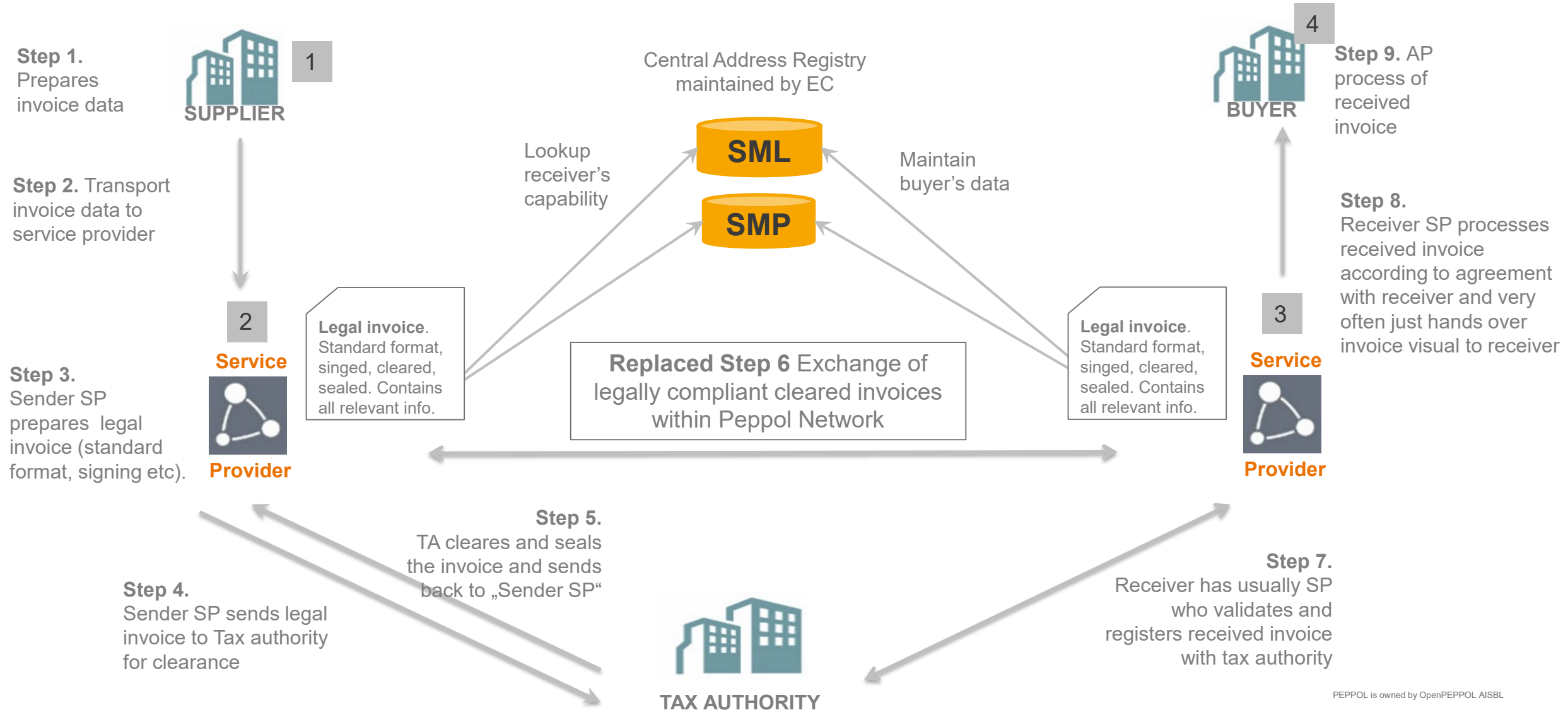
With 'clearance model' for E-Invoicing, the tax administration requires each invoice to be reported and authorized electronically by them before or during the exchange process.

1. Tax authority mandates the issuance and respectively reception of E-Invoices.
2. There are different validation and reporting rules relevant in clearance model.
3. Usually the exchange process (from supplier to buyer) is left to be unregulated.

# How does clearance model work?

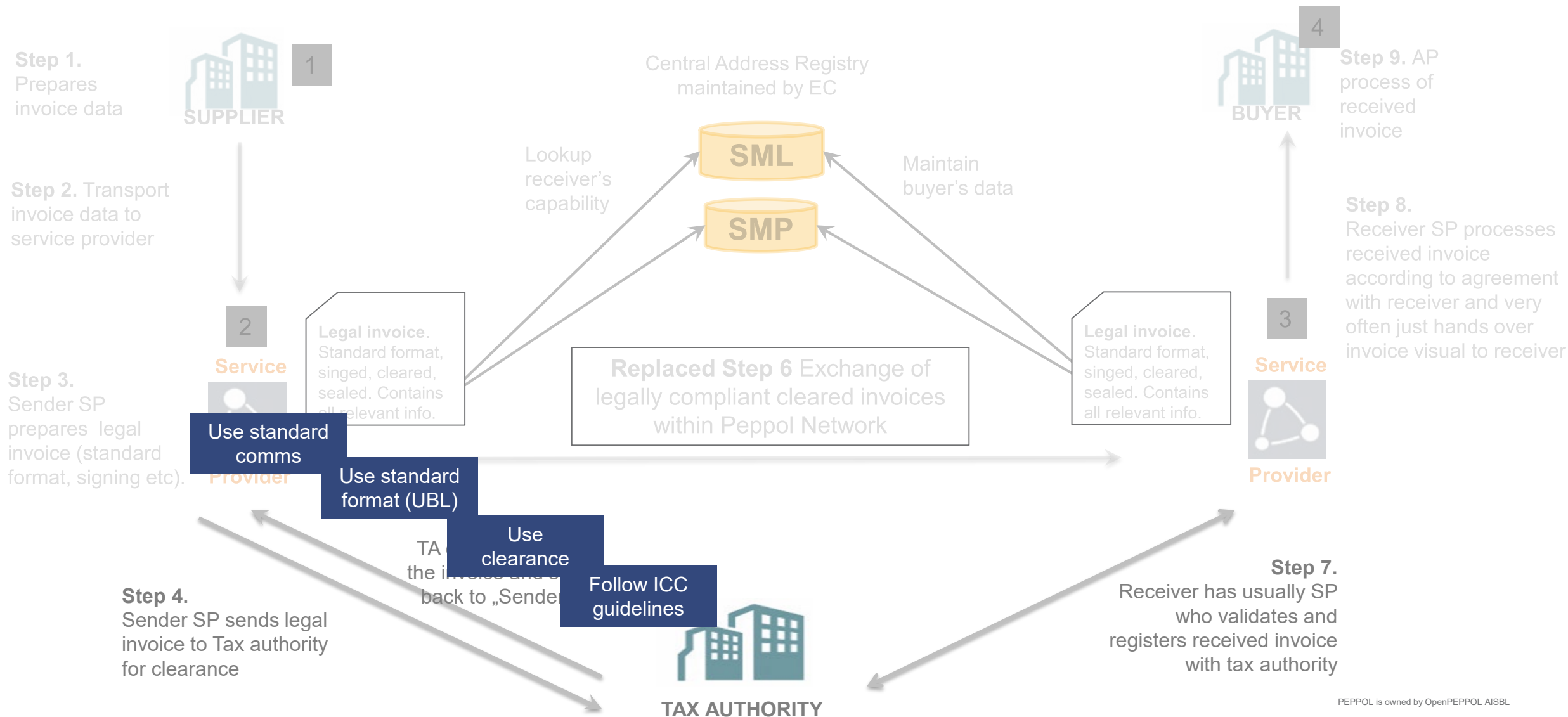


# How does clearance model work with Peppol?





# Do we have a recommendation for steps 4,5,6?





**Easy for Peppol to start and easy  
for existing clearance country to  
adopt.**



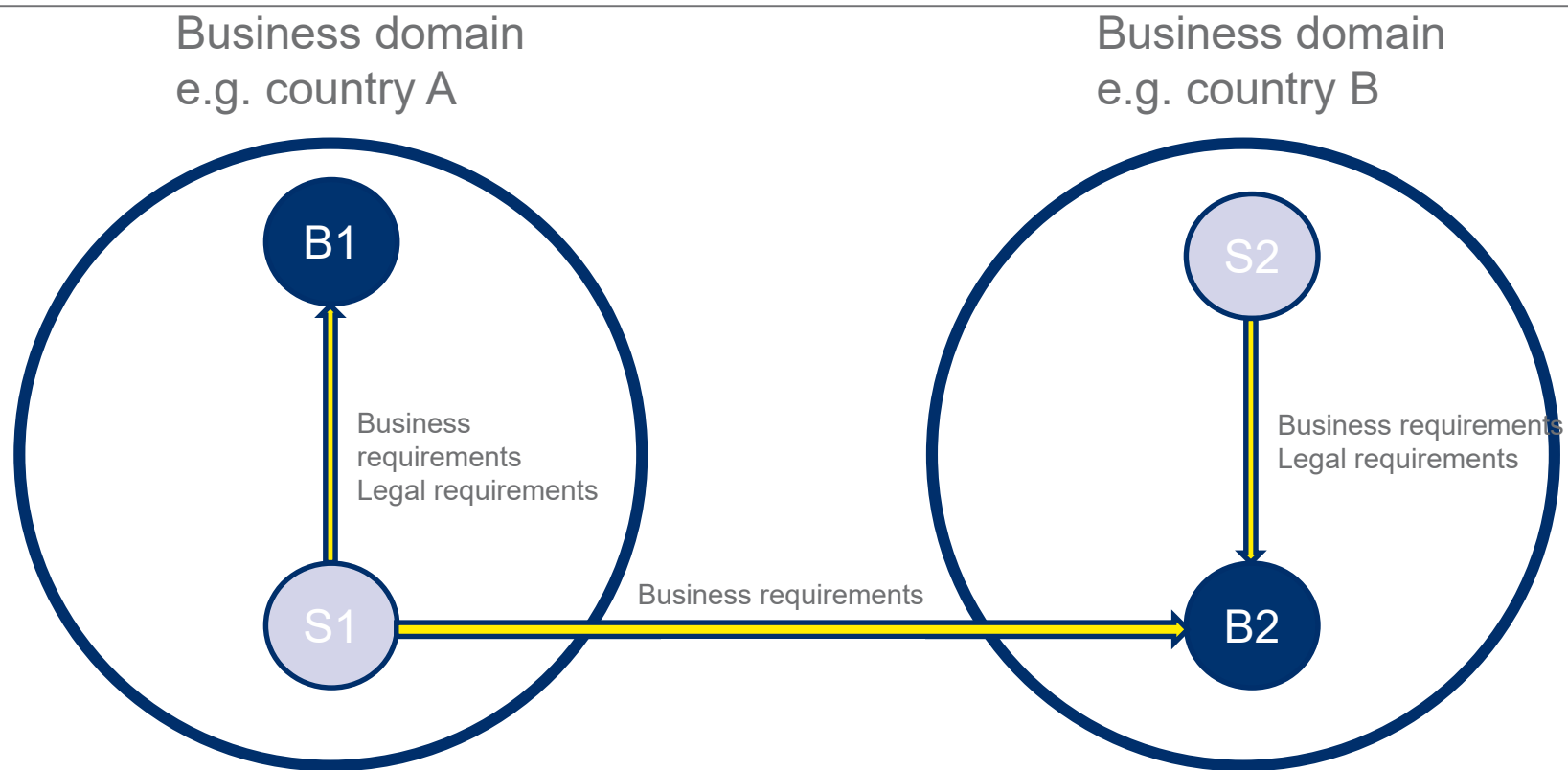
# International invoicing - Vienna

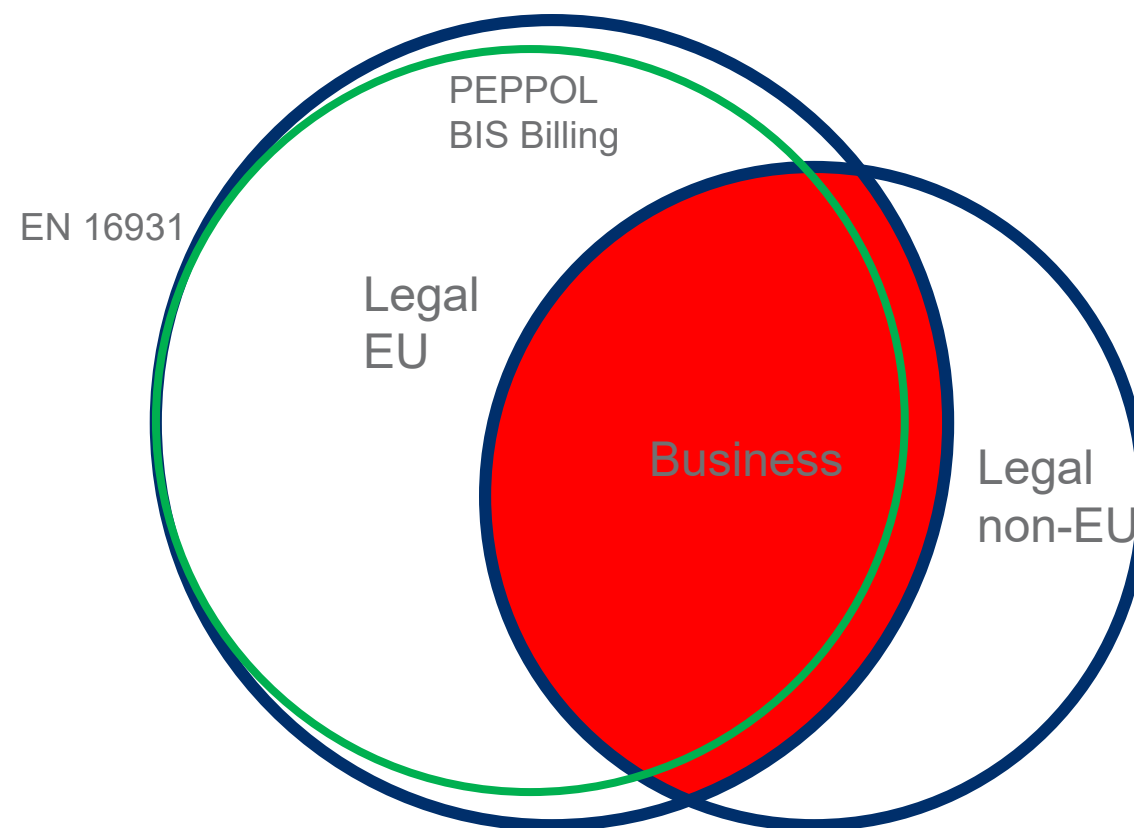
2019-10-01

# Current Post Award situation for Invoice

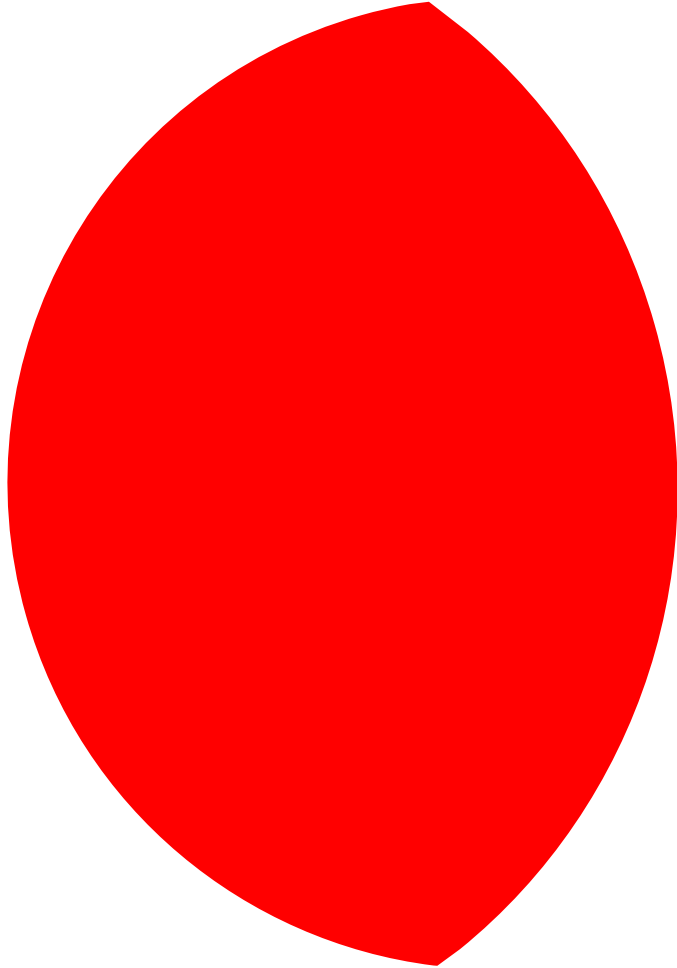
- PEPPOL BIS Billing 3.0, mandatory since 2019-04-18.
  - Compliant CIUS (restriction) of the EN 16931.
  - Implementation provides compliance eInvoicing directive 2014/55.
- BIS includes seller country rules (must be relevant for all sellers in a country).
  - Used by NO, SE, DK, IT.
- EN 16931 is designed to support EU directives, mainly VAT directive 2006/112
- PEPPOL BIS Billing 3.0 can not be mandated to non-EU/EEA members states
- Singapore, Australia and New Zealand extensions.
  - Suppress some tax rules of EN 16931.
  - Apply some of Tax calculation rules redefined as GST.
  - Additional legal requirements.
  - Mandatory principle temporarily on hold.

- Recognizing challenges to the current mandatory BIS and the application of the mandatory principle.
- Mandatory principle
  - PEPPOL Communities define PEPPOL BIS to promote **global interoperability**. ... Receivers with a registered receive capability for a business function for which a PEPPOL BIS is available shall have receive capabilities for the PEPPOL BIS registered in an SMP, as a minimum.
  - Applied through a single mandatory BIS specification, PEPPOL BIS Billing 3.0
- Main work
  - Identify gaps in requirements
  - Assess feasibility of international invoicing and propose solutions.





# Shared: Fully defined



Common for all domains.

Minimum rules

Sufficient for basic automations

- ▶▶ Reading into ERP system
- ▶▶ Booking into accounts
- ▶▶ Order to invoice matching

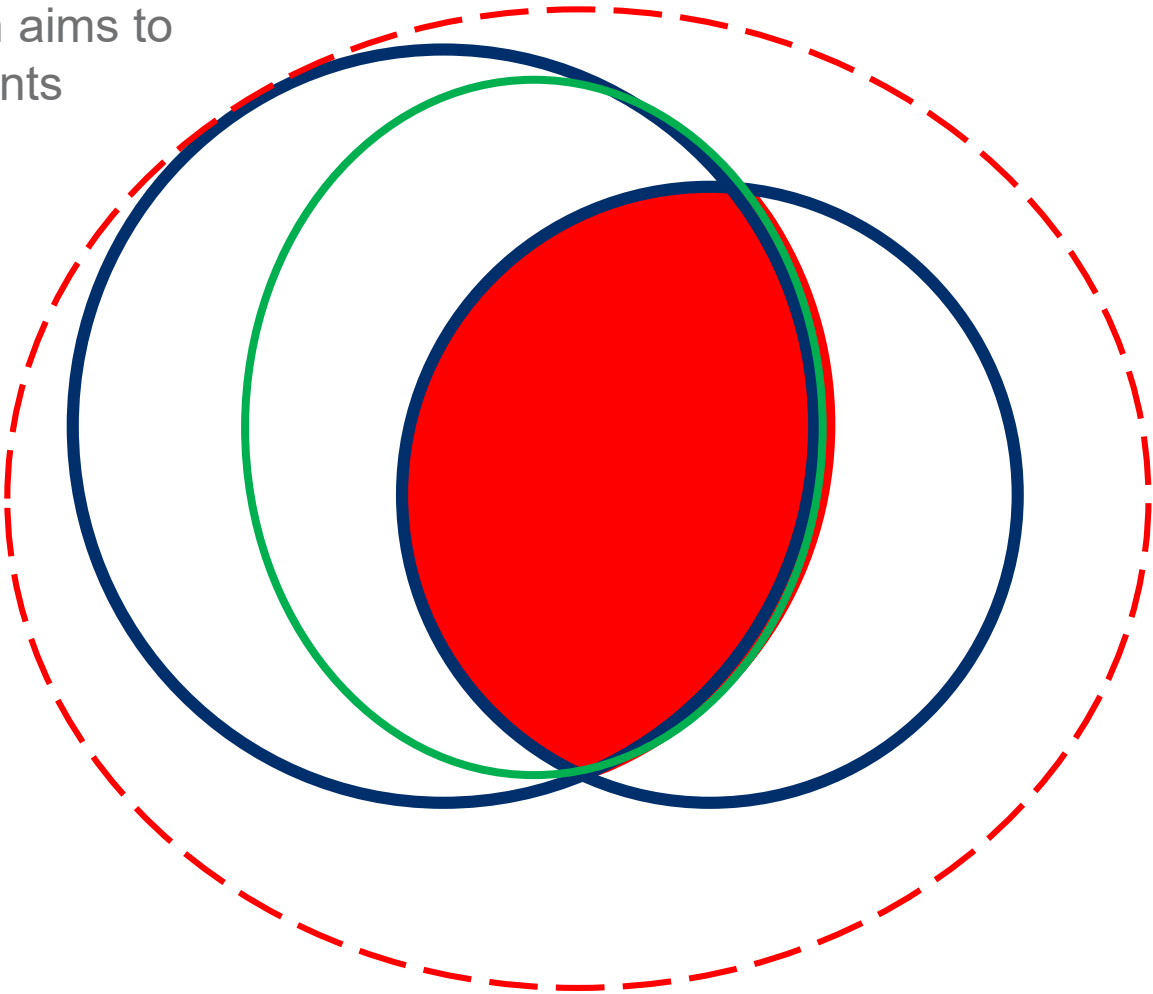
Key content

- ▶▶ Trading parties
- ▶▶ Total amounts.
- ▶▶ Items and prices.
- ▶▶ References

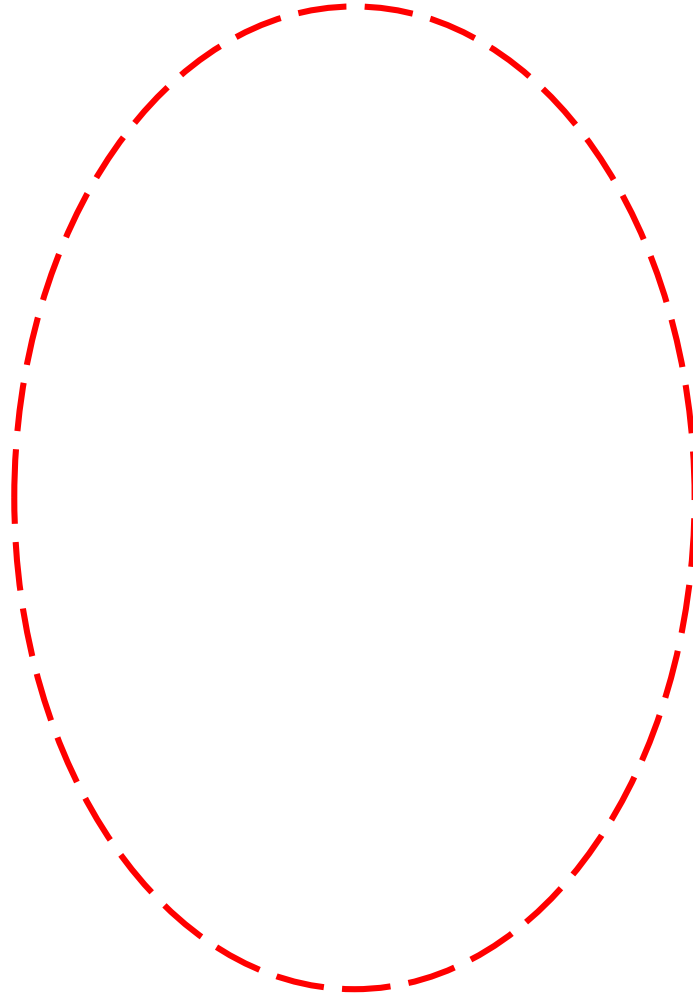




Aligned content which aims to  
address all requirements



# Aligned: Generalized → Specialized



## Generalized

Understood in general terms by all domains

No rules

Not optimized for automation.

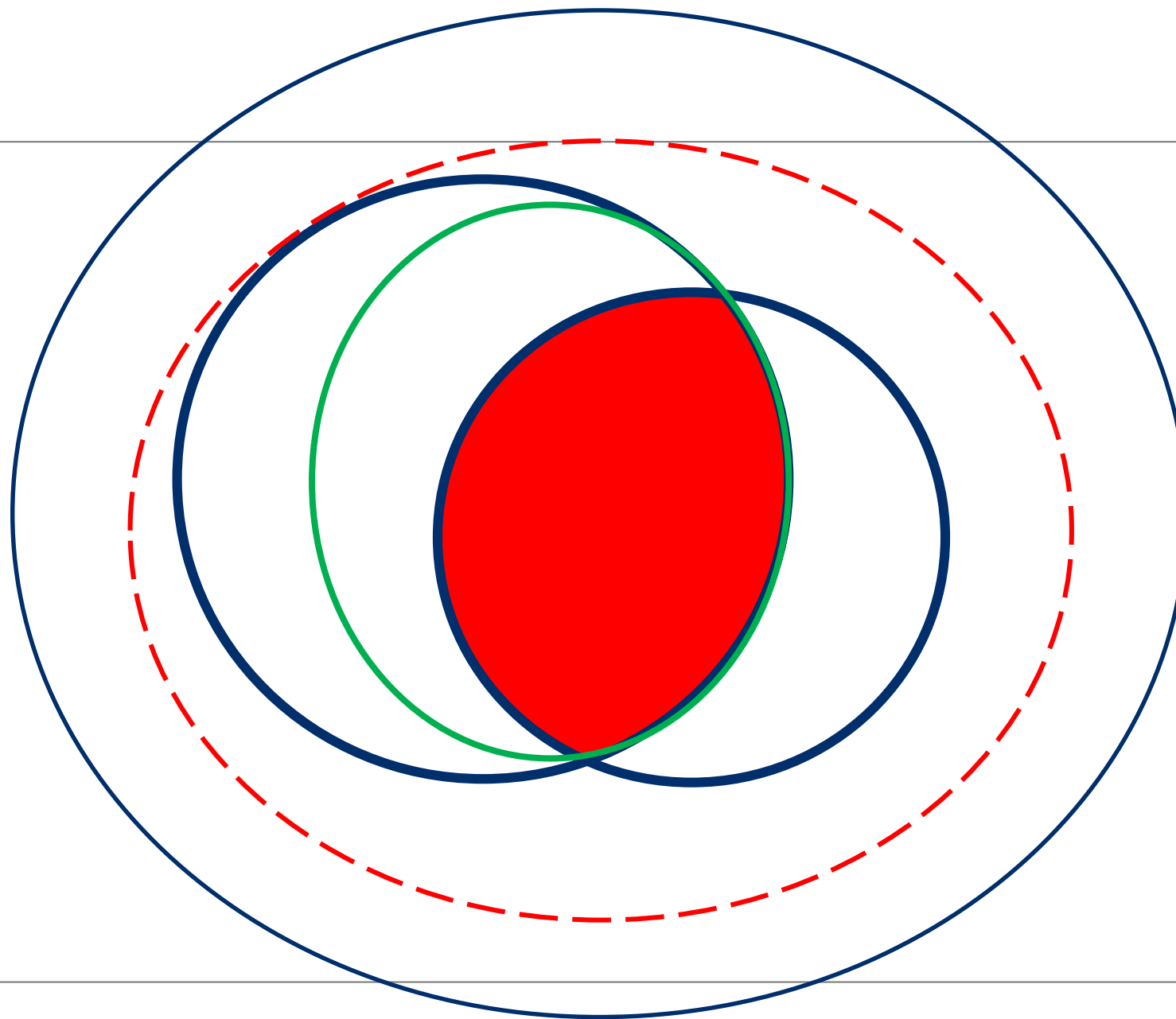
Can be specialized for domain specific automation and compliance.

Key content.

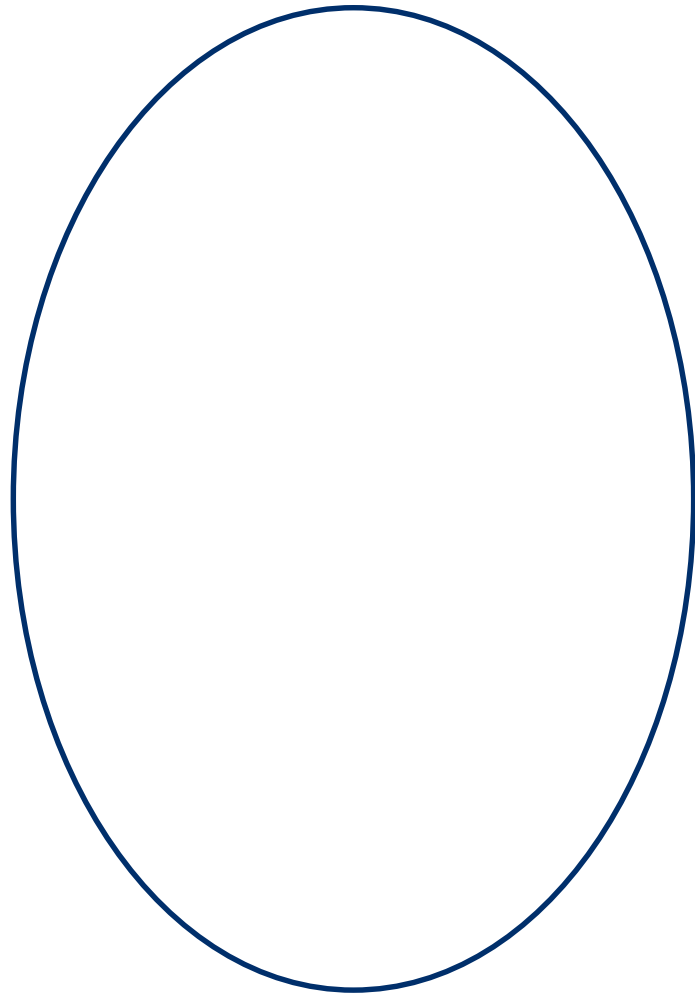
▶▶ Tax information.



Recognizing that there may be additional needs out there that are distinct to each domain.



# Distinct content



Not commonly understood in all domains.

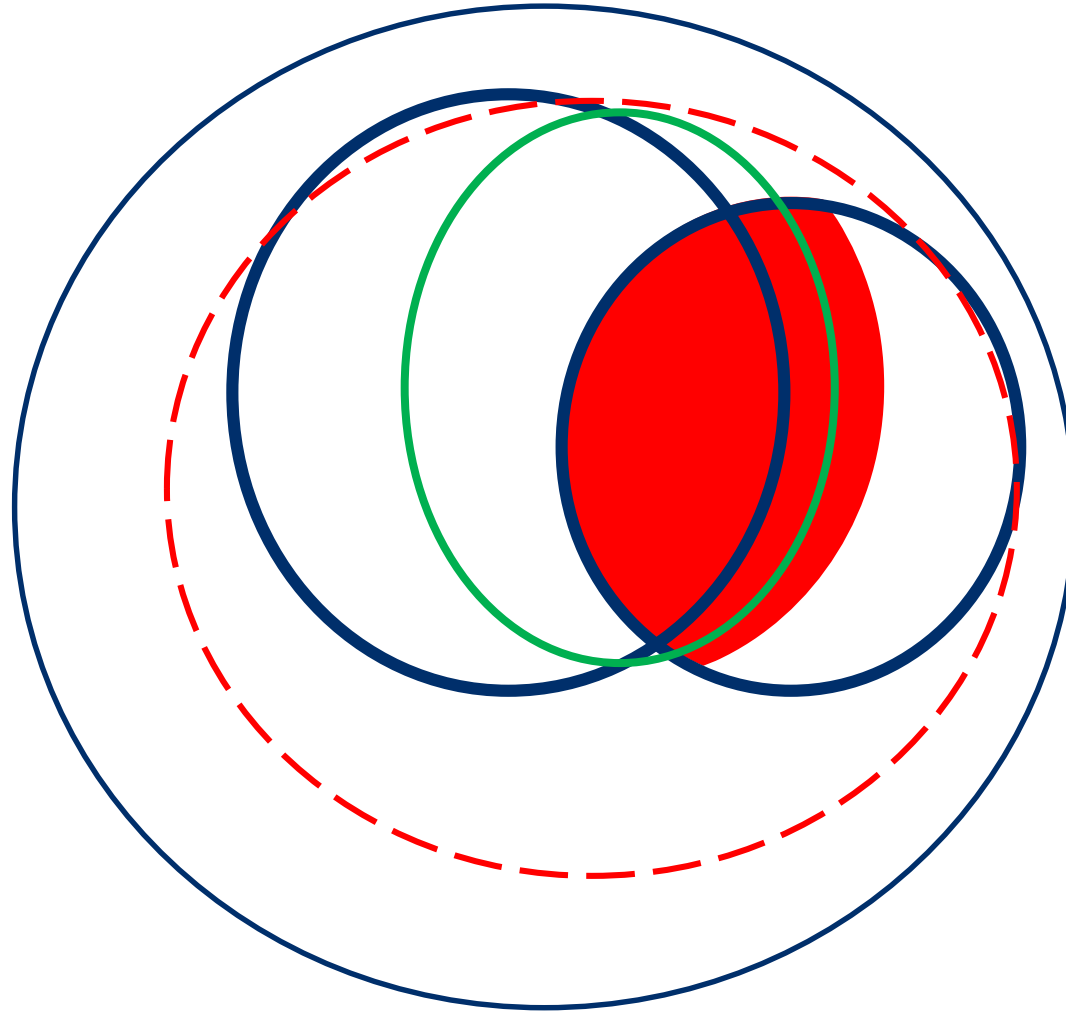
Syntax semantics apply.

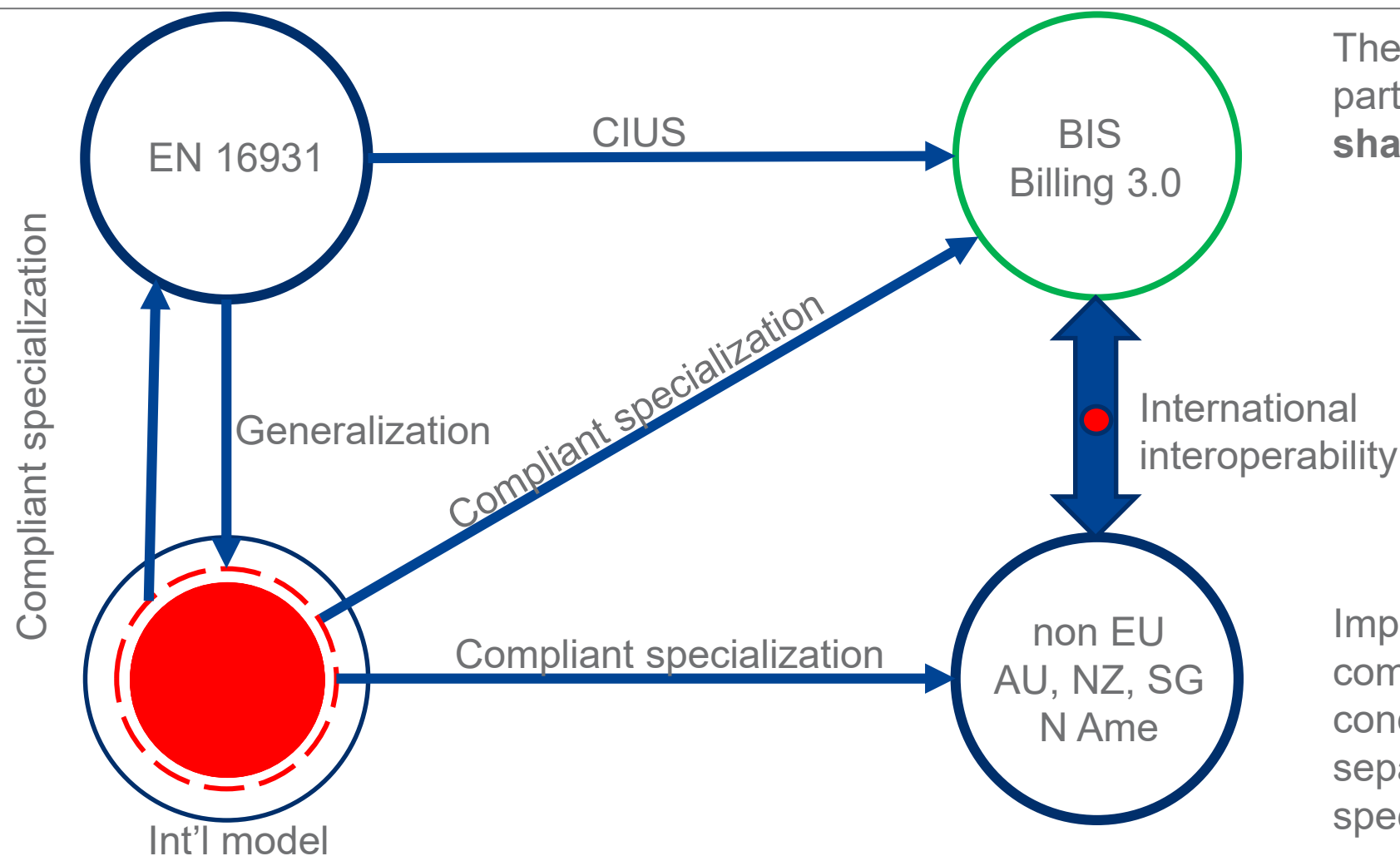
Type of content.

- ▶▶ Content that is distinct for different domains.
  - ▶▶ country
  - ▶▶ sector



out there and some  
specific.

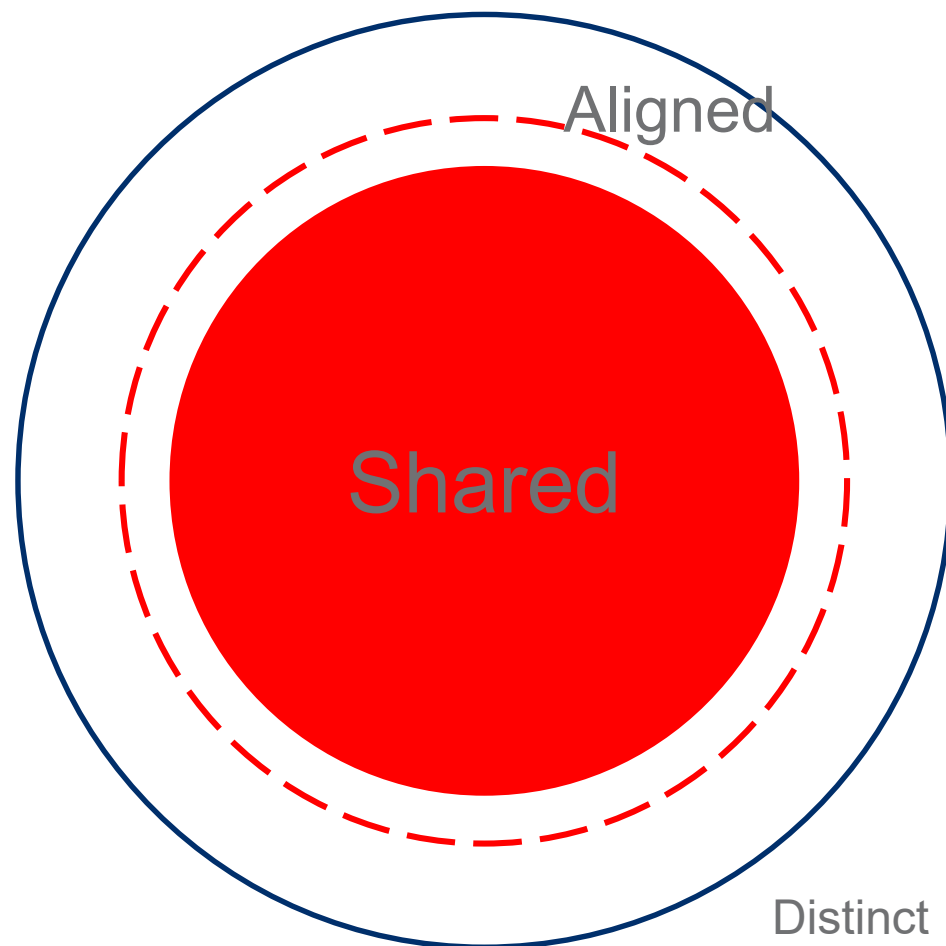




The fully defined part **MUST** be shared by all.

Implemented as one common BIS using conditional rules or in separate BIS specifications

# PEPPOL International Invoicing Model



# One or many mandatory BIS?

Depends on factors like

- ▶▶ how the PEPPOL mandatory principle is applied.
  - ▶▶ All receivers must be able to receive the same mandatory BIS.
    - ▶ PEPPOL BIS Billing 3.0 can't be mandated for all due to different legislation.
    - ▶ Should the International model be a BIS and made mandatory to all.
  - ▶▶ Each receiver must receive a BIS that complies with the international model.
    - ▶ Then how does the sender know it is compliant and what
- ▶▶ how receiving capabilities are registered and then looked up.
  - ▶▶ Before sending (to know what can be received)
  - ▶▶ When sending.
    - ▶ Allowing it through network.
    - ▶ Validating then content.

Should the objectives of the Mandatory Principle be achieved through a single BIS or through the **shared component** within BIS.



# One vs many

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## One

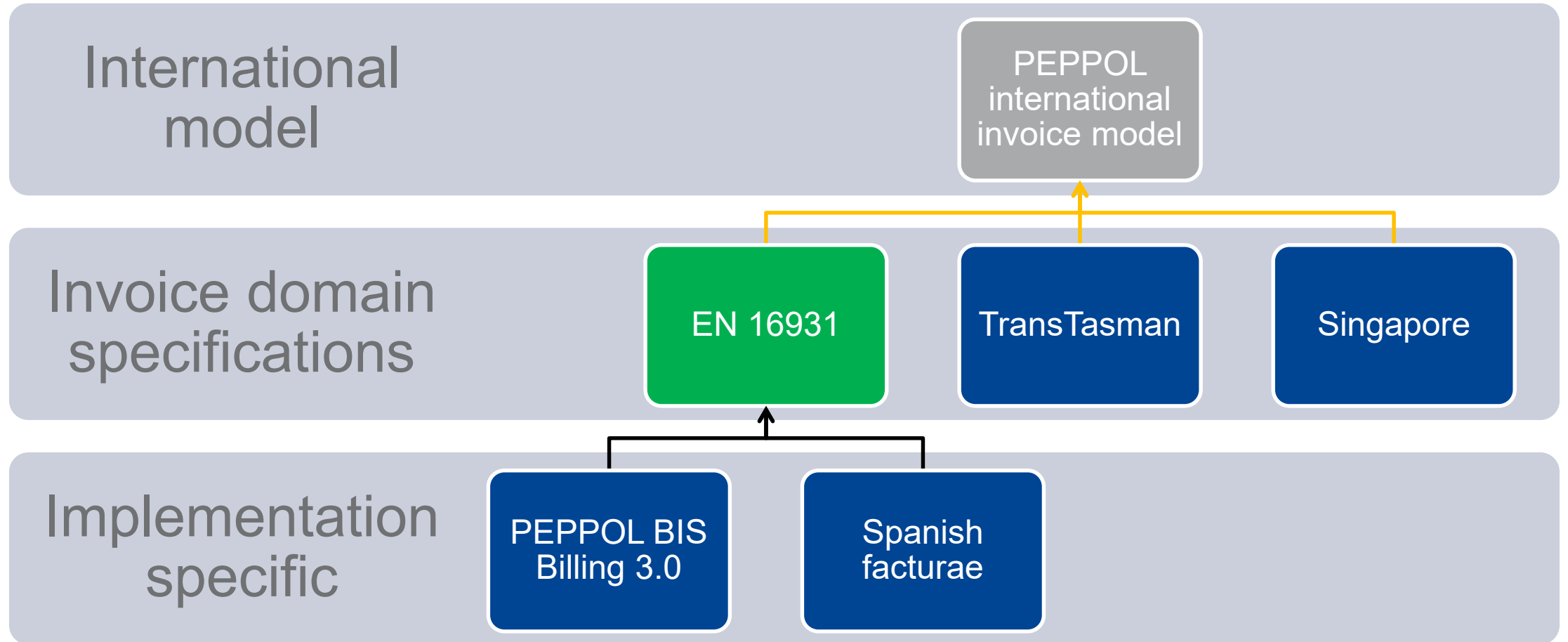
- ▶▶ Can the rules be implemented as conditional without interfering with each other? Specially if a domain uses distinct content.
  - How to enforce rules for different regions in the same country, there is a challenge to finding a correct trigger for the rules.
  - IF one domain needs to update their rules then everyone is affected. At least they need to roll out a new rules set and verify if it interferes with their needs.

## Many

- ▶▶ Requires modification to the methods for registering receiving capabilities, discovering them and matching them.

# Hierarchical layering

Compliant relation ←



# Receiving restricted versions

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It can be assumed that a receiver of a specification will accept and process any document that is based on a restricted version of that specification.

- ▶▶ this is in fact the underlying principle behind EN 16931 accepting CIUS as compliant implementation.

Using wildcard for registering receiving capacities.

- ▶▶ [urn:cen.eu:en16931#compliant#urn:fdc:peppol.eu:2017:poacc:billing:3.0#compliant:](#)\*

## Document sent

pint#compliant:en16931#compliant:bisbilling

pint#compliant:en16931#compliant:countryA

pint#compliant:countryA

pint#compliant:en16931#conformant:countryB

pint#compliant:countryB

pint#conformant:countryB

## Receiving capabilities

pint#compliant:en16931#compliant:bisbilling —○

pint#compliant:en16931#conformant:countryA —○

pint#compliant:countryA —○

pint#compliant:en16931#conformant:countryA —○

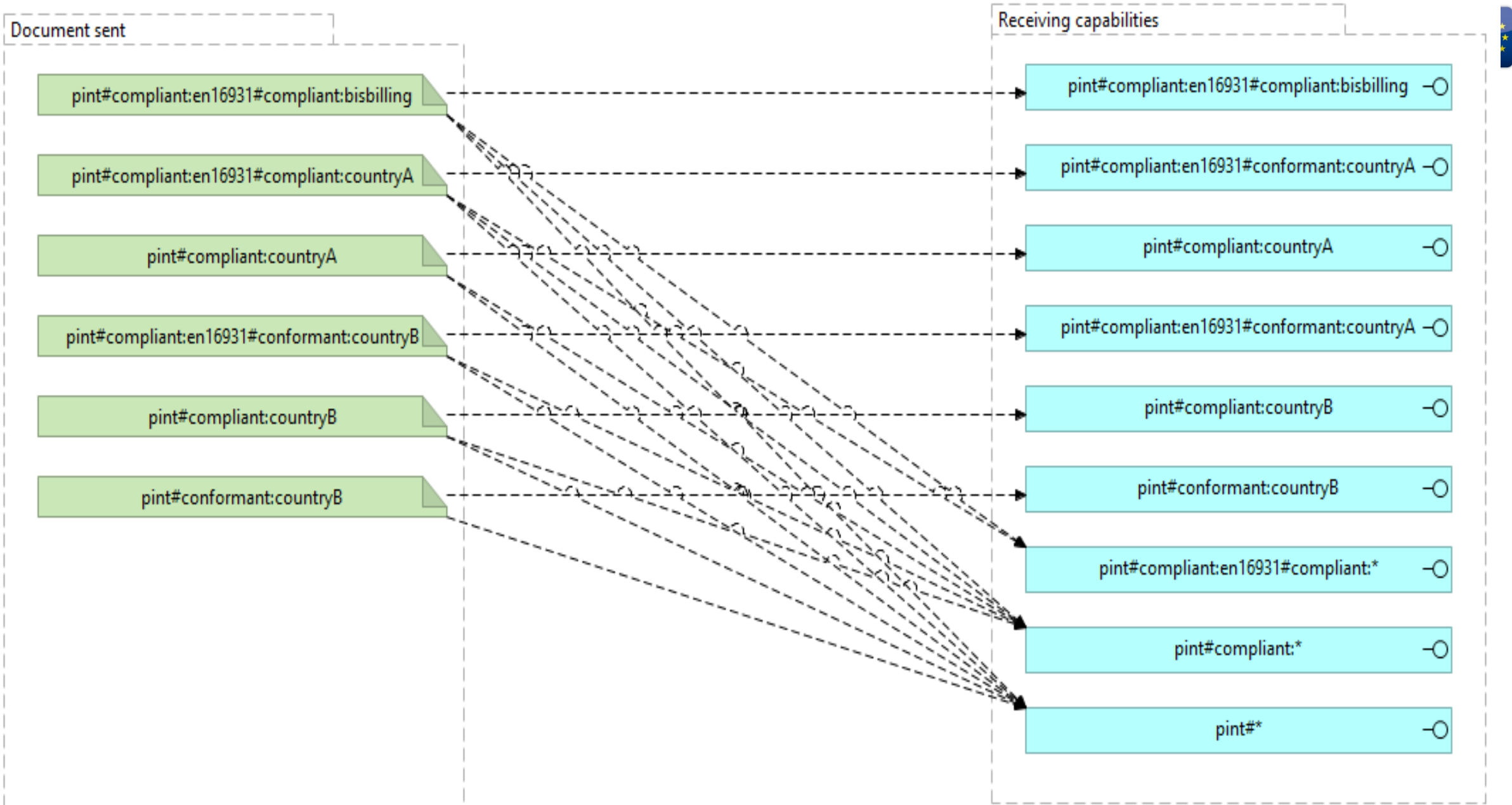
pint#compliant:countryB —○

pint#conformant:countryB —○

pint#compliant:en16931#compliant:\* —○

pint#compliant:\* —○

pint#\* —○



# Not all BIS are equal

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Depending on conditions different receivers may prefer or require different restricted specifications.

- ▶▶ European receivers prefer EN16931 compliant invoices.
- ▶▶ European receivers only accept non EN16931 from non-EU senders.
- ▶▶ Same country trading parties prefer their country restricted invoices.
- ▶▶ A receiver may accept common BIS but prefer a particular restriction.

Should the network provide for added information and control of what is exchanged?

- ▶▶ Party legal domain?
- ▶▶ Preferred BIS.



# THANK YOU!

## Questions?

### More information

E-mail: [info@peppol.eu](mailto:info@peppol.eu)

Web address: [www.peppol.eu](http://www.peppol.eu)

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