



Integration Content Building & Maintenance via SAP Cloud Platform **Integration Advisor**

Marco Ertel, Product Management SAP Cloud Platform Integration Suite
July, 2019

PUBLIC

Disclaimer

The information in this presentation is confidential and proprietary to SAP and may not be disclosed without the permission of SAP. Except for your obligation to protect confidential information, this presentation is not subject to your license agreement or any other service or subscription agreement with SAP. SAP has no obligation to pursue any course of business outlined in this presentation or any related document, or to develop or release any functionality mentioned therein.

This presentation, or any related document and SAP's strategy and possible future developments, products and or platforms directions and functionality are all subject to change and may be changed by SAP at any time for any reason without notice. The information in this presentation is not a commitment, promise or legal obligation to deliver any material, code or functionality. This presentation is provided without a warranty of any kind, either express or implied, including but not limited to, the implied warranties of merchantability, fitness for a particular purpose, or non-infringement. This presentation is for informational purposes and may not be incorporated into a contract. SAP assumes no responsibility for errors or omissions in this presentation, except if such damages were caused by SAP's intentional or gross negligence.

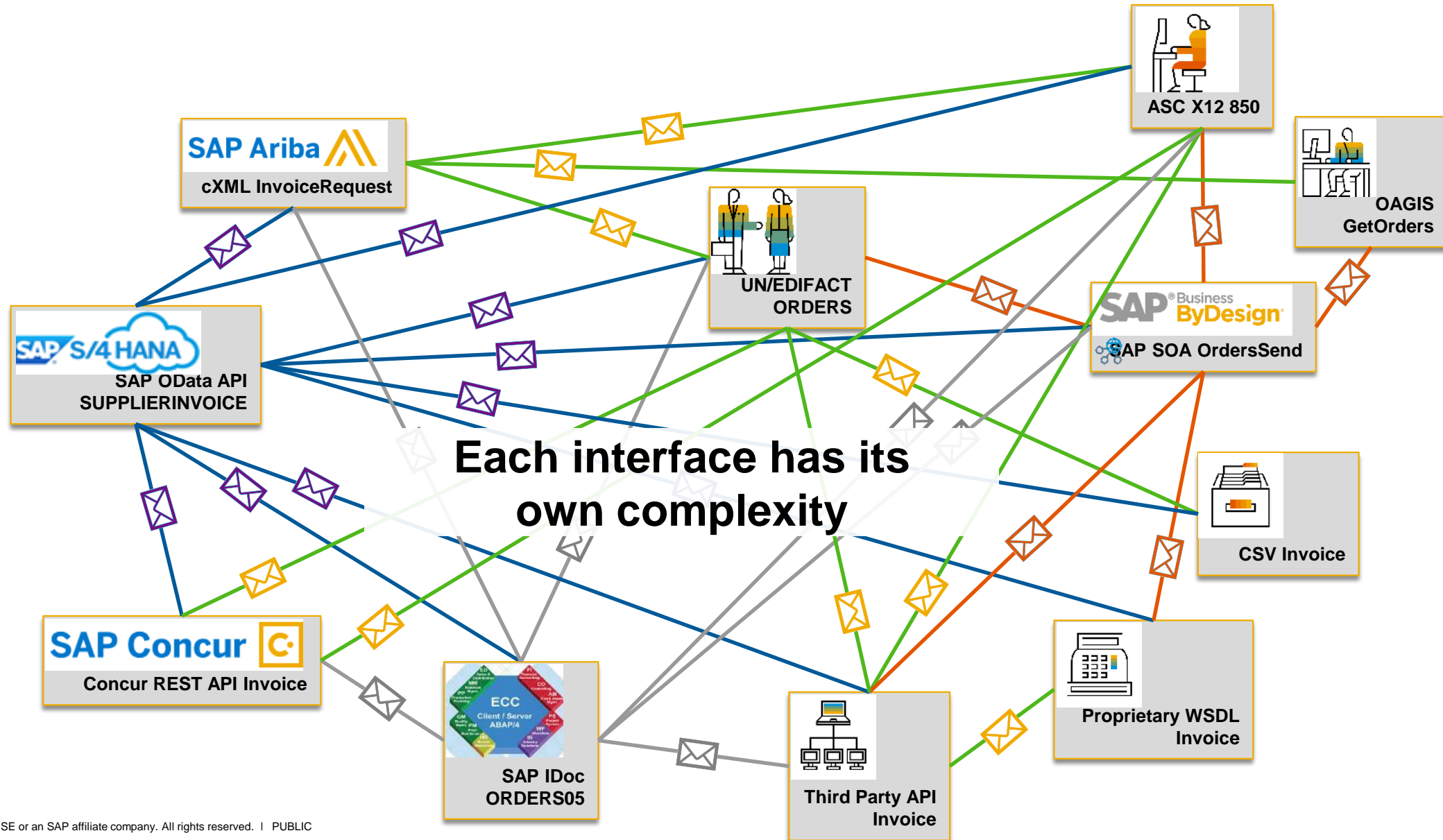
All forward-looking statements are subject to various risks and uncertainties that could cause actual results to differ materially from expectations. Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of their dates, and they should not be relied upon in making purchasing decisions.

Current Situation

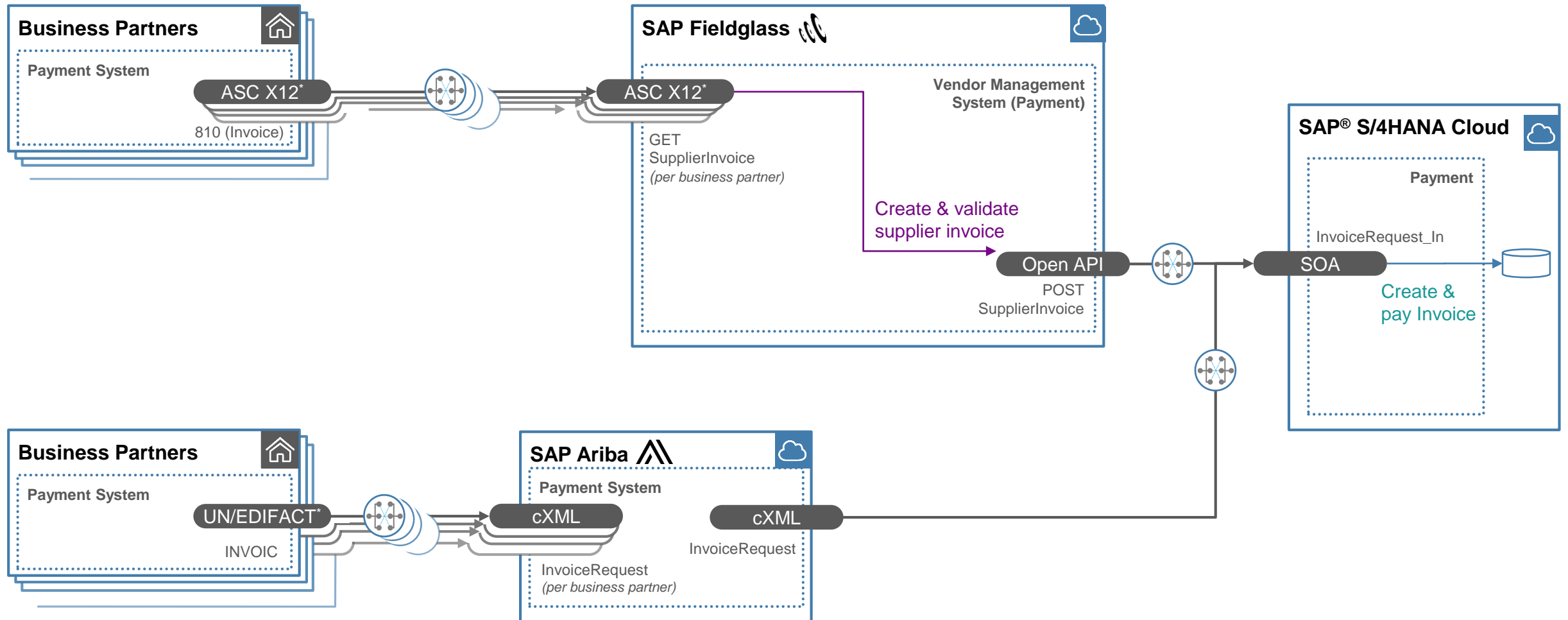
Integration Advisor

Roadmap

Reality: Integrate APIs/interfaces in heterogeneous landscapes



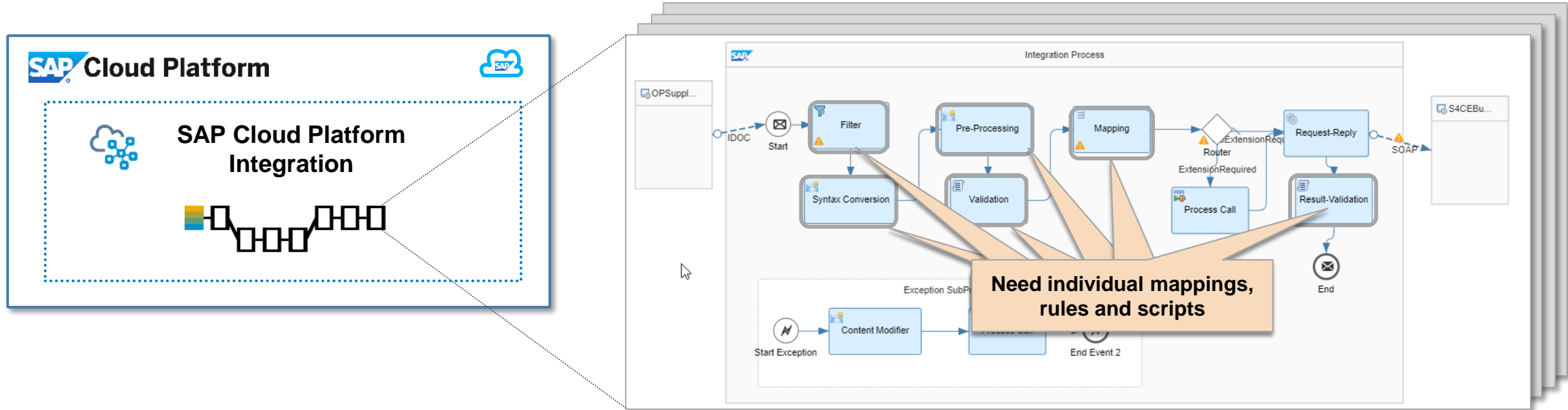
Flow of invoices in Intelligent Enterprise process “Procure-to-Pay”



Exchange between applications via middleware

SAP Cloud Platform Integration

Integration flows per combination



One integration flow per combination and variation

- Combination = between to different applications
- Variations = per message type and per different requirements in given business context
- Business context = considering aspects in different industries, countries, products, roles, etc.

Technical mapping in current middleware solutions

SAP Cloud Platform Integration

Design / Integration of SAP S/4HANA Cloud for Procurement with SAP S/4HANA or SAP ERP / Purchase order confirmation / MM_OrderConfirmationRequest_OPSupplier_2_S4CEBuyer /

MM_OrderConfirmationRequest_OPSupplier_2_S4CEBuyer

Simulate

ORDERS05

Structure

Structure	Occurrence
ORDERS05	1..1
IDOC	1..1
@BEGIN	1..1
EDI_DC40	1..1
E1EDK01	1..1
E1EDK14	0..13
@SEGMENT	1..1
QUALF	0..1
ORGID	0..1
E1EDK03	0..10
@SEGMENT	1..1
IDDAT	0..1
DATUM	0..1
UZEIT	0..1
E1EDK04	0..10
@SEGMENT	1..1
MWSKZ	0..1
MSATZ	0..1

Meaning?

Why not mapped?

OrderConfRequest

Structure

Structure	Occurrence
ns0:OrderConfRequest	1..1
MessageHeader	1..1
OrderConfirmation	1..1
PurchaseOrderID	0..1
PurchasingDocumentType	0..1
PurchasingOrganization	0..1
PurchasingGroup	0..1
PurchaseOrderCreationDate	0..1
PurchaseOrderLastChangeDate	0..1
SalesOrderID	0..1
SalesDocumentType	0..1
SalesOrganization	0..1
DistributionChannel	0..1
OrganizationDivision	0..1
SalesGroup	0..1
SalesOffice	0..1
SalesOrderCreationDate	0..1
TransactionCurrency	0..1

Why mapped?

Why not mapped?

Mapping expression

Test Input File: Upload test file Browse

QUALF

007

ORGID

equals(stri..)

ifWithoutEl..

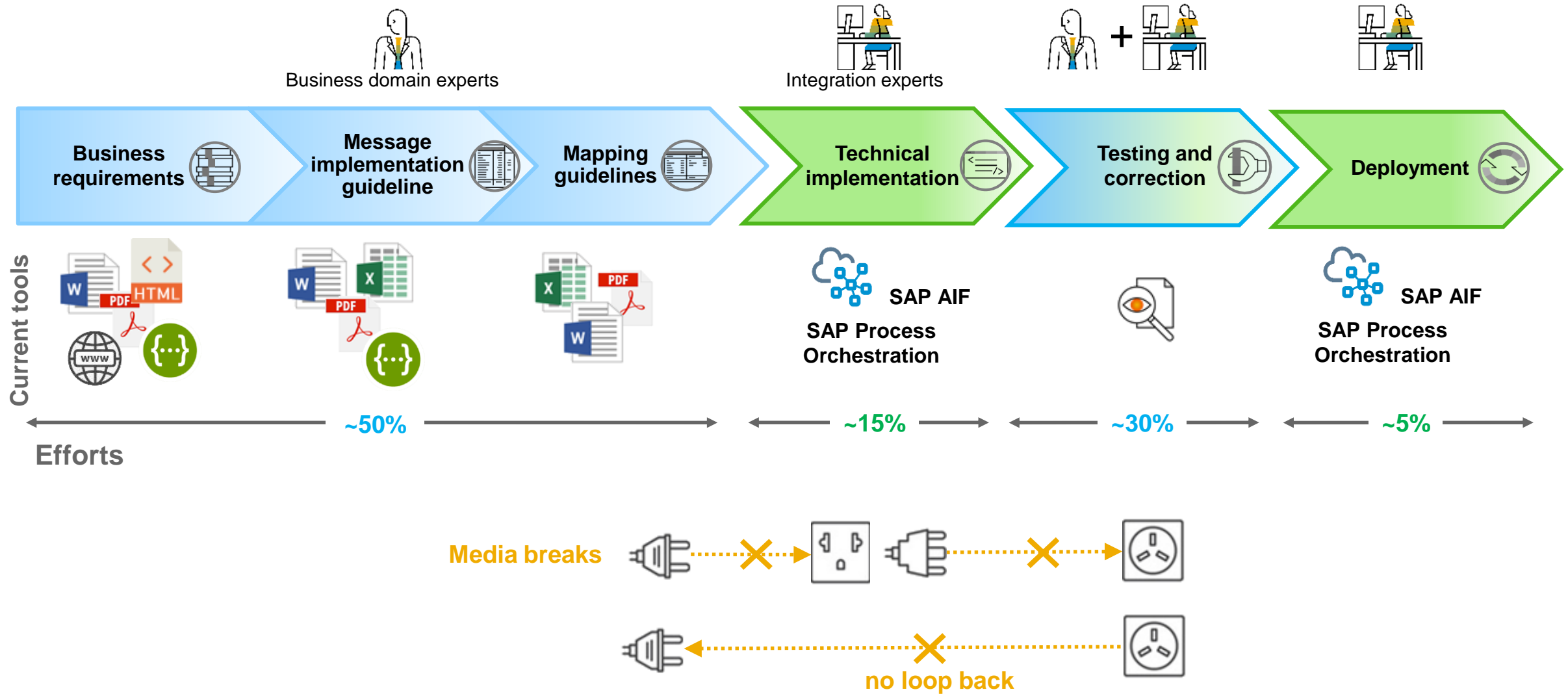
Distributio..

removeSUPPR..

removeConte..

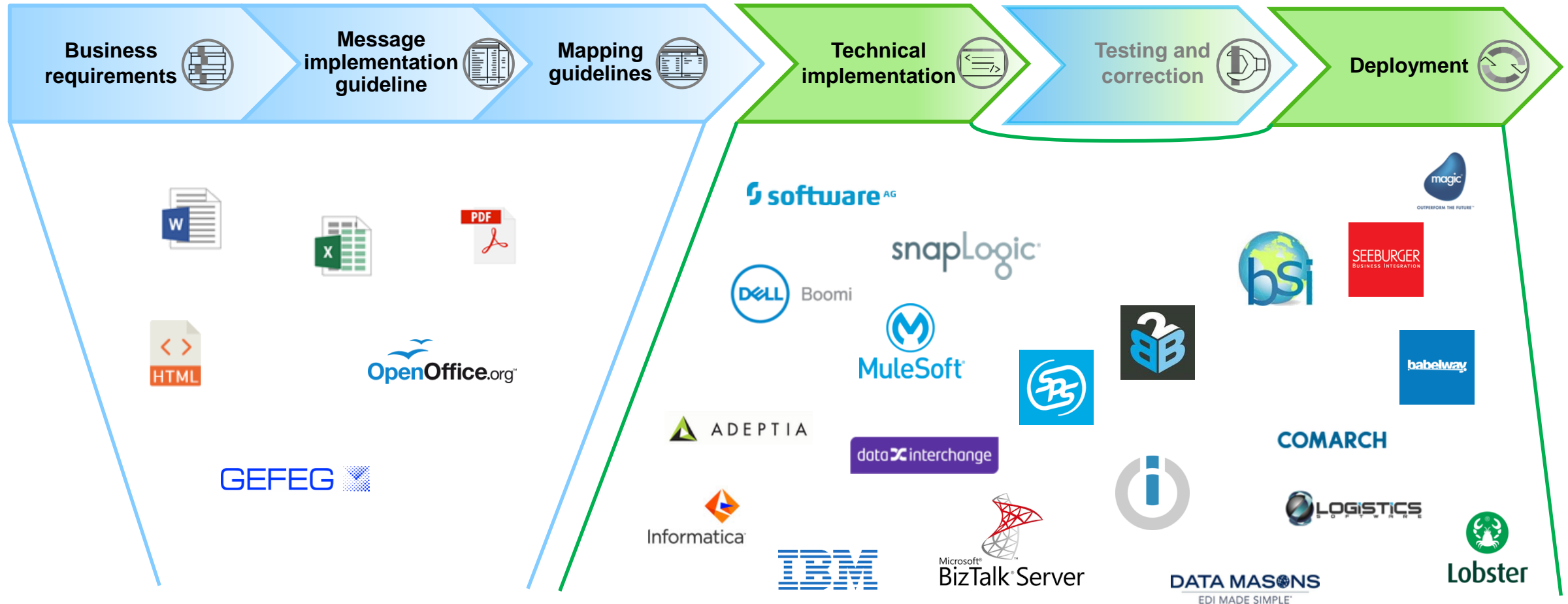
Complex function, because of different representation of semantics

Typical end-to-end flow for building integration content



Tools for end-to-end flow steps

Most middleware systems just focus on technical implementations and deployment



Available information of type systems

- Available on different locations/systems
- Different media types (pdf, html, doc, ...)
- Different level of detail
- Several documents for complete understanding necessary
- Available in non-/semi-structured formats
- Some type systems have fees
- Message structures too complex (< 4 billion different semantic expressions)

Type system information often spread over various documents

- Available as PDFs
 - Several documents for complete understanding necessary
 - Message structures complex:
 - ~200 message types
 - ~400 complex and ~700 simple data types
 - ~300 code list
- ~4 billion different semantic expressions possible

Example:
message definition **INVOIC**
of type system **EDIFACT**

Message definition

United Nations Directories
for Electronic Data Interchange for
Administration, Commerce and Transport



UN/EDIFACT

Message Type : INVOIC
Version : D
Release : 19A
Contr. Agency: UN
Revision : 16
Date : 2019-04-11

SOURCE: TBG1 Supply Chain

CONTENTS

Invoice message

0. INTRODUCTION
1. SCOPE
 - 1.1 Functional definition
 - 1.2 Field of application
 - 1.3 Principles
2. REFERENCES
3. TERMS AND DEFINITIONS
 - 3.1 Standard terms and definitions
4. MESSAGE DEFINITION

Group 36: NAD, Name and address
A segment identifying the parties, in coded or clear form, and their address.
A segment identifying the parties, in coded or clear form, and their address.

Segment definition

United Nations Directories
for Electronic Data Interchange for
Administration, Commerce and Transport



UN/EDIFACT

Change indicators

a plus sign (+) for an addition
an asterisk (*) for an amendment to structure
a hash sign (#) for changes to names
a vertical bar (|) for changes to text for descriptions, notes and functions
a minus sign (-) for a deletion
an X sign (X) for marked for deletion

NAD NAME AND ADDRESS

Action: To specify the name/address function, either by C082 unstructured by C058 or 3207.

3035 PARTY FUNCTION CODE QUALIFIER

C082 PARTY IDENTIFICATION DETAILS

3039 Party identifier

1131 Code list identification code

3055 Code list responsible agency

NAME AND ADDRESS

3035 Party function code

3039 Party identifier

1131 Code list identification code

3055 Code list responsible agency

3229 Country subdivision identifier

1131 Code list identification code

3055 Code list responsible agency

3229 Country subdivision identifier

1131 Code list identification code

3055 Code list responsible agency

3229 Country subdivision identifier

1131 Code list identification code

3055 Code list responsible agency

Code list/values

United Nations Directories
for Electronic Data Interchange for
Administration, Commerce and Transport



UN/EDIFACT

Change indicators

a plus sign (+) for an addition
an asterisk (*) for an amendment to structure
a hash sign (#) for changes to names
a vertical bar (|) for changes to text for descriptions and notes
a minus sign (-) for marked for deletion (within either batch and interactive messages)
an X sign (X) for marked for deletion (within both batch and interactive messages)

3035 Party function code qualifier

3035 Party function code

3039 Party identifier

1131 Code list identification code

3055 Code list responsible agency

3229 Country subdivision identifier

1131 Code list identification code

3055 Code list responsible agency

3229 Country subdivision identifier

1131 Code list identification code

3055 Code list responsible agency

3229 Country subdivision identifier

1131 Code list identification code

3055 Code list responsible agency

3229 Country subdivision identifier

1131 Code list identification code

3055 Code list responsible agency

3229 Country subdivision identifier

1131 Code list identification code

3055 Code list responsible agency

3229 Country subdivision identifier

1131 Code list identification code

3055 Code list responsible agency

3229 Country subdivision identifier

1131 Code list identification code

3055 Code list responsible agency

3229 Country subdivision identifier

1131 Code list identification code

3055 Code list responsible agency

3229 Country subdivision identifier

1131 Code list identification code

3055 Code list responsible agency

3229 Country subdivision identifier

1131 Code list identification code

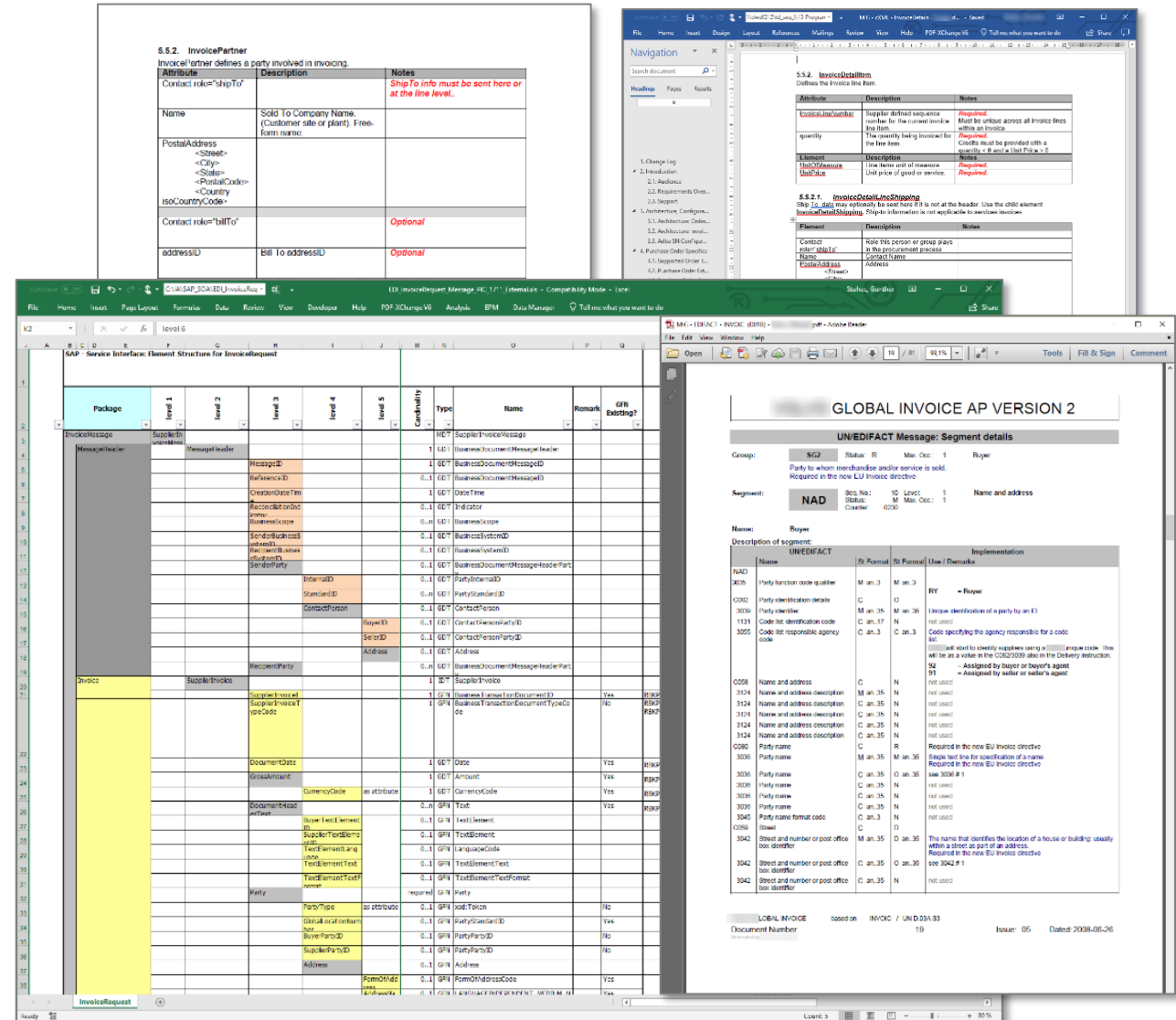
3055 Code list responsible agency

Message implementation guideline (MIG)

Required for implementation of a “standard” **message interface** based on a message definition of a type system specifying

Scope, context and usage instructions

- Relevant required and optional elements
- Properties per element
- Unambiguous business meaning per element
- Required code lists and code values
- Dependencies and conditions across elements
- Constraints, validation rules and boundary conditions



Mapping guidelines (MAGs)

Mapping between source and target message interface

- Which elements have to be mapped in order to fulfill same business meaning and requirements?
- Which elements have to be additionally involved to convey the requirements completely?
- Are there any format or processing instructions such as splitting, assembling of values, or changing the format?
- How the code values have to be mapped?
- Are there any instructions for restructuring element groups?

The image displays two overlapping SAP software windows. The background window is the 'SFT Mapping Guide - Srefaktura 1.0 onto EN-16931-1 - version 1.2.pdf - Adobe Reader', which shows a detailed mapping table between source and target data elements. The foreground window is the 'Mapping Wizard' tool, which provides a structured interface for defining mappings between source and target data elements, including fields for element names, data types, and mapping rules.

Source	Target	Mapping
EN-16931-1	Srefaktura 1.0	Mapping to EN-16931-1 (and PLUPOL BIS Billing 3.0)
EN-16931-1	Srefaktura 1.0	Mapping to EN-16931-1 (and PLUPOL BIS Billing 3.0)
EN-16931-1	Srefaktura 1.0	Mapping to EN-16931-1 (and PLUPOL BIS Billing 3.0)

Every standard interface must be customized

Example

An IDoc purchase order has

- 720 data elements
- 60 code lists with 4,000–5,000 code values
- <5% of these data elements, code lists, and code values are required per implementation
- But **which** one?

Customization means answering a lot of further questions, such as:

Which elements are required?

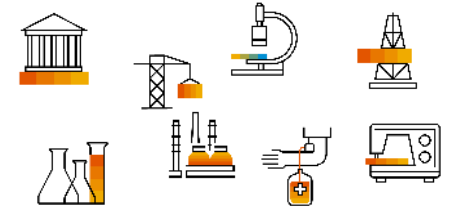
What is the exact meaning?

What are the constraints and conditions of this element?

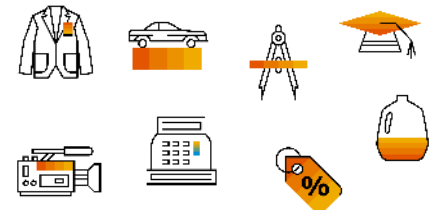
Are the occurrences correct? Is this element mandatory?

ORDERS05	1..1
IDOC	1..1
@BEGIN	1..1
EDI_DC40	1..1
@SEGMENT	1..1
TABNAM	1..1
MANDT	0..1
DOCNUM	0..1
DOCREL	0..1
STATUS	0..1
DIRECT	1..1
OUTMOD	0..1
EXPRS	0..1
TEST	0..1
IDOC TYP	1..1
GIM TYP	0..1
MESTYP	1..1
MESCOD	0..1
MESFCT	0..1
STD	0..1
STDVRS	0..1
SDMES	0..1
SNDPOR	1..1
SNDPRT	1..1
SNDPFC	0..1
SNDP RN	1..1
SNDSAD	0..1
SNDLAD	0..1

Influencing factors Industries



Products and services



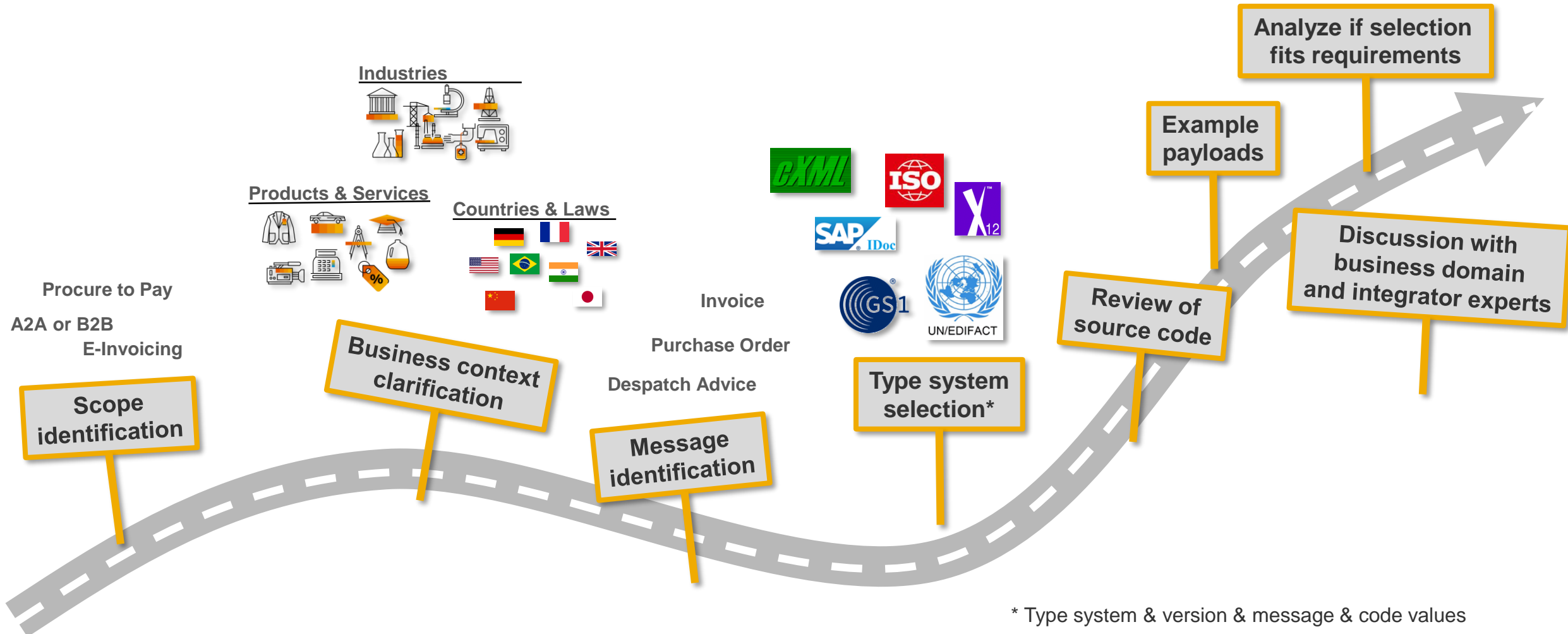
Countries and laws



Typical view of an IDoc interface

Business requirements

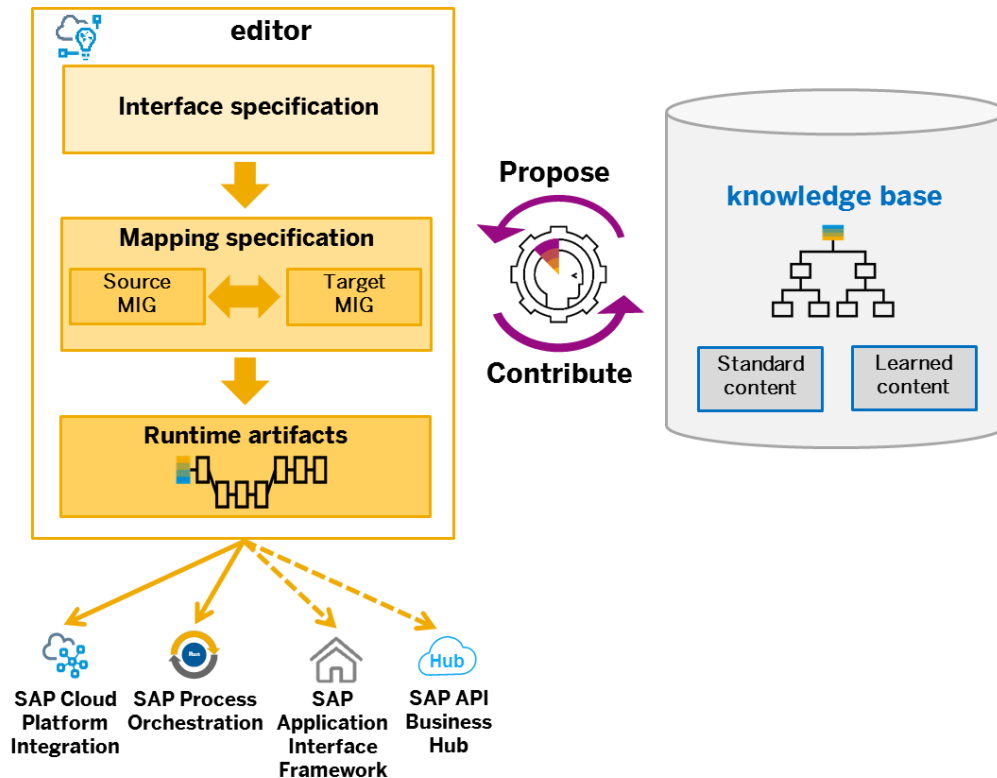
Steps of information collection to unambiguously understand the requirements of business messages



* Type system & version & message & code values

SAP Cloud Platform Integration Advisor

Intelligent content management system for A2A and B2B scenarios



Crowdsourcing capabilities for business oriented interfaces and mappings

- **Machine learning** approach that helps you to get out-of-the-box proposals ready to start your integration projects without the need for deep domain knowledge and reduces your efforts by 60% or more
- Central integration knowledge base for integration wherein all **crowdsource based learnings** from interface customizations and mappings are stored
 - with international and SAP standards
- **Automatic generation** of documentation and runtime artifacts
- **Community collaboration** for creating and maintaining tailored integration interfaces and mappings

This functionality is unique in the market and protected by various patents held by SAP



Tight connection to SAP's integration and orchestration portfolio



Integration Advisor

Central and intelligent content management system for creating and maintaining integration content, for



SAP Cloud Platform Integration

- Gets content via automatic push service
- Stores content in Partner Directory
- Enables dynamic invocation of content by integration flows



SAP Process Orchestration

- Supports IA's integration content
- In hybrid runtime environment starting with version 7.5
- In JAVA based runtime starting with version 7.3



SAP API Business Hub

- Embedded IA editing capabilities
- Enables direct customization/extensions of provided APIs

Q3/19^{1.)}



SAP Application Interface Framework

- Gets validation rules, constraints, code value mappings and data conversion rules
- Pushes updates to IA

Q4/19^{1.)}

1.) This is the current state of planning and may be changed by SAP at any time without notice.

Integration Content Advisor – Future Capabilities

Overall:

- Delta comparison
- Faceted search
- Statistical and analytical information

Type Systems

- Further A2A and B2B libraries
- Proprietary structures

MIG Editor

- Multi-message Support
- Graphical constraint language
- Complex patterns
- Example payload upload
- Intelligent extension approach
- Calculation/migration of MIGs by importing from
 - Meta-Schemas
 - Payloads

MAG Editor

- Envelope parameters
- Complex pattern mapping
- Source sort tree approach
- Graphical function editor
- Multi mappings across several APIs
- Toggle feature for more readable representation
- MIG editing capabilities
- Calculation/migration of MAGs by importing of mmaps + XSLTs

IA value proposition

Intelligent tool and accelerator for implementation and enhancements of integration scenarios

- Content management system with complete application-to-application, business-to-business library content
- Embedded proposal service based on continuous deep learning
- Documentation and runtime artifact generation
- Embedded simulation service
- Content governance features
- Accelerated interface enhancements for intelligent enterprise

Reduces integration scenario implementation time and effort by 60% or greater



This functionality is unique in the market and protected by approximately 50 patents held by SAP.

Join the new era of integration content building

The aim is to commoditize the integration content knowledge

- Crowdsourced machine learning
- Collaborative understanding

This facilitates

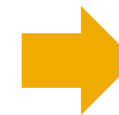
- Higher flexibility
- Lower cost for implementation
- Better transparency

For definition, review, and deploy of interfaces and mappings in end-to-end integration scenarios



Don't miss the chance to switch the speed of your integration projects

From:



To:



=



**Integration
Advisor**

Thank you.

Contact information:

Marco Ertel

Product Manager

SAP SE

Dietmar-Hopp-Allee 16

69190 Germany

email: marco.ertel@sap.com

Follow us



www.sap.com/contactsap

© 2019 SAP SE or an SAP affiliate company. All rights reserved.

No part of this publication may be reproduced or transmitted in any form or for any purpose without the express permission of SAP SE or an SAP affiliate company.

The information contained herein may be changed without prior notice. Some software products marketed by SAP SE and its distributors contain proprietary software components of other software vendors. National product specifications may vary.

These materials are provided by SAP SE or an SAP affiliate company for informational purposes only, without representation or warranty of any kind, and SAP or its affiliated companies shall not be liable for errors or omissions with respect to the materials. The only warranties for SAP or SAP affiliate company products and services are those that are set forth in the express warranty statements accompanying such products and services, if any. Nothing herein should be construed as constituting an additional warranty.

In particular, SAP SE or its affiliated companies have no obligation to pursue any course of business outlined in this document or any related presentation, or to develop or release any functionality mentioned therein. This document, or any related presentation, and SAP SE's or its affiliated companies' strategy and possible future developments, products, and/or platforms, directions, and functionality are all subject to change and may be changed by SAP SE or its affiliated companies at any time for any reason without notice. The information in this document is not a commitment, promise, or legal obligation to deliver any material, code, or functionality. All forward-looking statements are subject to various risks and uncertainties that could cause actual results to differ materially from expectations. Readers are cautioned not to place undue reliance on these forward-looking statements, and they should not be relied upon in making purchasing decisions.

SAP and other SAP products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of SAP SE (or an SAP affiliate company) in Germany and other countries. All other product and service names mentioned are the trademarks of their respective companies.

See www.sap.com/copyright for additional trademark information and notices.