UBL International

The challenge of evolution

IDABC e-Invoicing and e-Ordering project at the European Commission

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PRICEWATERHOUSECOOPERS

Agenda

e-Invoicing Network PricewaterhouseCoopers
IDABC e-Invoicing and e-Ordering project
UBL at the European Commission

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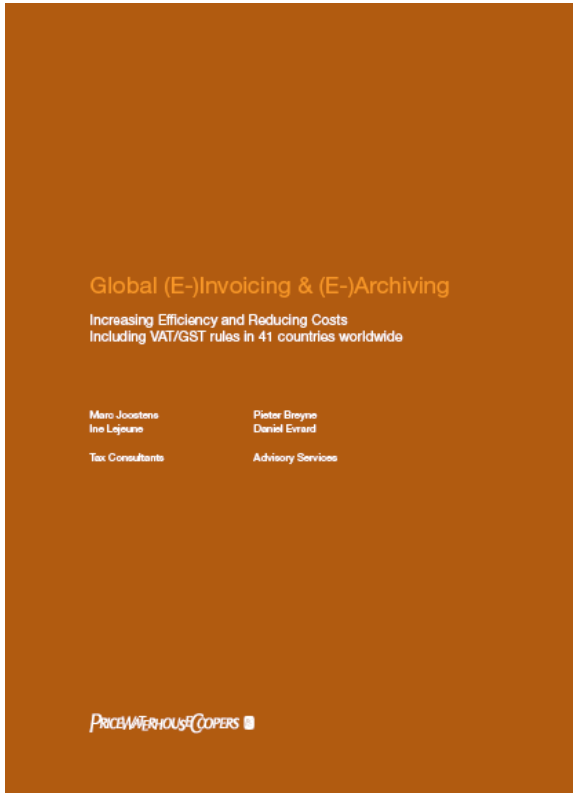
e-Invoicing network PricewaterhouseCoopers

- PwC is involved since 1999 with the study for the e-Invoicing Directive
- 2005 – e-Invoicing survey – taking the next step
- 2006 – Global e-Invoicing network with core competence center in Belgium
- 2006 – Global e-Invoicing and e-Archiving – Increasing Efficiency and Reducing Costs – Including VAT/GST rules in 41 Countries
- 2008
  - E-Invoicing Pilot at EC
  - Study for the review of the e-Invoicing Directive



IDABC e-Invoicing and e-Ordering project

e-Invoicing Network PricewaterhouseCoopers
IDABC e-Invoicing and e-Ordering project
UBL at the European Commission

Context

1. IDABC - Interoperable Delivery of European e-Government Services to public Administrations, Businesses and Citizens

2. Joint initiative between DG MARKT and DIGIT

Objectives

1. Contribute to the use of electronic invoices in the public sector according to the i2010 eGovernment action plan and the eProcurement action plan

2. Contribute to establishing the European Electronic Invoicing (EEI) Framework

Strategy

Phase I

- Inventory of business requirements for e-Invoicing in public procurement context
- Feasibility study with global implementation plan
- A preliminary prototype which is architecturally significant and offering sufficient functionality (basic invoice only) to start a pilot

Phase II

- A pilot system developed using an incremental approach which progressively adds the support of more complex interactions and exchange of additional business documents :
  a) Complete e-Invoice support with Dispute management and Credit Notes
  b) Complement with e-Ordering

Workplan

	Phase	Description of milestones reached or to be reached	Start date (QX/YYYY)	End date (QX/YYYY)
Phase I	PREPARATORY	Business Modelling: Description of business requirements in a cross-border environment	Q3/2007	Q1/2008
	FEASIBILITY	Global Implementation Plan	Q4/2007	Q1/2008
Phase II	DEVELOPMENT	Phase 1. Design and technical architecture Implementation of a prototype (Basic Invoice)	Q2/2008	Q4/2008
	DEVELOPMENT	Phase 2a. - Pilot of Phase 1 - Profile "Invoice with Dispute" - Workshop on Pilot of Phase 1	Q4/2008	Q2/2009
	DEVELOPMENT	Phase 2b: - Pilot of Phase 2a - Profile "Procurement Cycle" - Workshop on Pilot of Phase 2a - Packaging of lessons-learnt and re-usable items composing the developed solution	Q3/2009	Q4/2009

UBL at the European Commission

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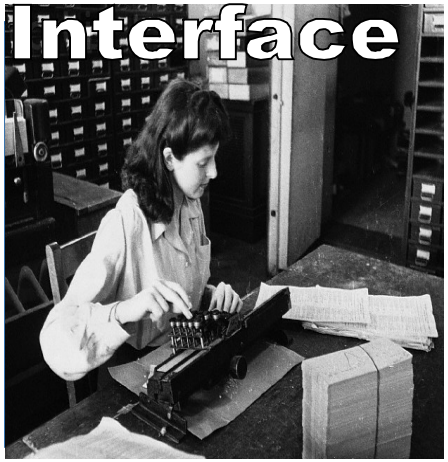
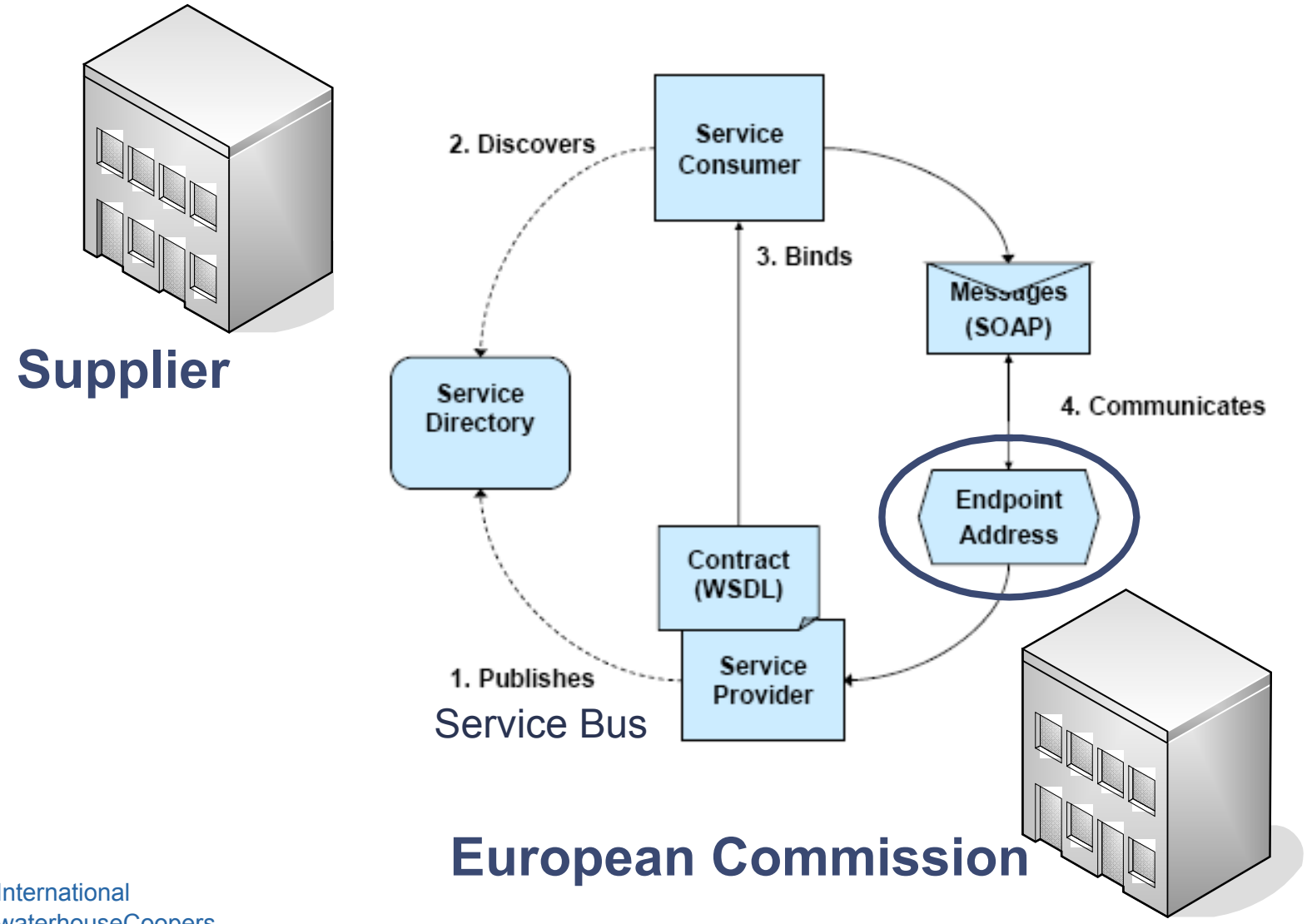
Basic Business Needs

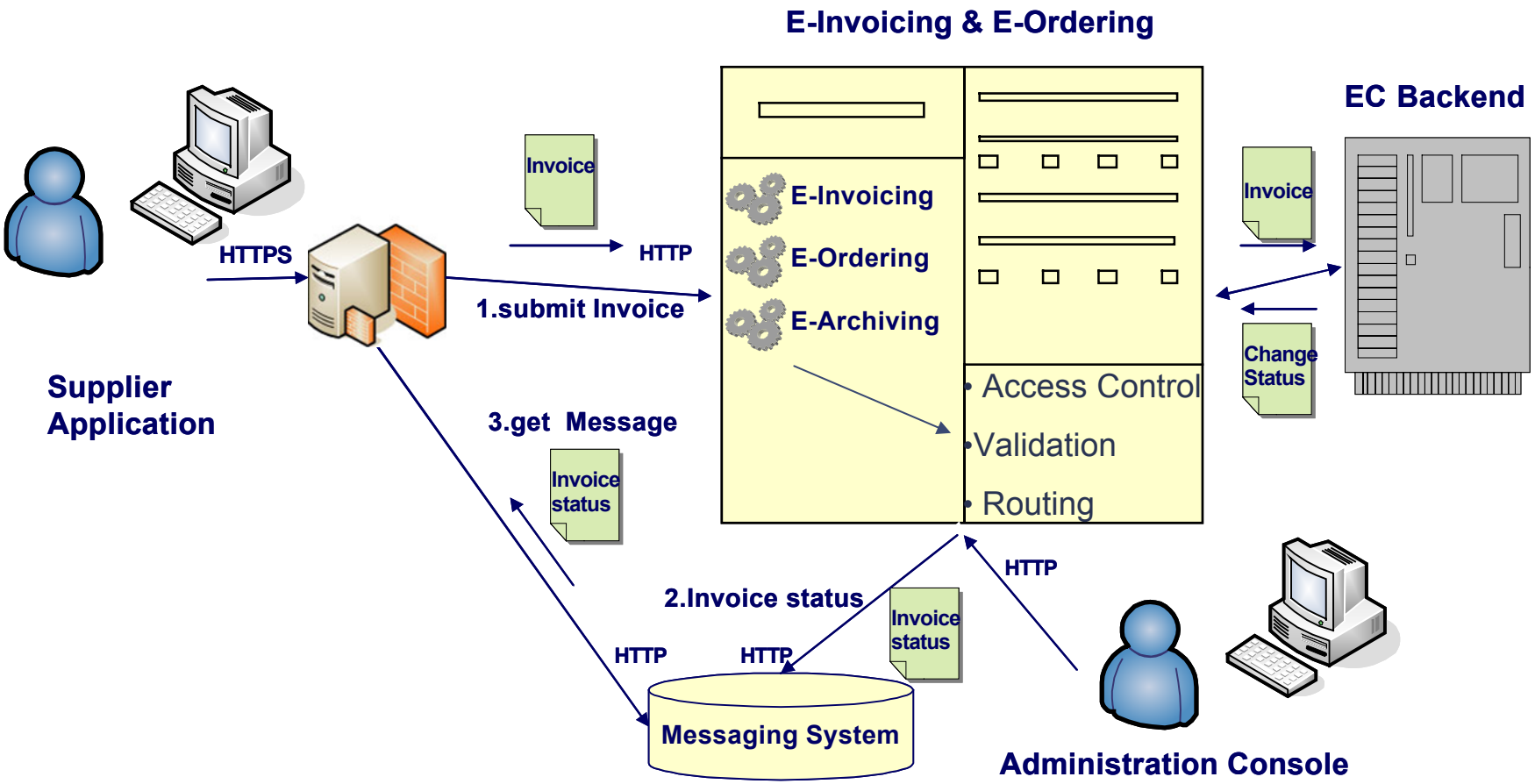


- **Easy** to use, standardized interface so that each supplier of the European Commission **opts-in**.
- **Interfacing** with very limited knowledge of the European Commission backend processing (loose coupling). It must **be simple**.
- **Service** architecture of shared services, promoting **modularity**.

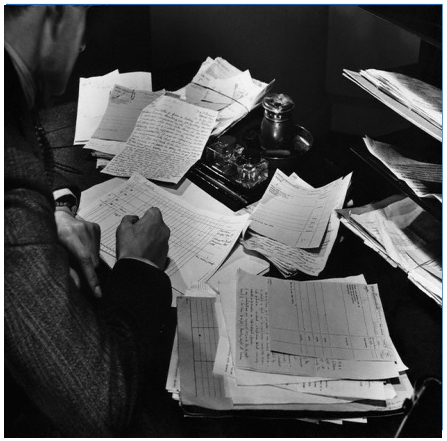
B2G Service Oriented Architecture



System's Architecture Realisation

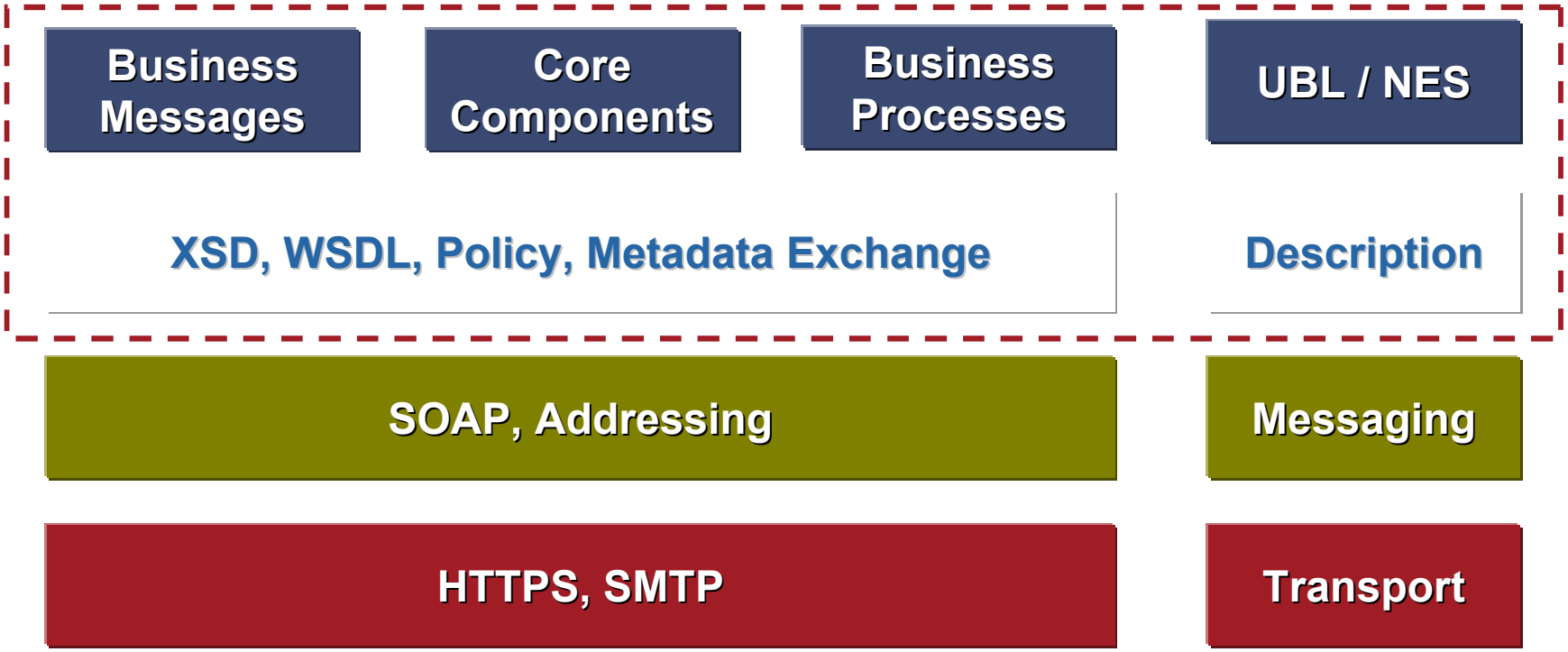


B2G Interoperability

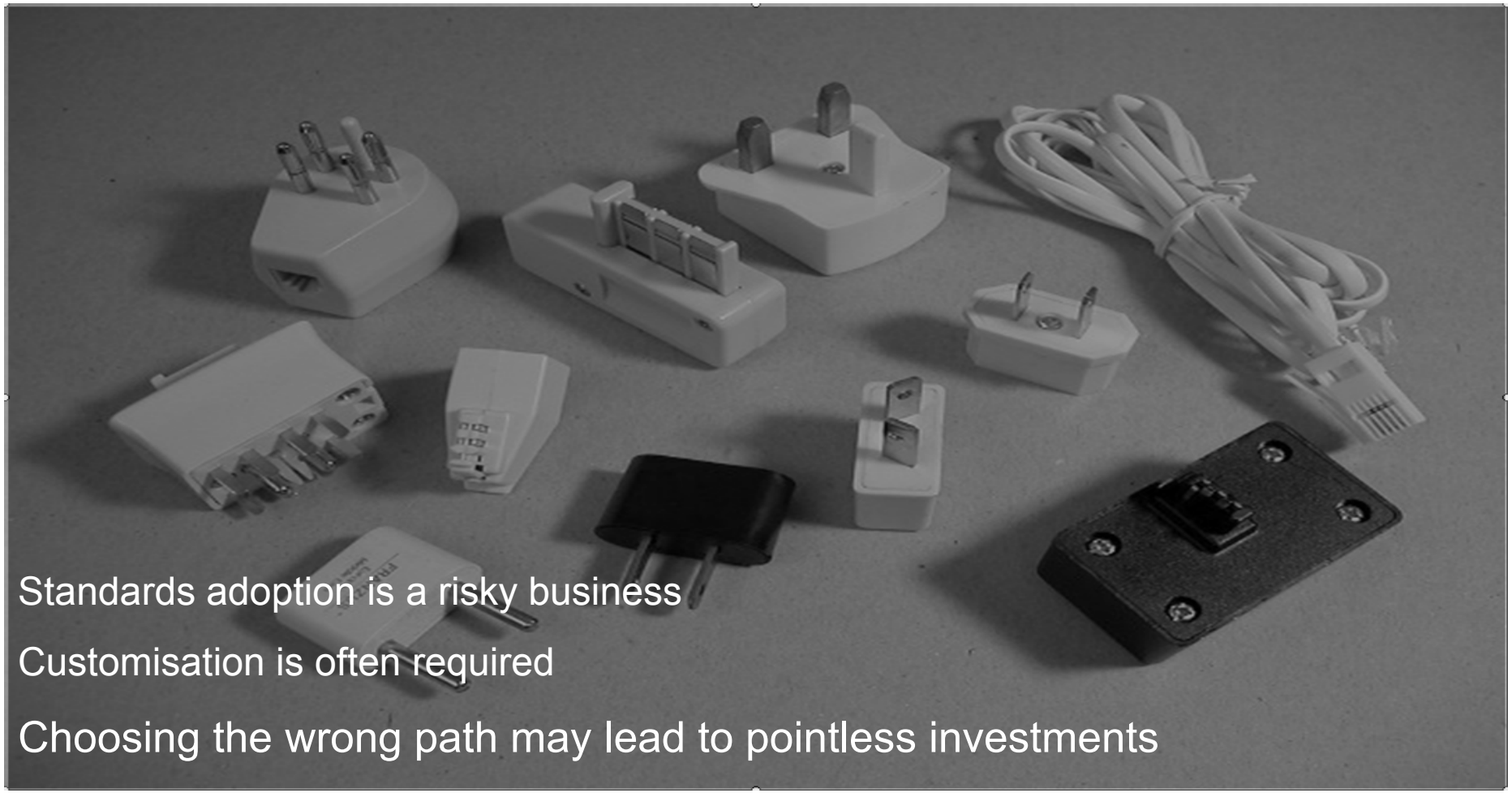


- ❑ XML Schemas, XSL, XQuery, WSDL documents, XML parsers facilitate **Technical Interoperability.**
- ❑ However, the names of data components are only a small part of their meaning (XML is not self-describing).
- ❑ There is a need for **Standard** and **Extensible** Business Dictionary, **Semantic Interoperability**.

Adoption of UBL 2.0 and NES
(Business Process Models, data dictionary, XSDs…)



The road to standardized data semantics



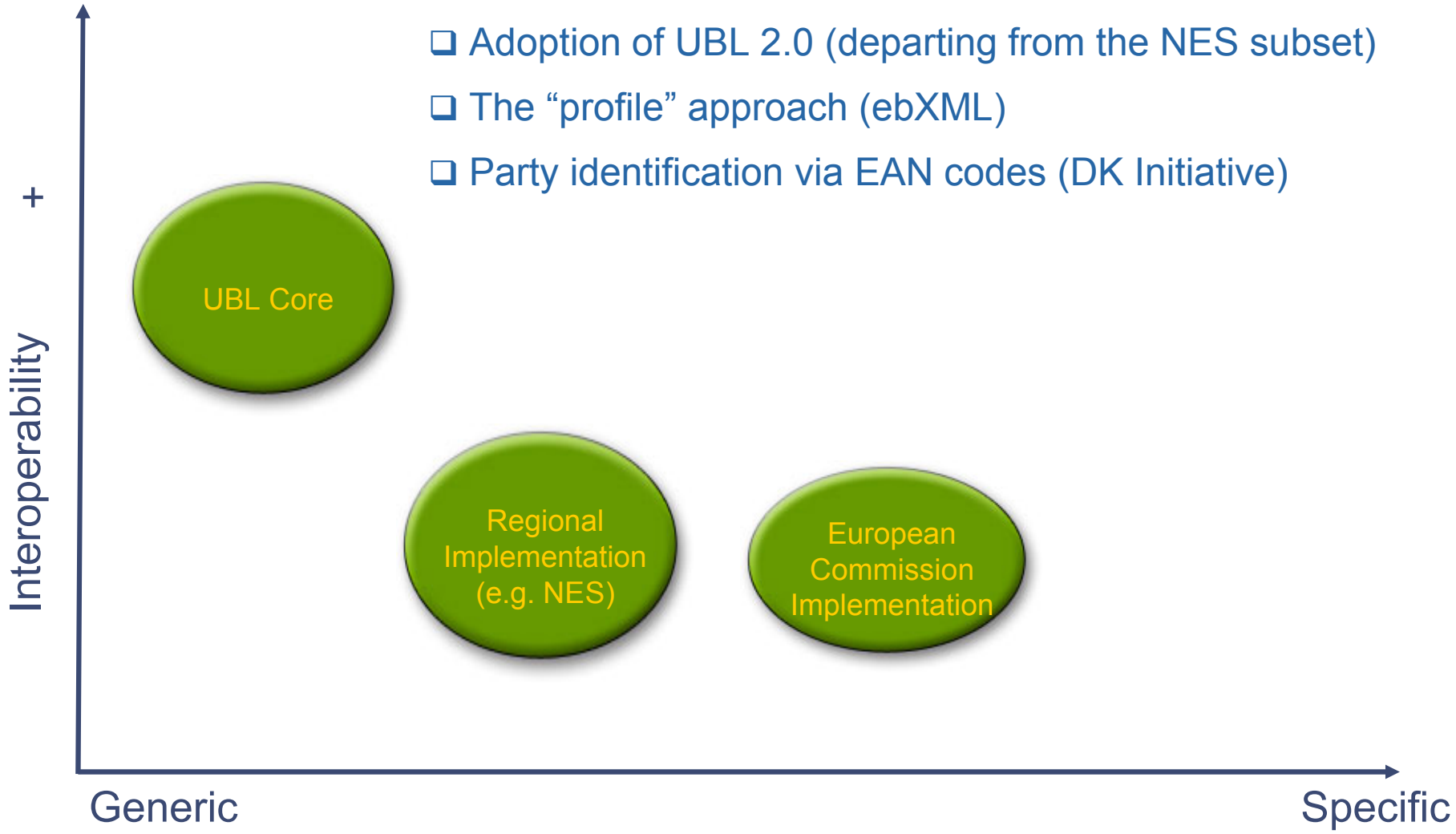
Standards adoption is a risky business

Customisation is often required

Choosing the wrong path may lead to pointless investments

Semantic Interoperability. How does it work?

- Adoption of UBL 2.0 (departing from the NES subset)
- The “profile” approach (ebXML)
- Party identification via EAN codes (DK Initiative)



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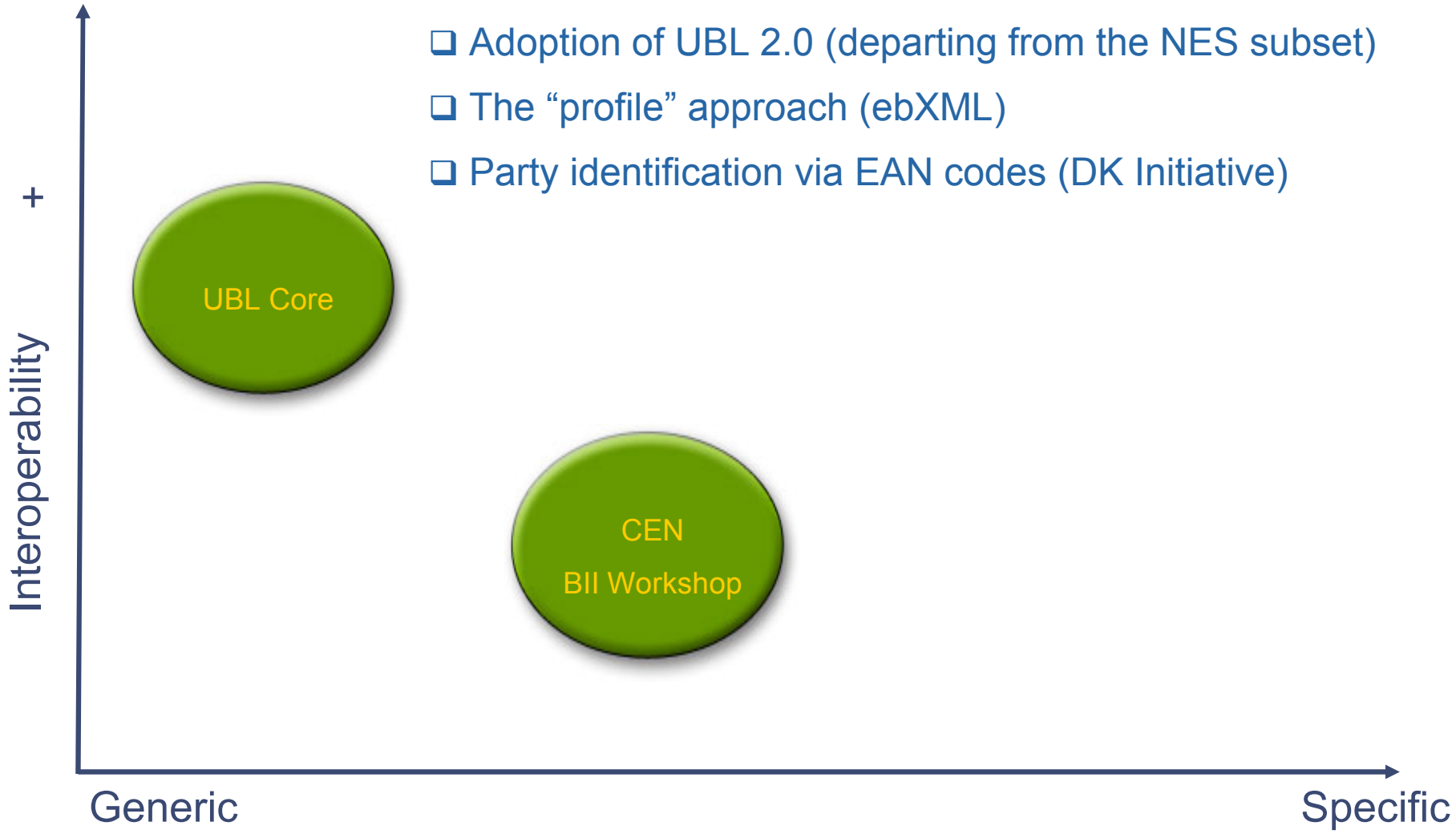


Customisation of UBL / NES Documents Schemas

Use of UBL 2.0/ NES documents:

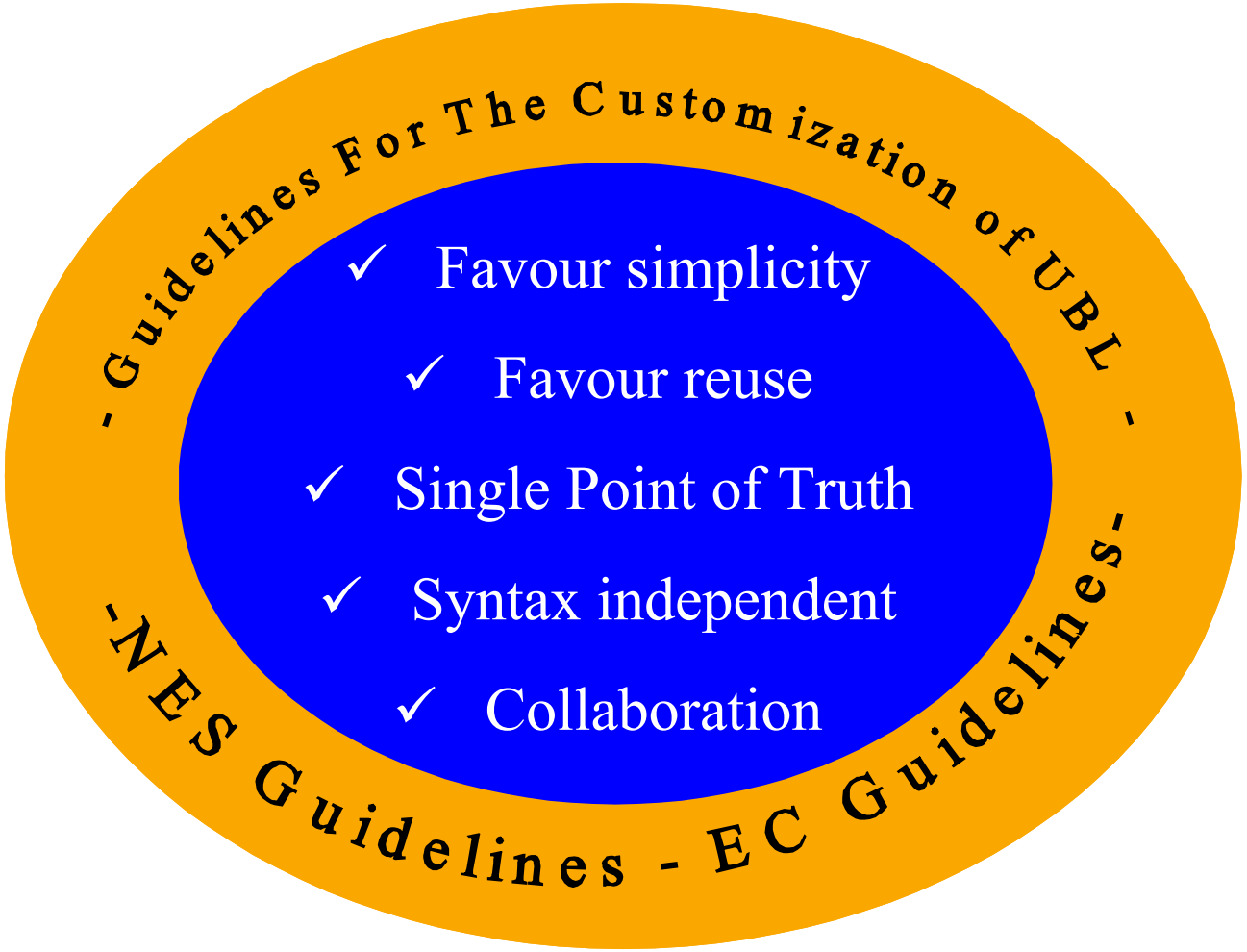
- **ApplicationResponse**
- **AttachedDocument**
- **CreditNote**
- **Invoice**
- **Order**

We will need to create a few more:

- **Status Request / Response**
- **Queries and Retrievals / Responses**
- **Document Received**

(…)

Principles of the UBL customisation



Objectives of the UBL customisation

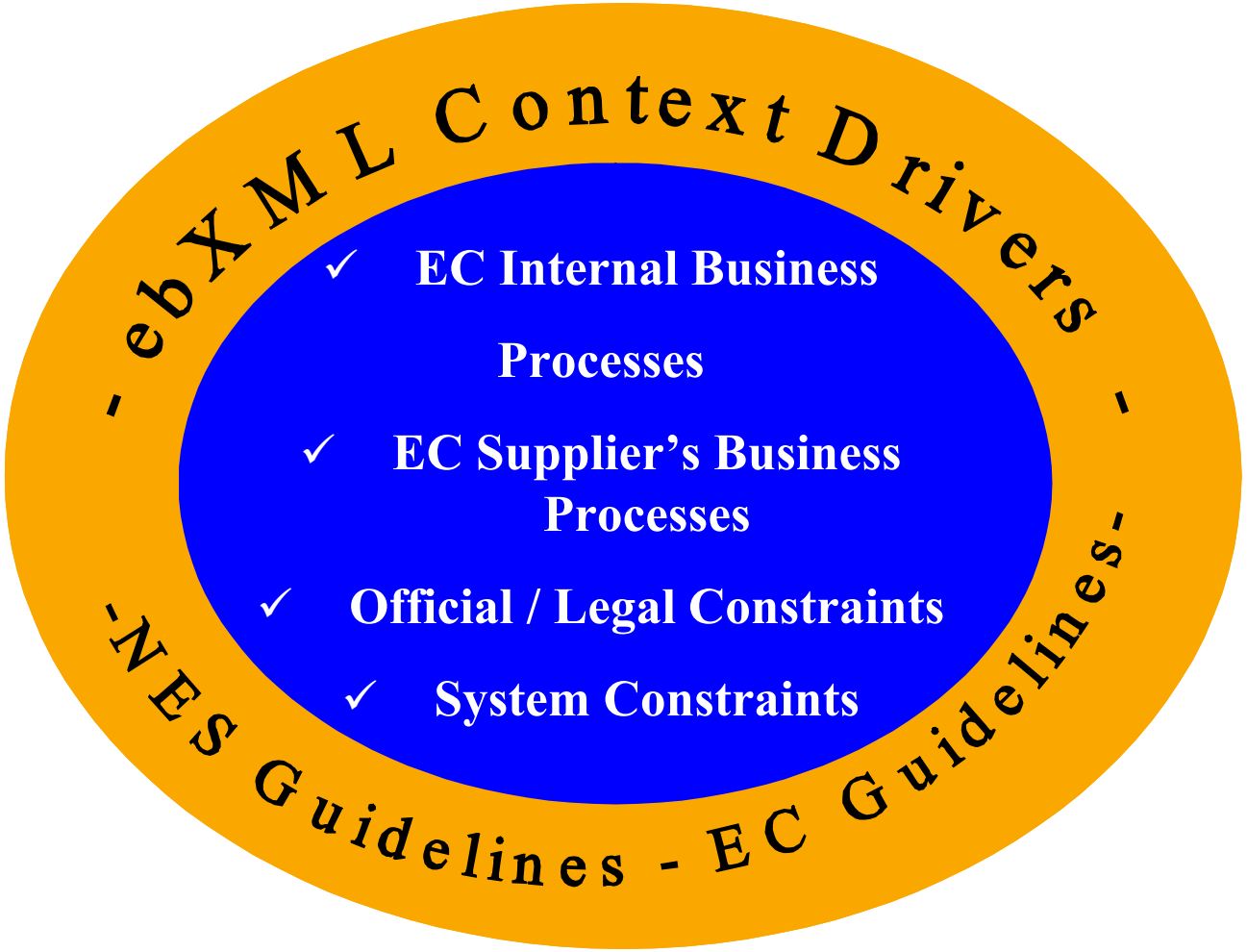
e-Invoice associated Business Rules

e-Invoice Code Tables

e-Invoice Data Elements

UBL 2.0	VS.	**NES (baseline)**	VS.	**EC Backend**	VS.	**EC Paper Invoice(s)**

Customisation context drivers



Put into practice…

EC Backend

Work in Progress

	A	B	O	P	Q	R	AG	AJ	AK	AL	
1	UBL Name	Dictionary Entry Name	UBL Cardinality	Component Type	Definition	Examples	EC Backend	NES Cardinality	EC Cardinality	Business Rules	Other
14	DocumentCurrencyCode	Invoice. Document_ Currency Code. Co	0..1	BBIE	The currency in which the Document is presented. This may be the same currency as the pricing or as the tax.	EUR	FAC_CUR_CODE	1	1		Reappl table c
15	TaxCurrencyCode	Invoice. Tax_ Currency Code. Code	0..1	BBIE	The currency used for tax amounts in the Invoice.		Does not exist	0..1	0..1		
16	PricingCurrencyCode	Invoice. Pricing_ Currency Code. Code	0..1	BBIE	The currency used for prices in the Invoice.			0..0	0..0		
17	PaymentCurrencyCode	Invoice. Payment_ Currency Code. Coc	0..1	BBIE	The currency used for payment in the Invoice.			0..0	0..0		
18	PaymentAlternativeCurrencyCode	Invoice. Payment Alternative_ Currency	0..1	BBIE	The alternative currency used for payment in the			0..0	0..0		
19	AccountingCostCode	Invoice. Accounting Cost Code. Code	0..1	BBIE	The Buyer's accounting code applied to the Invoice			0..0	0..0		
20	AccountingCost	Invoice. Accounting Cost. Text	0..1	BBIE	The Buyer's accounting code applied to the Invoice as a whole, expressed as text.		Does not exist	0..1	0..1		
21	LineCountNumeric	Invoice. Line Count. Numeric	0..1	BBIE	The number of lines in the document.			0..1	0..1		
22	InvoicePeriod	Invoice. Invoice_ Period. Period	0..n	ASBIE	An association to period(s) to which the Invoice applies.			0..1	0..1		
23	OrderReference	Invoice. Order Reference	0..1	ASBIE	An association to Order Reference.			0..1	0..1		
24	BillingReference	Invoice. Billing Reference	0..n	ASBIE	An association to Billing Reference.			0..1	0..1		
25	DespatchDocumentReference	Invoice. Despatch_ Document	0..n	ASBIE	An associative reference to Despatch Advice.			0..0	0..0		
26	ReceiptDocumentReference	Invoice. Receipt_ Document	0..n	ASBIE	An associative reference to Receipt Advice.			0..0	0..0		
27	OriginatorDocumentReference	Invoice. Originator_ Document	0..n	ASBIE	An associative reference to Originator Document.			0..1	0..1		
28	ContractDocumentReference	Invoice. Contract_ Document Reference. Document Reference	0..n	ASBIE	An associative reference to Contract.			0..0	0..1		
29	AdditionalDocumentReference	Invoice. Additional_ Document Reference. Document Reference	0..n	ASBIE	An associative reference to Additional Document.			0..n	0..n	This is a business rule which will not be	
30	Signature	Invoice. Signature	0..n	ASBIE	An association to Signature.			0..n	0..0		
31	AccountingSupplierParty	Invoice. Accounting_ Supplier Party.	1	ASBIE	An association to the Accounting Supplier Party.			1	1		
32	AccountingCustomerParty	Invoice. Accounting_ Customer Party.	1	ASBIE	An association to the Accounting Customer Party.			1	1		
33	PayeeParty	Invoice. Payee_ Party. Party	0..1	ASBIE	An association to the Payee.			0..1	0..1		
34	BuyerCustomerParty	Invoice. Buyer_ Customer Party.	0..1	ASBIE	An association to the Buyer.			0..0	0..0		
35	SellerSupplierParty	Invoice. Seller_ Supplier Party. Supplier	0..1	ASBIE	An association to the Seller.			0..0	0..0		
36	TaxRepresentativeParty	Invoice. Tax_ Representative_ Party.	0..1	ASBIE	An association to the Tax Representative.			0..0	0..0		
37	Delivery	Invoice. Delivery	0..n	ASBIE	An association to Delivery.			0..1	0..1		
38	DeliveryTerms	Invoice. Delivery Terms	0..1	ASBIE	An association to Delivery Terms.			0..1	0..1		
39	PaymentMeans	Invoice. Payment Means	0..n	ASBIE	An association to Payment Means.			0..n	0..n		
40	PaymentTerms	Invoice. Payment Terms	0..n	ASBIE	An association to Payment Terms.			0..1	0..1		
41	PrepaidPayment	Invoice. Prepaid_ Payment. Payment	0..n	ASBIE	An association to prepaid payment(s).			0..0	0..0		
42	AllowanceCharge	Invoice. Allowance Charge	0..n	ASBIE	An association to Allowances and Charges that apply to the Invoice as a whole.			0..n	0..n		
43	TaxExchangeRate	Invoice. Tax_ Exchange Rate.	0..1	ASBIE	An association to Exchange Rate between the			0..1	0..1		

Invoice / ABAC ASSET

Some Results (work in progress)

Few UBL elements not used by NES need to be reintroduced, e.g.

At Invoice level, we intend to reintroduce the Contract Reference element

UBL Name	Dictionary Entry Name	UBL Cardinality	Definition	NES Cardinality	EC Cardinality	Business Rules	Context Driver Value (Rational of Change)	Context Driver
ContractDocumentReference	Invoice. Contract_ Document Reference. Document Reference	0..n	An associative reference to Contract.	0..0	0..1		Separate the Framework Contract Reference and the Specific Contract Reference	Business Process

As part of the Supplier attributes, we intend to reintroduce the Account Identifier

UBL Name	Dictionary Entry Name	UBL Cardinality	Definition	NES Cardinality	EC Cardinality	Business Rules	Context Driver Value (Rational of Change)	Context Driver
CustomerAssignedAccountID	Supplier Party. Customer Assigned_ Account Identifier. Identifier	0..1	The customer's internal identifier for the supplier.	0..0	0..1		Following the analysis of paper invoices,this attribute needs to be reintroduced in this node.	Business process

Some Results (work in progress)

Few NES elements will not be used, e.g.

The invoice's attachments will be sent in a separate message (as opposed to embedded in the invoice)

UBL Name	Dictionary Entry Name	UBL Cardinality	Definition	NES Cardinality	EC Cardinality	Context Driver Value (Rational of Change)	Context Driver
Attachment	Attachment. Details		Information about an attached document. An attachment can be referred to externally (with the URI element) or internally (with the MIME reference element) or contained within the document itself (with the EmbeddedDocument element).				
EmbeddedDocumentBinaryObject	Attachment. Embedded_ Document. Binary Object	0..1	Contains an embedded document as a BLOB (binary large object).	0..1	0..0!	There is a dedicated message to transmit the attachments of an Invoice	System Constraint
ExternalReference	Attachment. External Reference	0..1	An attached document, externally referred to, referred to in the MIME location, or embedded.	0..1	0..1		

In our case, invoices will not be digitally signed (EDI solution).

UBL Name	Dictionary Entry Name	UBL Cardinality	Definition	NES Cardinality	EC Cardinality	Context Driver Value (Rational of Change)	Context Driver
Signature	Signature. Details		Information about signature.		0..0!		SystemConstraint

Some Results (work in progress)

We intend to set a number of elements to mandatory:

Driven by system constraints

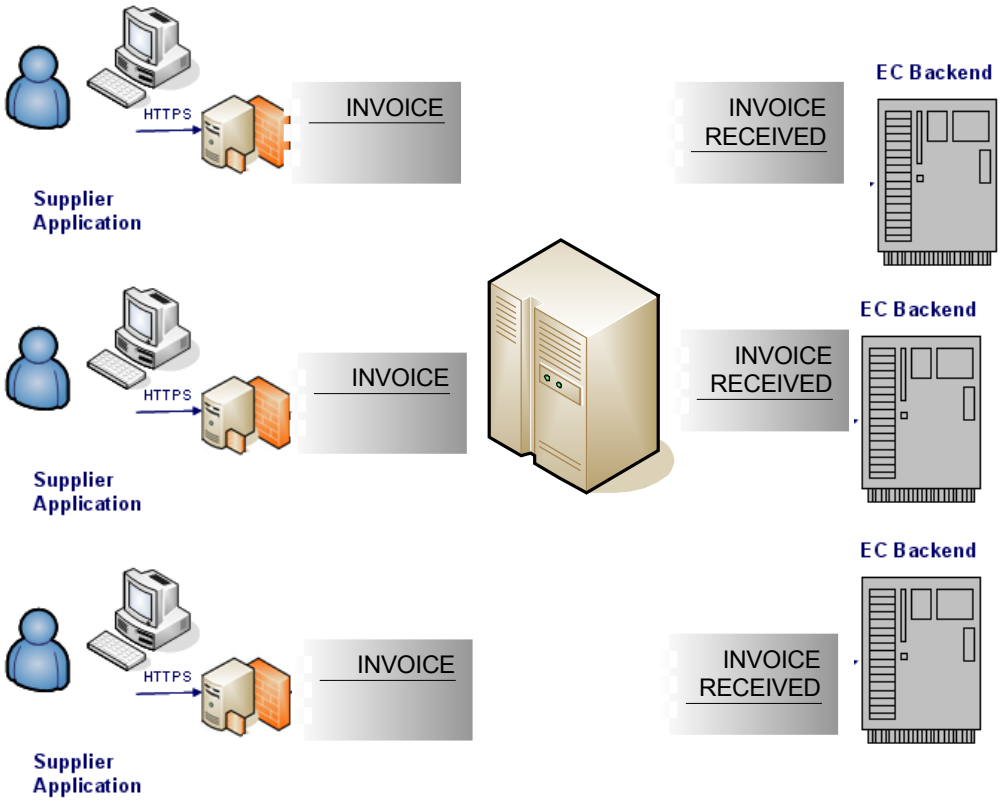
UBL Name	Dictionary Entry Name	UBL Cardinality	Definition	NES Cardinality	EC Cardinality	Business Rules	Context Driver Value (Rational of Change)	Context Driver
EndpointID	Party. Endpoint Identifier. Identifier	0..1	Identifies the end point of the routing service, e.g., EAN Location Number, GLN.	0..1	1	This will be parsed and mapped to the ABAC Legal Entity code	This attribute must be mandatory since there is a business rule associated to it. Control of the EAN structure.	System constraint

Driven by official constraints (VAT):

e.g. at invoice line

UBL Name	Dictionary Entry Name	UBL Cardinality	Definition	NES Cardinality	EC Cardinality	Business Rules	Context Driver Value (Rational of Change)	Context Driver
Price	Invoice Line. Price	0..1	An association to Price.	0..1	1		VAT requirement Price unit	Official Constraint

Document Received



References

PricewaterhouseCoopers

http://www.pwc.be/

IDABC

http://ec.europa.eu/idabc

DG-MARKT (Expert Group on e-Invoicing)

http://ec.europa.eu/dgs/internal_market/

E-Procurement Forum (Survey on e-Invoicing)

http://www.epractice.eu/community/eprocurement/

Thank you for your attention

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