

gtnews

Expert Commentary on Global Treasury and Finance



Future of XML Payment Management: Challenges, Evolution and Benefits

11.March 2014

Speakers in this Webinar

Harri Rantanen

- Co-convenor of the Common Global Implementation group and SEB, Manager Formats & Standards

Juha Hakomäki

- Product Manager
- *XMLdation*

Juha Keski-Nisula

- CEO
- *XMLdation*

Agenda of this Webinar

- Future of ISO 20022 Payment Management
- XML Management
- XMLdation Service
- Questions and Answers



**Future of ISO 20022 Payment
Management**

Harri Rantanen

SEB

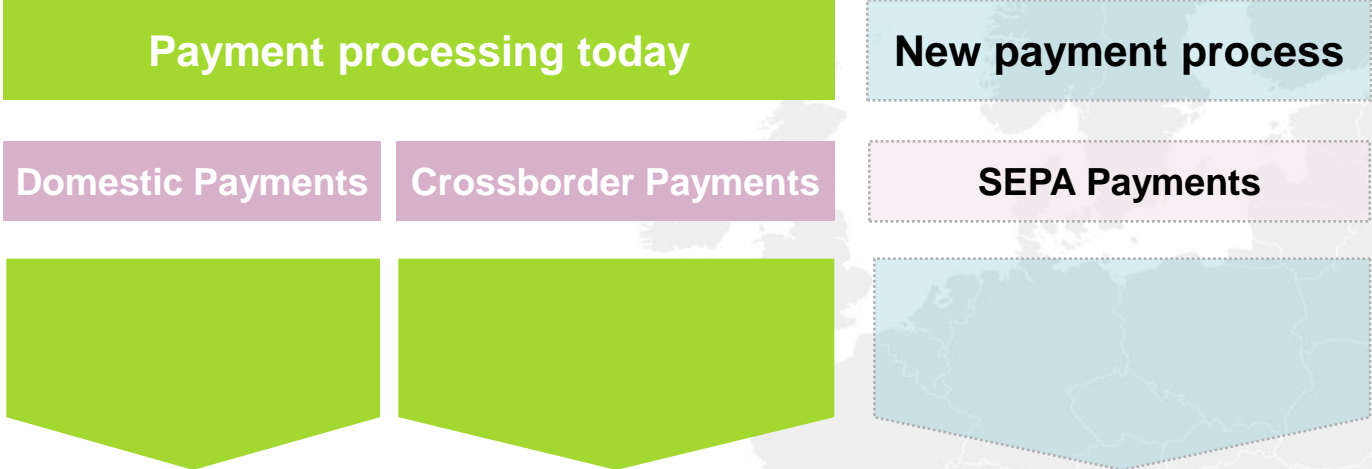
Common Global Implementation

Harri Rantanen, Manager Formats & Standards SEB

- **20+ years experience on international corporate cash & liquidity management implementations with banking integration**
- **6 years at SEB for formats & standards management**
- **Common Global Implementation group co-convener (www.swift.com/cgi)**
- **Finnish banking community representation at the ISO Technical Committee 68 owning the ISO 20022 standard**



SEPA* proof of concept: from a silo approach...



... to the real process harmonisation!

Payment processing tomorrow

Domestic Payments

Crossborder Payments

SEPA Payments

ISO 2022 XML

Initiation, clearing and reporting

One format

One Euro account

One shared
service centre

One process

ISO 20022 global coverage beyond SEPA

Setting the payment infrastructure readiness and support

- Denmark: Fully ISO 20022 based clearing running for Same Day payments
- Sweden: SWISH payments clearing and settlement with standard ISO 20022 messages
- Japan: Clearing system with normal and high value local payments running on ISO 20022
- Qatar: National Automated Clearing House (ACH), live in 2010
- Egypt ACH: real time direct debit processing with ISO 20022
- Southern African Development Community: clearing and settling their cross-border payments with ISO 20022
- Canada: Vision 2020 - upcoming fully ISO 20022 based clearing for local payments
- USA: Investigating other countries' ISO 20022 clearing system projects for preliminary local payment transformation analysis
- Target2: High value payment clearing systems to be migrated to ISO 20022 (from MT) on year 2016 – 2017
- Brunei: Real Time Gross Settlement (RTGS) and ACH planned go live 4Q 2014 being first Asian country to adopt future Asian countries central bank inter-linkage with ISO 20022
- Malaysia: introducing the next generation RTGS system based on ISO 20022 aiming for year 2015 deployment
- Australia: multiple upcoming ISO 20022 based payment clearing implementation projects
- Discussion on how to replace the Bank-to-Bank reporting from MT-messages to ISO 20022



**CGI, Common Global Implementation
ensuring the harmonisation**

Market Collaboration



Mission & Objective

- ▶ Provides a **forum** for financial institutions (banks and bank associations) and non-financial institutions (corporates, corporate associations, vendors and market infrastructures) to progress various corporate-to-bank implementation topics on the use of ISO 20022 messages and to other related activities, in the payments domain.
- ▶ **Simplify implementation** for corporate users and thereby promoting wider acceptance of ISO20022 as the common XML standard used between corporates and banks.
- ▶ Achieved through **consultation, collaboration and agreement** on common implementation templates for relevant ISO 20022 financial messages, leading to their subsequent publication and promotion in order to attain widespread recognition and adoption.



Financial Institution Members

In total 36 FI members (Contributing & Observers)

- ▶ Bank of America Merrill Lynch
- ▶ Barclays
- ▶ BBVA
- ▶ BNP Paribas
- ▶ BSK, Bankenes Standardiseringskontor
- ▶ Citibank
- ▶ Commerzbank AG
- ▶ Danish Bankers Association
- ▶ Danske Bank
- ▶ Deutsche Bank
- ▶ DnB NOR
- ▶ HSBC
- ▶ ING Bank
- ▶ J.P.Morgan
- ▶ Nordea Bank
- ▶ Payments Council (UK)
- ▶ Raiffeisen Bank International
- ▶ Royal Bank of Scotland
- ▶ Santander
- ▶ SEB
- ▶ Standard Chartered Bank
- ▶ Sydbank A/S
- ▶ UniCredit Bank
- ▶ Wells Fargo



Common Global Implementation (CGI) initiative



Non-Financial Institution Members

In total 56 Non-FI members (Contributing & Observers)

- ▶ AITI
- ▶ Alsyon
- ▶ BBP
- ▶ Bottomline Technologies
- ▶ CBI Consortium
- ▶ e5 Solutions
- ▶ EFIS
- ▶ Exalog
- ▶ Fiserv
- ▶ Flux
- ▶ General Electric
- ▶ GXS
- ▶ IKEA
- ▶ Nasarius
- ▶ Netilys Consulting
- ▶ Nets
- ▶ Online Banking Solutions
- ▶ OpusCapita
- ▶ PwC
- ▶ SAP AG
- ▶ Siemens
- ▶ SIX Interbank Clearing
- ▶ Sungard
- ▶ SWIFT
- ▶ Tembit
- ▶ TIS
- ▶ Traxpay
- ▶ UTSIT
- ▶ Visma Software International AS
- ▶ XMLdation
- ▶ Zanders



Common Global Implementation (CGI) initiative



**ISO 20022 based
development and initiatives**

Overall status update

ISO 20022 beyond Payments domain

- Electronic management of bank accounts (eBAM) and Exceptions and Investigations
- eInvoicing
- Trade Services Utility and Bank Payment Obligation, StandBy Letters of Credits and Guarantees messages
- Upcoming Factoring message set
- Target2 Securities
- Proxy voting
- DTC (Deposit Trust Company) Corporate Actions ISO 20022 transformation project
- Bank Services Billing (BSB)
- Liquidity reporting industry standards guidelines
- New card transaction platforms

- A total 300+ ISO 20022 messages
- New ISO 20022:2013 edition was launched in Mar/2013 allowing also other than XML messages (ASN.1 – ISO 20022:8) with the same ISO 20022 business model



Thank you!

XML Management



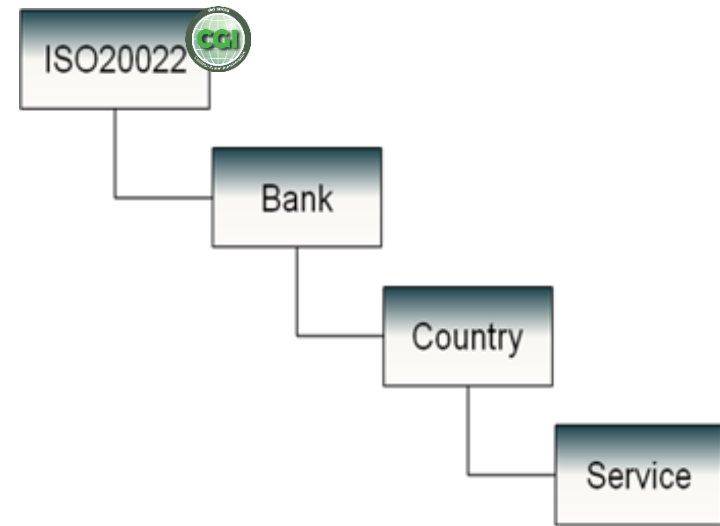
Juha Hakomäki
Product Manager
XMLdation

The integrity of the ISO 20022 XML payment standard



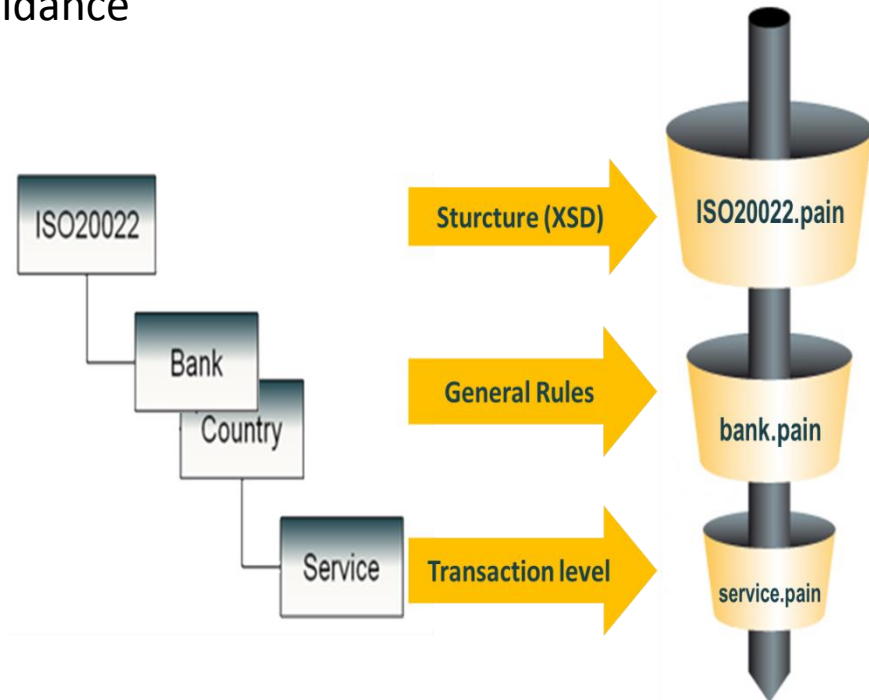
XML Migration from Global Perspective

- Banks
 - Global, multinational and local
 - Interbanking requirements
- Corporates
 - Multibanking
 - In-House-Banking
- Software Vendors
 - Global ERP systems
 - Payment process implementations
 - Payment Factories



Why Details are as Important as Structure?

- XML structure, Schema, defines the structure of xml file
 - in most cases it is not enough
- Details: country and bank specific business rules
 - Defined in Message Implementation Guidance
- Some example of those details.
 - IBAN structure
 - Conditional elements
 - External code lists
 - Character set (usually UTF-8)



Challenges in XML Payment Management

Bank

- Version management regarding production status, changes and roadmap of coming versions
- Internal use in testing the core banking system and payment hubs
- External use in on-boarding customers: documentation, customer support

Corporate/Software Vendor

- To find the accurate version of the Message Implementation Guide
 - Country and bank specific rules
 - Country and bank specific code lists
- Handling of Direct Debit R-messages in interbanking environment
- Need for support service 24/7 around the world

Challenges in XML Payment Management

Technical challenges

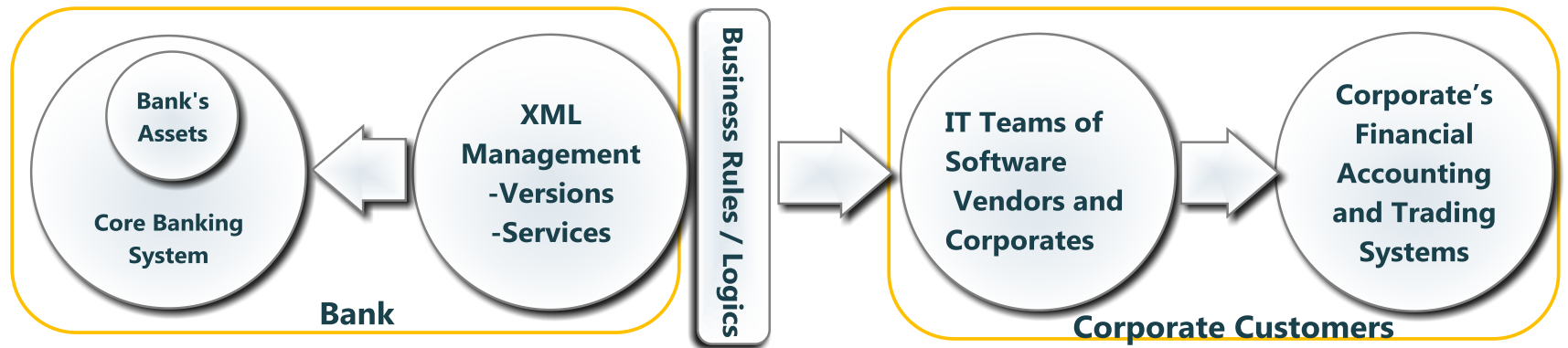
- Excel is widely used in storing the definitions
 - How to keep track of current, valid version
 - How to manage workbooks as by the end they contain huge number of cells
- Deployment of rule definitions is 'human' programming
 - How to sustain the quality
 - How to assure the definition in documentation corresponds to the implementation in core banking system
- Documentation and information sharing
 - How to implement solid uniform documentation
 - How to distribute valid information to all stakeholders
 - How to manage the definitions in one bank when there is several channels, several payment hubs, several countries and core banking systems

XML Management

is framework for

**managing specifications of XML transactions and
definitions of processes based on XML messages**

Why XML Management is Essential?



Why XML Management is Essential?

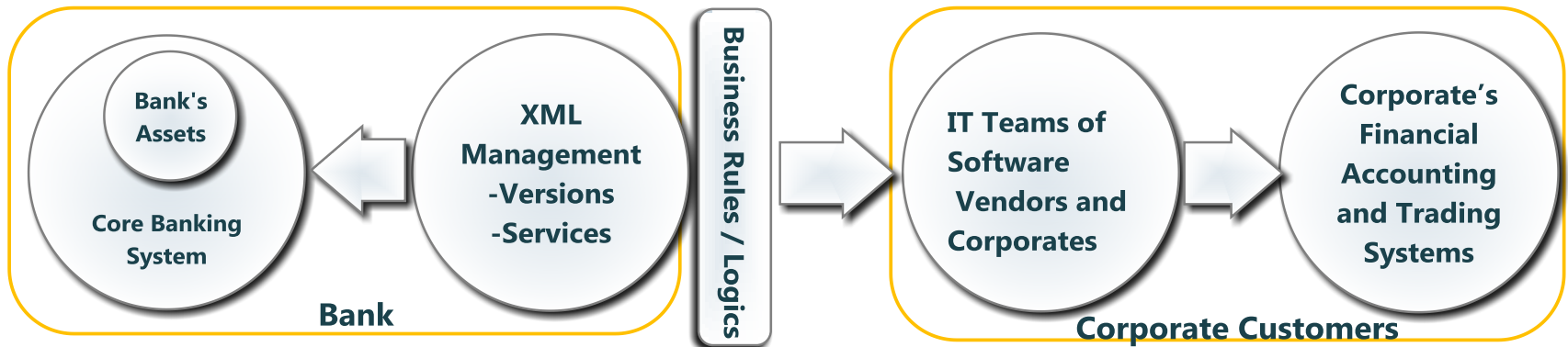


Discontinuity point. Risk:

- Misunderstanding
- Bad customer Experience
- More errors
- Maintenance challenges

XML Management

XML Management consists of **tools and services** for **managing and sharing XML definitions**



- Product Development
- IT department
- Onboarding teams
- Customer Support

- Bank's customers and their IT teams
- Software vendors
- Implementation consultants

XML Management: Services

Developer services

- Rules definitions: payment transactions and response files
- Version management
- Program code generator
- Test file generator

User services

- Validator
- Simulator

Knowledge base

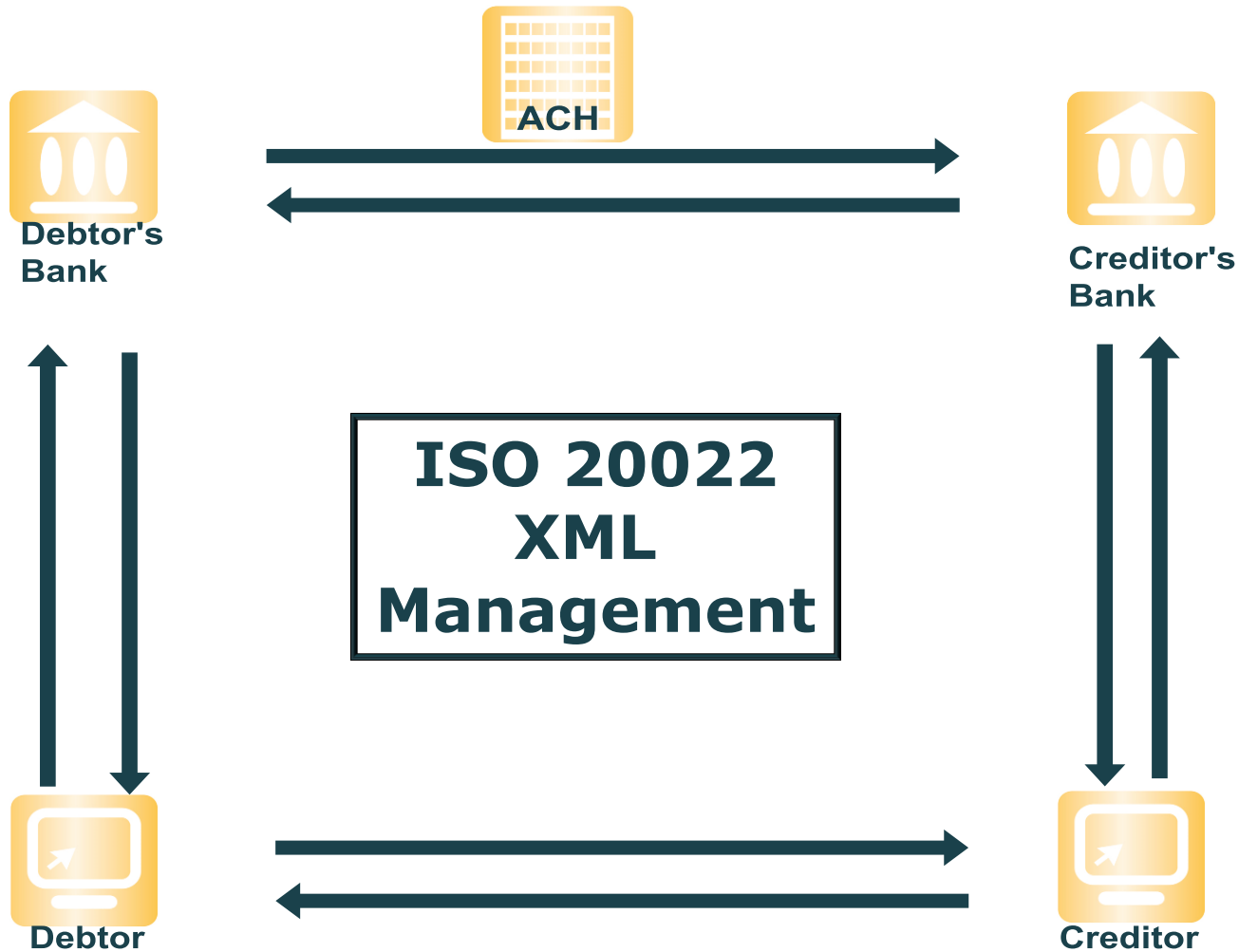
- Documentation
- External code lists
- Mapping information

XML Management: Tools

Tools

- Browser user interface
- API host to host interface
- Test file storage: file management
- Diff tool to compare, track changes, in XML files
- Visualiser to visualise applicable XML message

XML Management is Essential



XMLdation Service

Juha Keski-Nisula
CEO



XMLdation Service

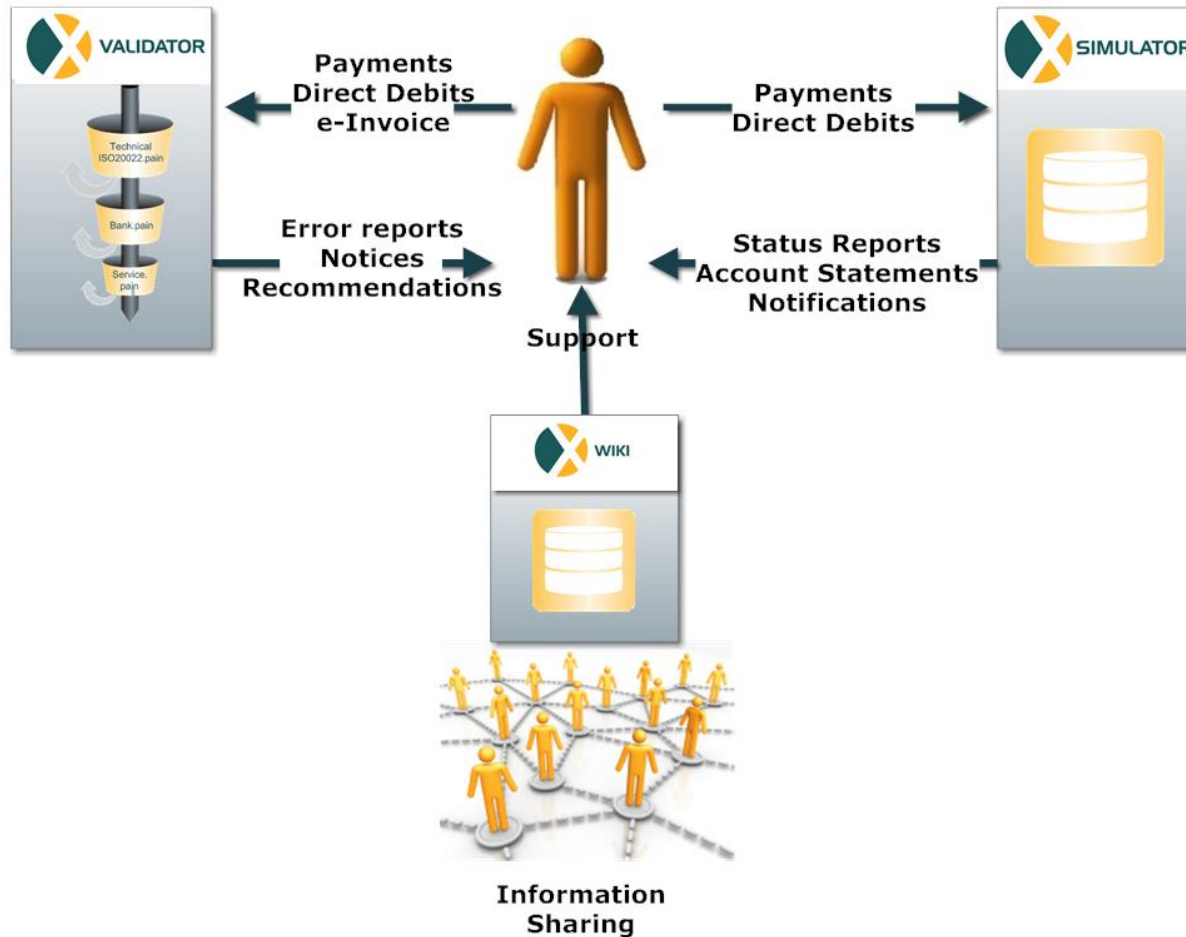
is an internet based service for

Testing and Validation of XML payment transactions

and for

Simulation of payment process

XMLdation Service



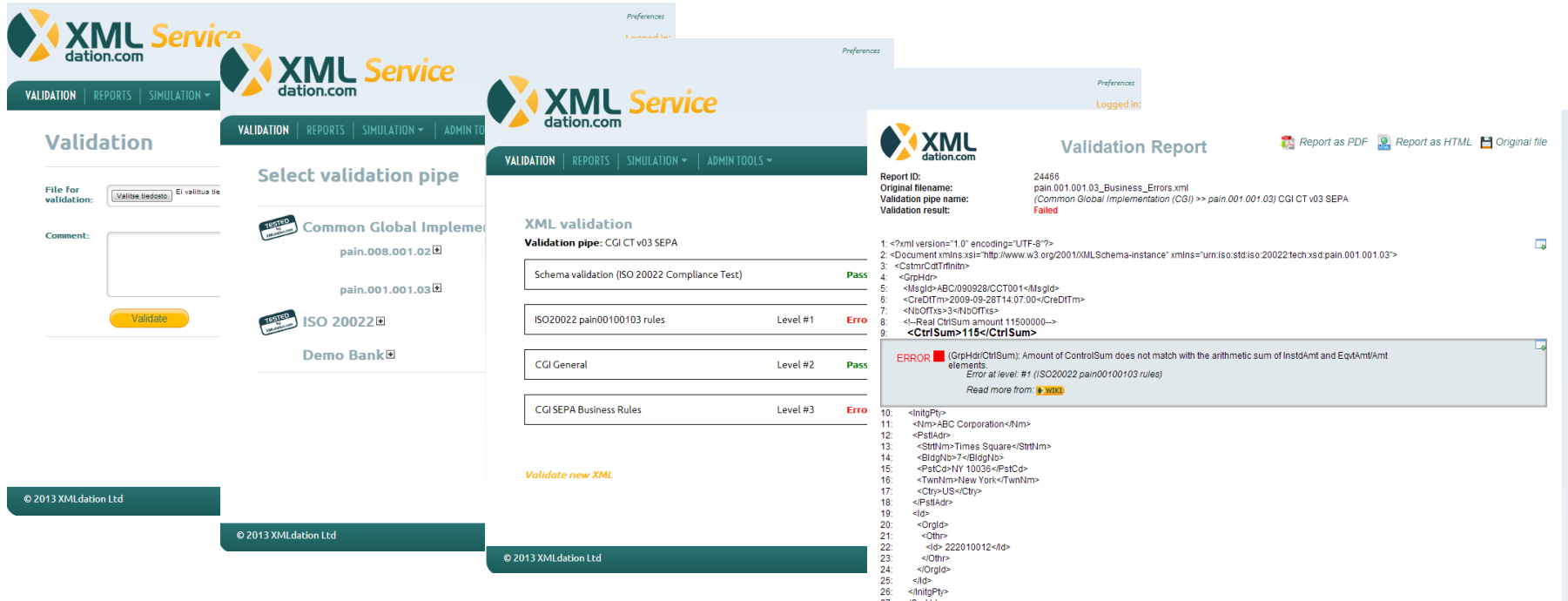
Customers and Partners



Rabobank



1. Upload the test file
2. Select validation pipe (bank / transaction type)
3. Get results
4. See/download report with errors/notices/recommendations



The screenshot displays the XMLdation.com web interface, which is used for validating XML files. It is divided into several sections:

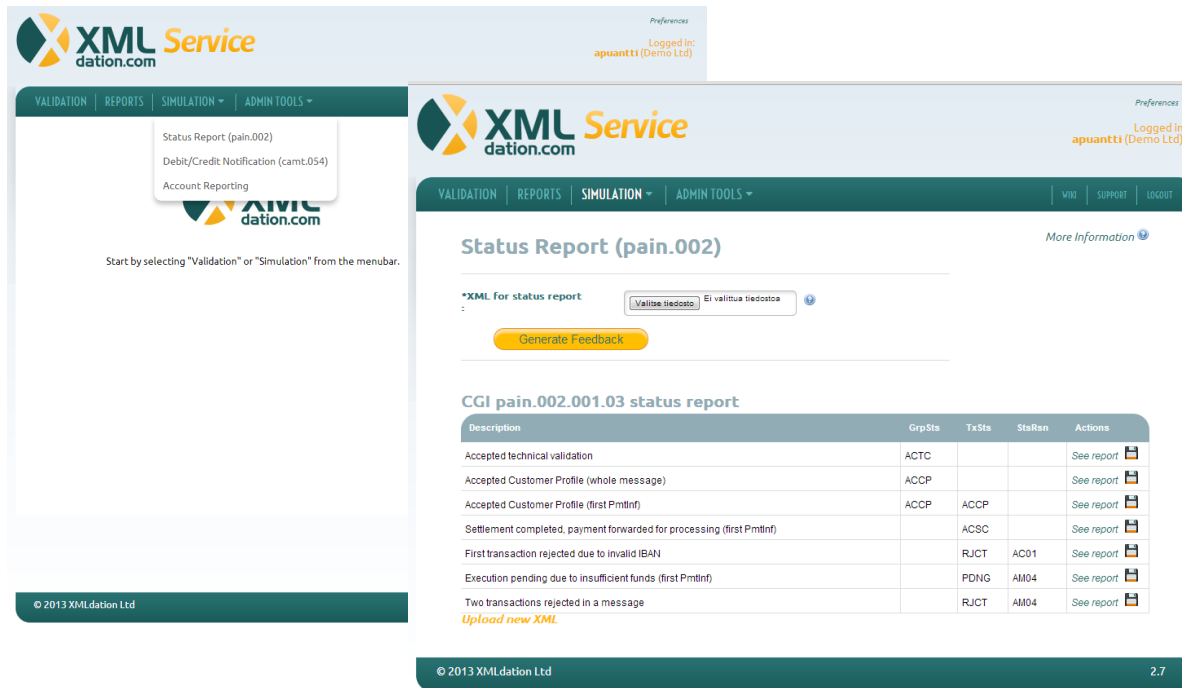
- Validation Page:** Shows a 'File for validation' field with a file named 'Valitse tiedosto...'. Below it is a 'Comment' field and a 'Validate' button.
- Select validation pipe:** A dropdown menu is open, showing options like 'Common Global Implementation', 'ISO 20022', and 'Demo Bank'.
- XML validation Results:** A table shows the results of the validation process:

Validation pipe	Result
Schema validation (ISO 20022 Compliance Test)	Pass
ISO20022 pain00100103 rules	Level #1 Error
CGI General	Level #2 Pass
CGI SEPA Business Rules	Level #3 Error
- Validation Report:** A detailed report is shown, including the Report ID (24466), Original filename, and Validation pipe name. The report contains XML code and an error message:


```

1: <?xml version="1.0" encoding="UTF-8"?>
2: <Document xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="urn:iso:std:iso:20022:tech:xs:pain.001.001.03">
3:   <CtrlSum>115</CtrlSum>
4:   <GrpHdr>
5:     <MsgId>ABC090928/CCT001</MsgId>
6:     <CreDtTm>2009-09-28T14:07:00</CreDtTm>
7:     <NbOfTxs>3</NbOfTxs>
8:     <Real CtrlSum amount 1150000...>
9:     <CtrlSum>115</CtrlSum>
10:   </GrpHdr>
11:   <Nm>ABC Corporation</Nm>
12:   <PstlAdr>
13:     <StrtNm>Times Square</StrtNm>
14:     <BldgNb>7</BldgNb>
15:     <PstCd>NY 10036</PstCd>
16:     <TwnNm>New York</TwnNm>
17:     <Ctry>US</Ctry>
18:   </PstlAdr>
19:   <Id>
20:     <OrgId>
21:       <Othr>
22:         <Id> 222010012</Id>
23:       </Othr>
24:     </OrgId>
25:   </Id>
26:   </InitgPty>
27: </GrpHdr>
      
```

1. Select the simulation process
2. Upload the test files
3. Generate response file(s)
4. Download the response file for testing purposes



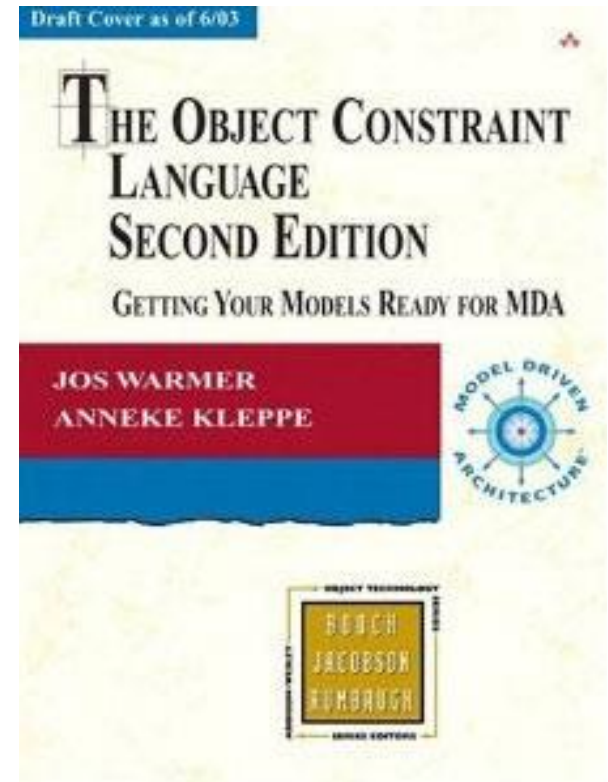
The screenshot displays the XML Service dation.com web interface. The top navigation bar includes 'VALIDATION', 'REPORTS', 'SIMULATION', and 'ADMIN TOOLS'. A dropdown menu for 'SIMULATION' is open, showing options: 'Status Report (pain.002)', 'Debit/Credit Notification (camt.054)', and 'Account Reporting'. The main content area is titled 'Status Report (pain.002)' and features a section for uploading an XML file for a status report, with a 'Generate Feedback' button. Below this is a table titled 'CGI pain.002.001.03 status report' with columns for Description, GrpSts, TxSts, StsRsn, and Actions. The table contains several rows of transaction status data, each with a 'See report' link and a document icon.

Description	GrpSts	TxSts	StsRsn	Actions
Accepted technical validation	ACTC			See report
Accepted Customer Profile (whole message)	ACCP			See report
Accepted Customer Profile (first PmtInf)	ACCP	ACCP		See report
Settlement completed, payment forwarded for processing (first PmtInf)			ACSC	See report
First transaction rejected due to invalid IBAN			RJCT AC01	See report
Execution pending due to insufficient funds (first PmtInf)			PDNG AM04	See report
Two transactions rejected in a message			RJCT AM04	See report

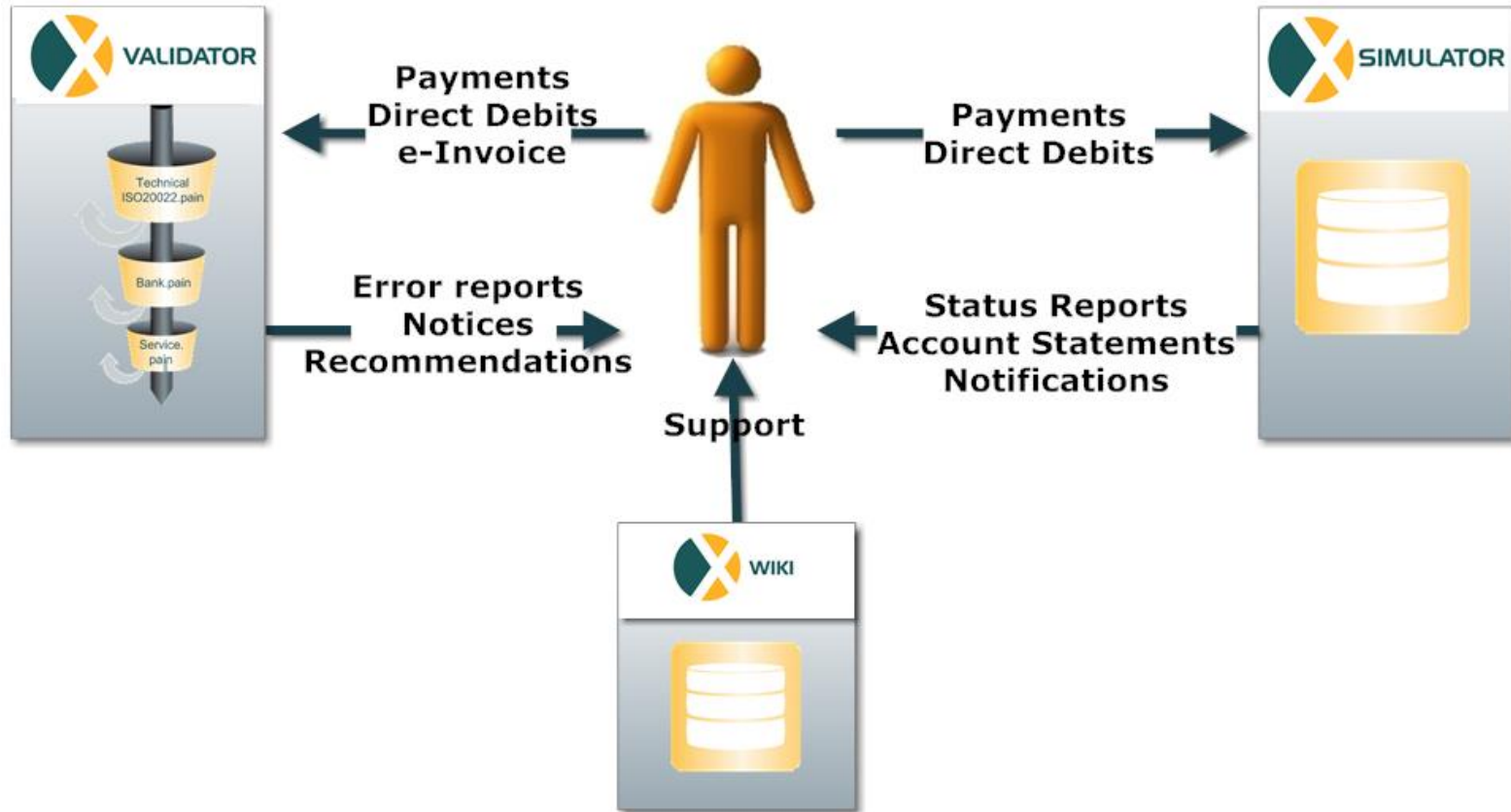
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OCL

- OCL = Object Constraint Language
- Standards-based rules language
 - Specification published by OMG, [omg.org](http://www.omg.org), most recent specification published in 2012
 - <http://www.omg.org/spec/OCL/2.3.1/>
- Adopted as an ISO standard in 2012:
 - ISO/IEC 19507
- Originated at IBM



XMLdation Service



XMLdation Service: Rules definitions

Lin	Ac	Ru	Source	Source info	Rule description	Context	OCL Rule	Query	Error message
44	R	3	MIG	EPC132-08 C2B CTIG V7.0 Aq	Usage Rule: 'Name' is limited to 70 characters in len	PartyIdentification32	self.Nm->size() = 1 implies self.Nm.size() <= 70	self.Nm	Element is too long. Nm
45	R	3	MIG	EPC132-08 C2B CTIG V7.0 Aq	Usage Rule: Either 'BIC or BEI' or one occurrence of	OrganizationIdentification4	(self.BICorBEI->size() = 0 and self.Othr.Id->size() = 1) or self.B	self	Either 'BICorBEI' or one
46	R	3	MIG	EPC132-08 C2B CTIG V7.0 Aq	Usage Rule: Either 'Date and Place of Birth' or one c	PersonIdentification5	(self.DtAndPlcOrBirth->size() = 0 and self.Othr.Id->size() = 1) or self	self	Either 'Date and Place
47	R	1	MIG	EPC132-08 C2B CTIG V7.0 Aq	2.14 CategoryPurpose Depending on the agreemer	CategoryPurposeChoice	self->size() = 0	self	Depending on the agr
48	R	3	MIG	EPC132-08 C2B CTIG V7.0 Aq	Usage Rule: Only 'TRF' is allowed.	PaymentInstructionInformation3	self.PmtMtd = "TRF"	self.PmtMtd	Only "TRF" is allowed
49	R	1	MIG	EPC132-08 C2B CTIG V7.0 Aq	Usage Rule: If element is not present, pre-agreed or	PaymentInstructionInformation3	self.BrchBookg->size() = 1	self	BrchBookg was not giv
50	R	1	MIG	EPC132-08 C2B CTIG V7.0 Aq	2.7 Usage Rule: If present, pre-agreed customer-to	PaymentInstructionInformation3	self.PmtTpnl.InstrPrty->size() = 0	self	Pre-agreed customer-
51	R	2	MIG	EPC132-08 C2B CTIG V7.0 Aq	Usage Rule: Usage is recommended.	PaymentInstructionInformation3	self.PmtTpnl->size() = 1	self	PmtIn/PmtTpnl is mis
52	R	2	MIG	EPC132-08 C2B CTIG V7.0 Aq	Usage Rule: Usage is recommended.	PaymentInstructionInformation3	self.PmtTpnl->size() = 1 implies self.PmtTpnl.SvcLv.Cd->size	self.PmtTpnl	PmtTpnl/SvcLv is mis
53	R	2	MIG	EPC132-08 C2B CTIG V7.0 Aq	Usage Rule: Usage is recommended.	PaymentInstructionInformation3	self.PmtTpnl.SvcLv->size() = 1 implies self.PmtTpnl.SvcLv.C	self.PmtTpnl.SvcLv	SvcLv/Cd is missing. It
54	R	3	MIG	EPC132-08 C2B CTIG V7.0 Aq	Usage Rule: Only 'SEPA' is allowed. Renders corre	PaymentInstructionInformation3	self.PmtTpnl.SvcLv.Cd->size() = 1 implies self.PmtTpnl.SvcLv	self.PmtTpnl.SvcLv	Invalid value given. Ch
55	R	3	MIG	EPC132-08 C2B CTIG V7.0 Aq	Mandatory (AT-02 Name of the Originator)	PaymentInstructionInformation3	self.Dbtr.Nm->size() = 1	self.Dbtr	Mandatory element 'D
56	R	3	MIG	EPC132-08 C2B CTIG V7.0 Aq	Usage Rule: Only two occurrences are allowed.	PaymentInstructionInformation3	self.Dbtr.PrtlAdi.AdLIne->notEmpty() implies self.Dbtr.PrtlAdi	self.Dbtr.PrtlAdi	Only two occurrences
57	R	3	MIG	EPC132-08 C2B CTIG V7.0 Aq	Usage Rule: Only IBAN is allowed.	PaymentInstructionInformation3	self.Dbtr.Accot.Id.IBAN->size() = 1	self.Dbtr.Accot.Id	Mandatory element 'D
58	R	3	MIG	EPC132-08 C2B CTIG V7.0 Aq	Usage Rule: Only BIC is allowed.	PaymentInstructionInformation3	(self.Dbtr.Agt.FinInstId.BIC->size() = 1 and self.Dbtr.Agt.FinInst	self.Dbtr.Agt.FinInst	Either 'BIC' or 'Dthld' r
59	R	3	MIG	EPC132-08 C2B CTIG V7.0 Aq	Usage Rule: Only 'SLEV' is allowed.	ChargeBearerType1Code	self = "SLEV"	self	"SLEV" is the only valu
60	R	2	MIG	EPC132-08 C2B CTIG V7.0 Aq	Usage Rule: If used, it is recommended to be used a	CreditTransferTransactionInforma	self.PmtTpnl->size() = 0	self.PmtTpnl	It is not recommended
61	R	3	MIG	EPC132-08 C2B CTIG V7.0 Aq	Usage Rule: When 'Instruction Priority' is to be used,	CreditTransferTransactionInforma	self.PmtTpnl.InstrPrty->size() = 0	self.PmtTpnl.InstrPr	When 'Instruction Prior
62	R	2	MIG	EPC132-08 C2B CTIG V7.0 Aq	Usage Rule: Usage is recommended.	CreditTransferTransactionInforma	self.PmtTpnl->size() = 1 implies self.PmtTpnl.SvcLv->size() =	self.PmtTpnl	Usage of SvcLv is rec
63	R	3	MIG	EPC132-08 C2B CTIG V7.0 Aq	Usage Rule: Only 'SEPA' is allowed.	CreditTransferTransactionInforma	self.PmtTpnl.SvcLv.Cd->size() = 1 implies self.PmtTpnl.SvcLv	self.PmtTpnl.SvcLv	Invalid value given. Ch
64	R	3	MIG	EPC132-08 C2B CTIG V7.0 Aq	Usage Rule: Only 'EUR' is allowed.	CreditTransferTransactionInforma	self.Amt.InstrAmt->size() = 1 implies self.Amt.InstrAmt.Co y = "	self.Amt.InstrAmt	"EUR" is only currency
65	R	3	MIG	EPC132-08 C2B CTIG V7.0 Aq	Usage Rule: Only 'EUR' is allowed. (Only one possib	CreditTransferTransactionInforma	self.Amt.InstrAmt->size() = 1	self.Amt	InstrAmt has to be giv
66	R	3	MIG	EPC132-08 C2B CTIG V7.0 Aq	Usage Rule: Amount must be 0.01 or more and 9999	CreditTransferTransactionInforma	self.Amt.InstrAmt > 0.00 and self.Amt.InstrAmt < 1000000000	self.Amt.InstrAmt	Amount must be betwe
67	R	3	MIG	EPC132-08 C2B CTIG V7.0 Aq	Format Rule: The fractional part has a maximum of n	CreditTransferTransactionInforma	self.Amt.InstrAmt->size() = 1 implies (self.Amt.InstrAmt	self.Amt.InstrAmt	The fractional part can



XMLdation Service: Rules code generator

OCL:

Context: GroupHeader32

Rule: self.InitgPty.Nm->size() = 1

Generated java code:

```
public Object execute(com.nomos.jaxb0.GroupHeader32 self) throws java.lang.Exception
{
    java.lang.Boolean b1 = true;
    Integer i1 = 1;

    com.nomos.jaxb0.PartyIdentification32 xmlObject1 = (com.nomos.jaxb0.PartyIdentification32)self.getInitgPty();
    if(xmlObject1==null) { xmlObject1 = comnomosjaxb0PartyIdentification32_OCL_UNDEFINED; }

    com.nomos.jaxb0.Max140Text var1 = (com.nomos.jaxb0.Max140Text)xmlObject1.getNm();
    if(var1==null) { var1 = comnomosjaxb0Max140Text_OCL_UNDEFINED; }

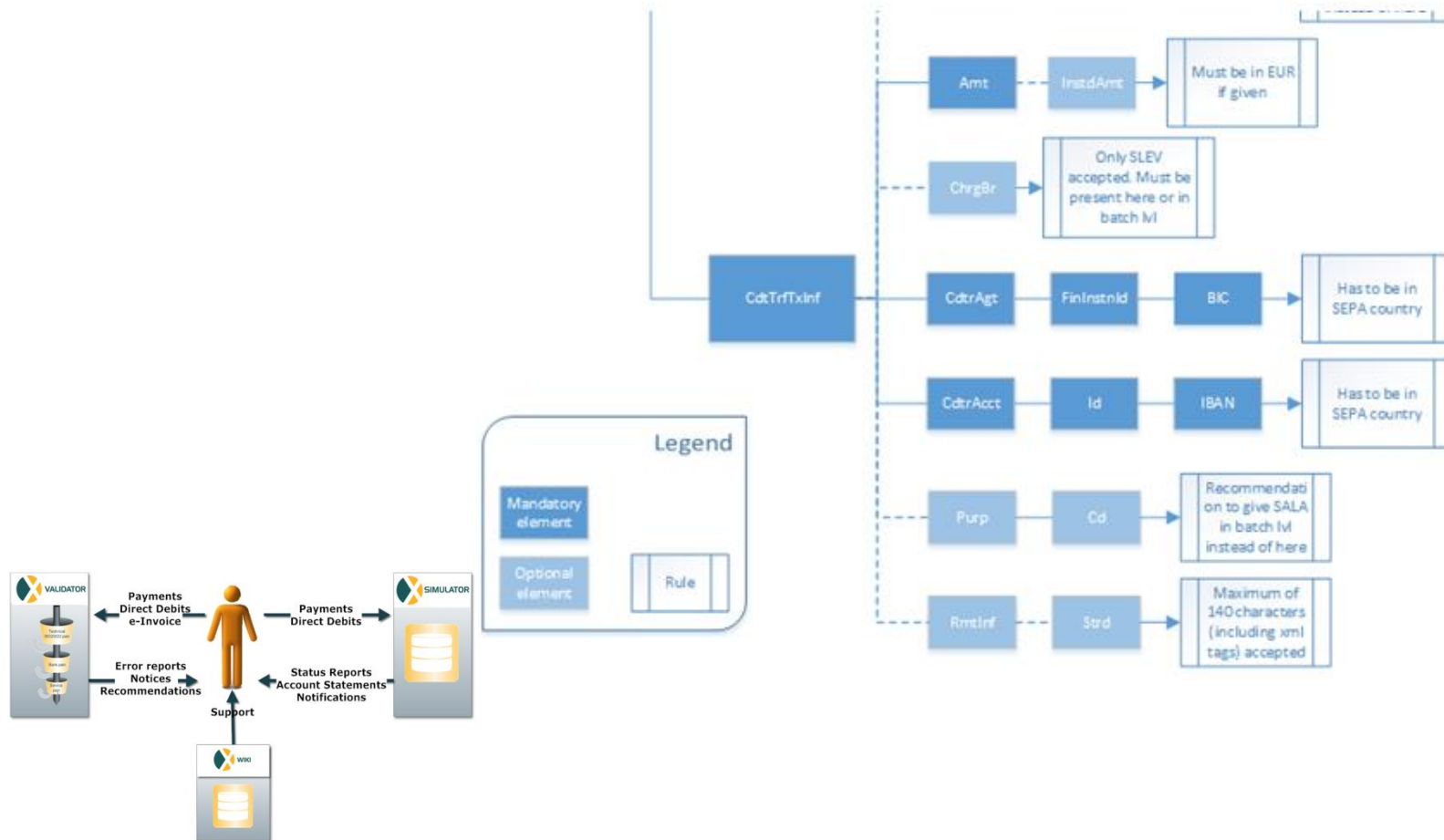
    com.nomos.generatedcode.rulesetname.StringType var2 = (com.nomos.generatedcode.rulesetname.StringType)var1.getValue();
    if(var2==null) { var2 = comnomosgeneratedcoderrulesetnameStringType_OCL_UNDEFINED; }

    java.util.ArrayList bag1 = new java.util.ArrayList();
    if(!(var2.equals(StringType_OCL_UNDEFINED))){ bag1.add(var2); }

    java.lang.Integer i2 = bag1.size();
    java.lang.Boolean b2 = i2.equals(i1);
}
```



XMLdation Service: Rules visualisation



XMLdation Service: Rules documentation

- Business rules are stored into XML Management
- Service generates documentation from business rules

The screenshot displays the XMLdation Service interface. On the left, there are two panels: 'Group rulesets' and 'Pipe rulesets'. The 'Group rulesets' panel shows a tree view with folders for 'ISO20022_pain00', 'CGI_General', and 'SEPA_CT_with_B'. The 'Pipe rulesets' panel shows a folder for 'AOS2_Business_'. The main area is titled 'Edit Rule: SEPA_07_RmtInf_Us'. It has a 'Rule level' dropdown set to 'ERROR'. Below this, there are sections for 'Rule name', 'Description', 'Rule context', 'Ocl rule', 'Message', and 'Rule wiki address'. The 'Description' section is expanded, showing three rules:

2.1.8. Rule: 11_E_PmtInf_UltmtDbtr_Nm
Description: UltmtDbtr Nm is mandatory
Wiki address: -
Message: (CstmrCdtTrfIntr/PmtInf/UltmtDbtr): Nm is mandatory
Level: ■ ERROR
Context: PaymentInstructionInformation3
UltmtDbtr->size() = 1 implies
UltmtDbtr.Nm->notEmpty()

2.1.9. Rule: 13_E_PmtInf_UltmtDbtr_Id_OrgId
Description: Rule 13: Default description
Wiki address: -
Message: (CstmrCdtTrfIntr/PmtInf/UltmtDbtr/Id): OrgId is mandatory, PrvtId must not be used.
Level: ■ ERROR
Context: PaymentInstructionInformation3
UltmtDbtr.Id->size()=1 implies
(UltmtDbtr.Id.OrgId->size() = 1 and
UltmtDbtr.Id.PrvtId->size() = 0)

2.1.10. Rule: 14_E_CdtTrfTxInf_UltmtDbtr_Nm
Description: Rule 14: Default description
Wiki address: -
Message: (CstmrCdtTrfIntr/PmtInf/CdtTrfTxInf/UltmtDbtr): Nm is mandatory



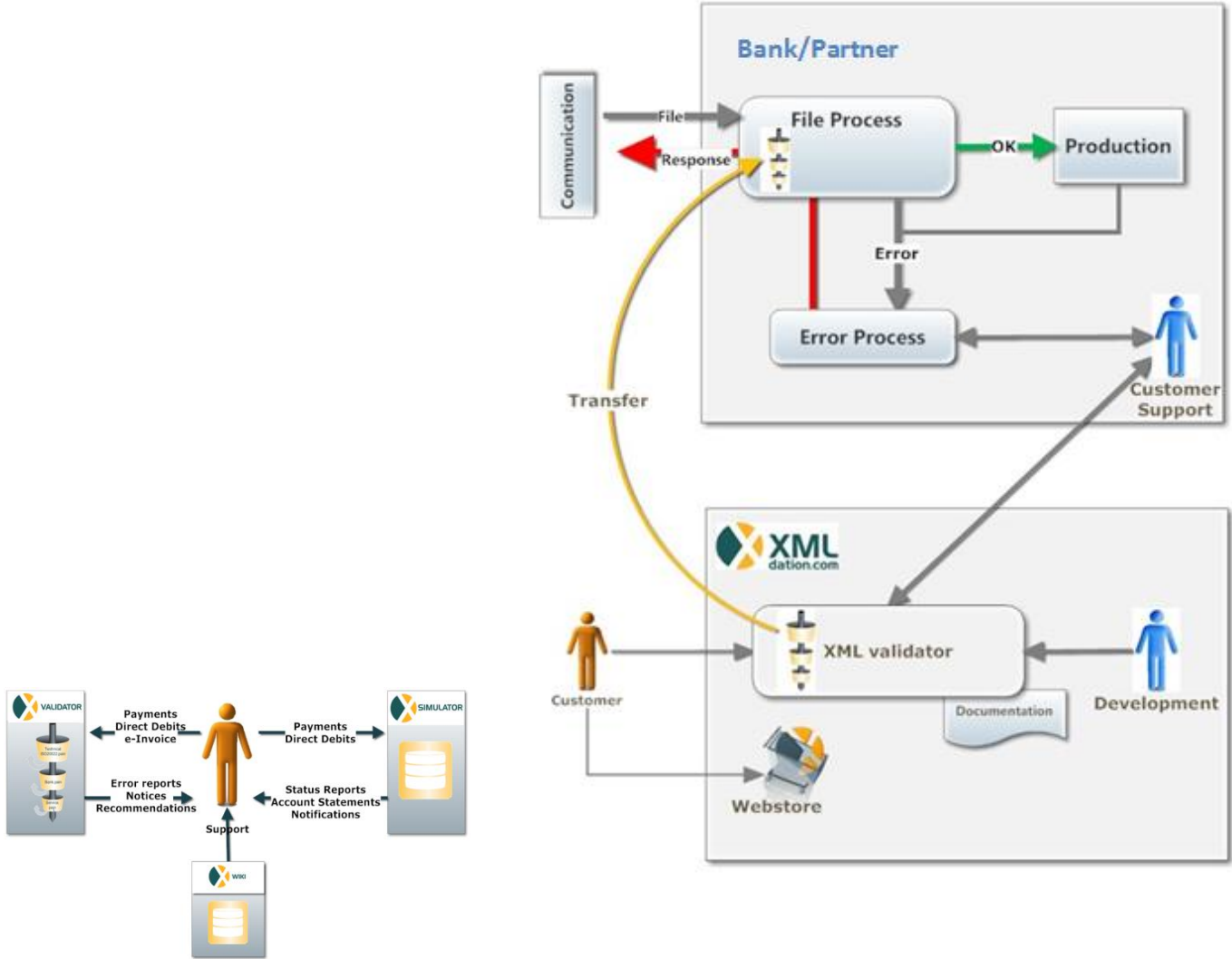
XMLdation Service: Test file generator

- Automated Message Implementation Guide creation
- Service generates documentation from schema and business rules
- Example files can be generate based on MIG rules / OCL rules

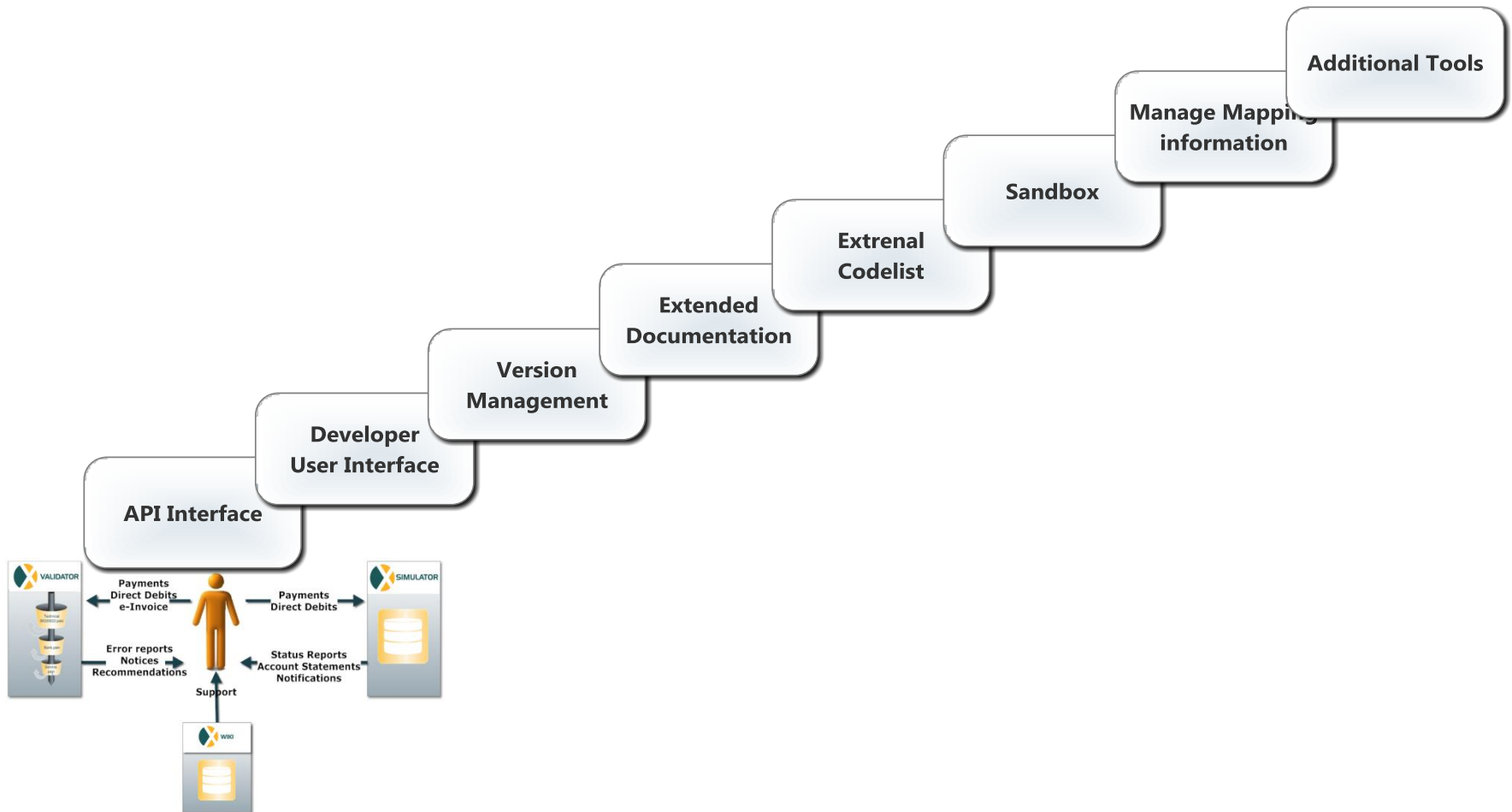
The screenshot shows the 'Edit MIG' interface with a navigation menu at the top (VALIDATION, REPORTS, SIMULATION, ADMIN TOOLS) and a sub-menu (Users, Teams, Company details, Latest updates, Log viewer, MIG). The main area is divided into 'General Description' and 'Elements'. The 'Elements' tree on the left includes: instcrtry, SvcLvl, Cd, Prtry, Lclnstrm, Cd, Prtry, SeqTp, CctgyPurp, Cd, Prtry, InstdAmt (selected), ChrgBr, DrctDbtTx, MndtRltdInf, Mndtd, DtOfSgnt, AmdmntInd, AmdmntInfDtls, OrgnlMndtd, OrgnlCctrSchmeld, Nm, PstlAdr, AdrTp, Dept, SubDept, and CctgNm. The right pane shows 'Business rules' for 'InstdAmt' with details for rule 'B17_Tx_InstdAmt_FractionalPart2Digits' (Level: ERROR) and 'B18_Tx_InstdAmt_EUR' (Level: ERROR). The OCL rule for B18 is: `self.InstdAmt.Ccy = "EUR"`.



XMLdation Service: Transferable rules



XMLdation Service Road Map for XML Management

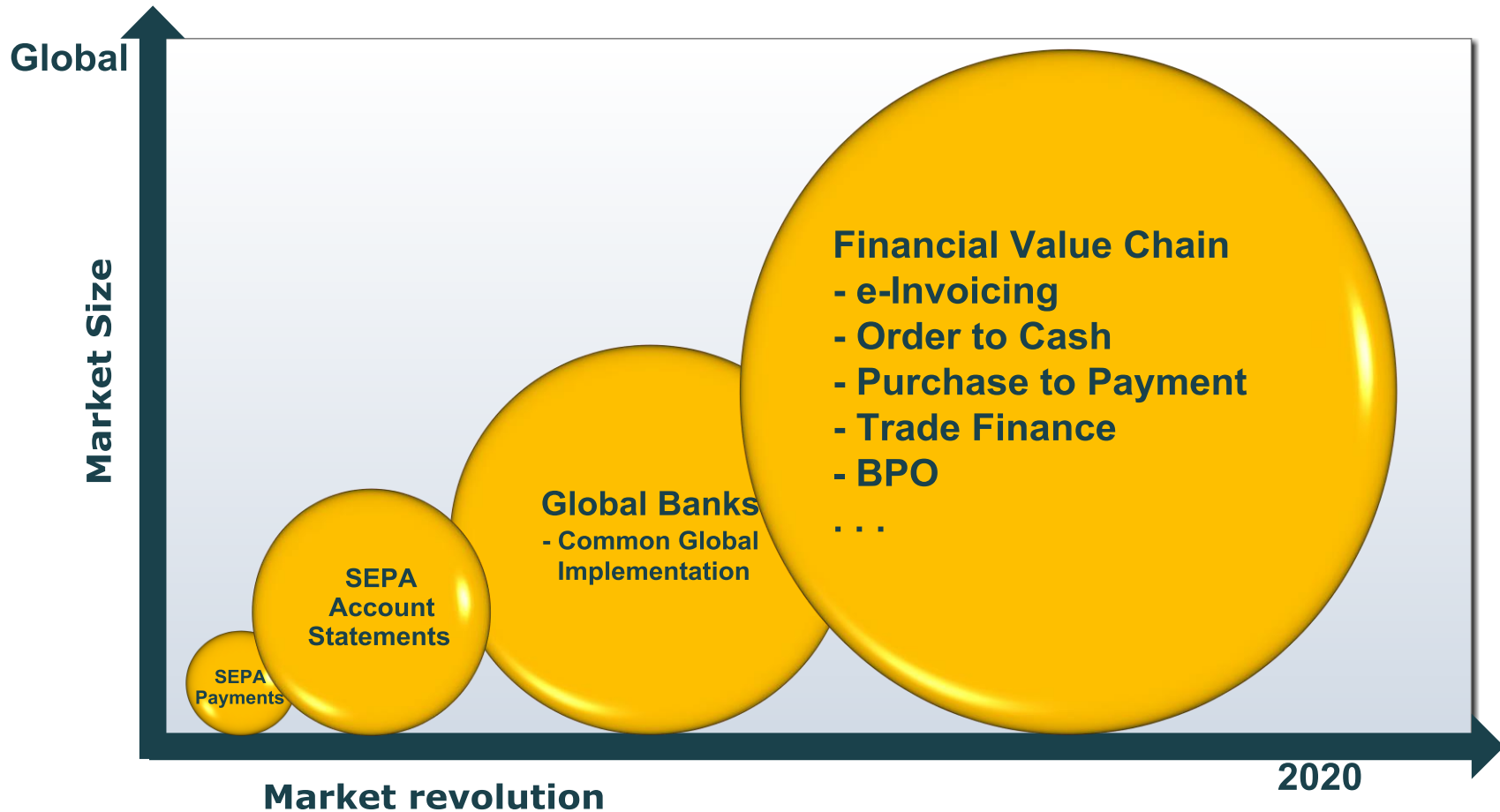




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Questions and Answers

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