

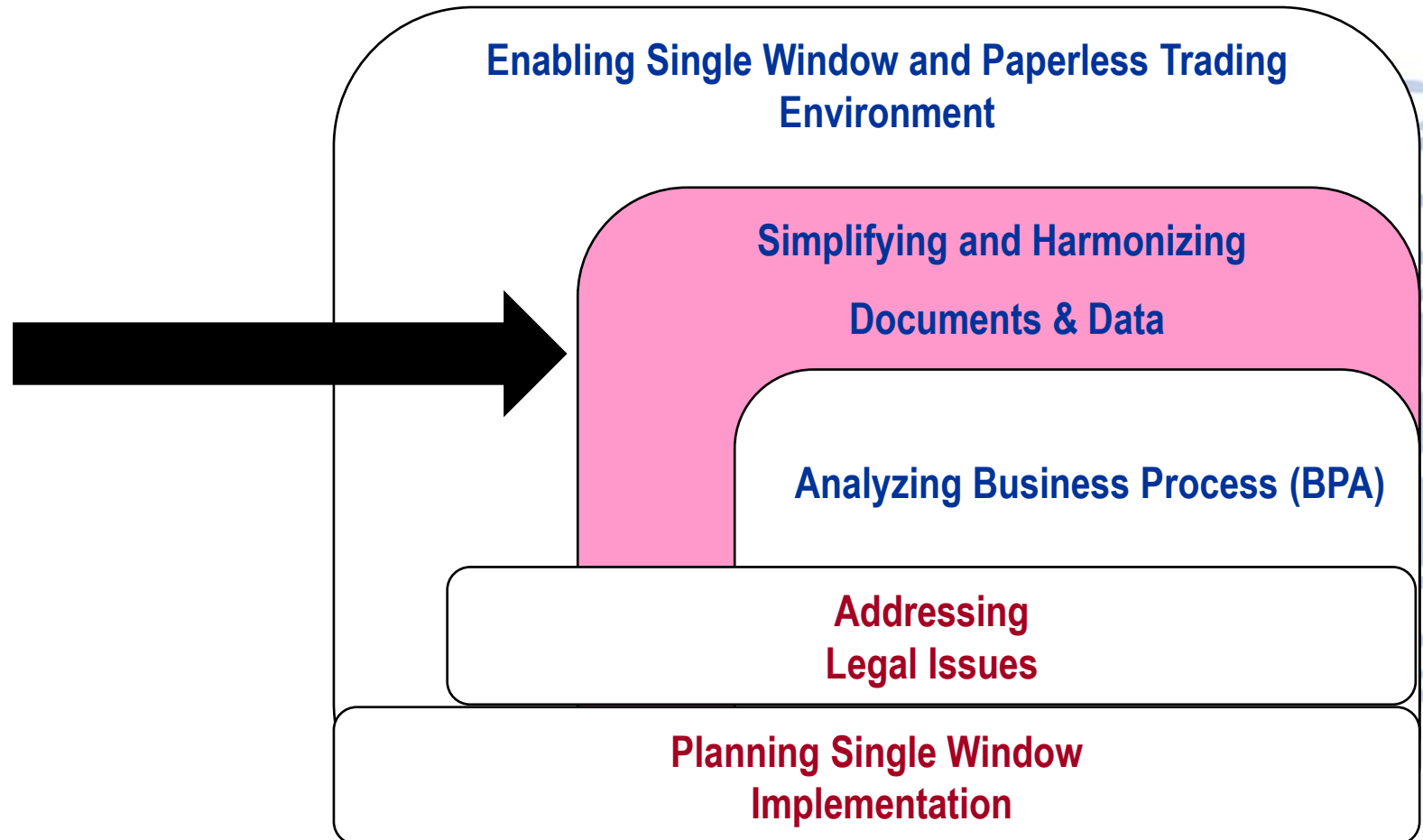
Data Harmonization for Paperless Trade and Single Window Environment

**26 May 2017
Bangkok, Thailand**

**Sangwon Lim
Trade, Investment and Innovation Division
United Nations ESCAP**



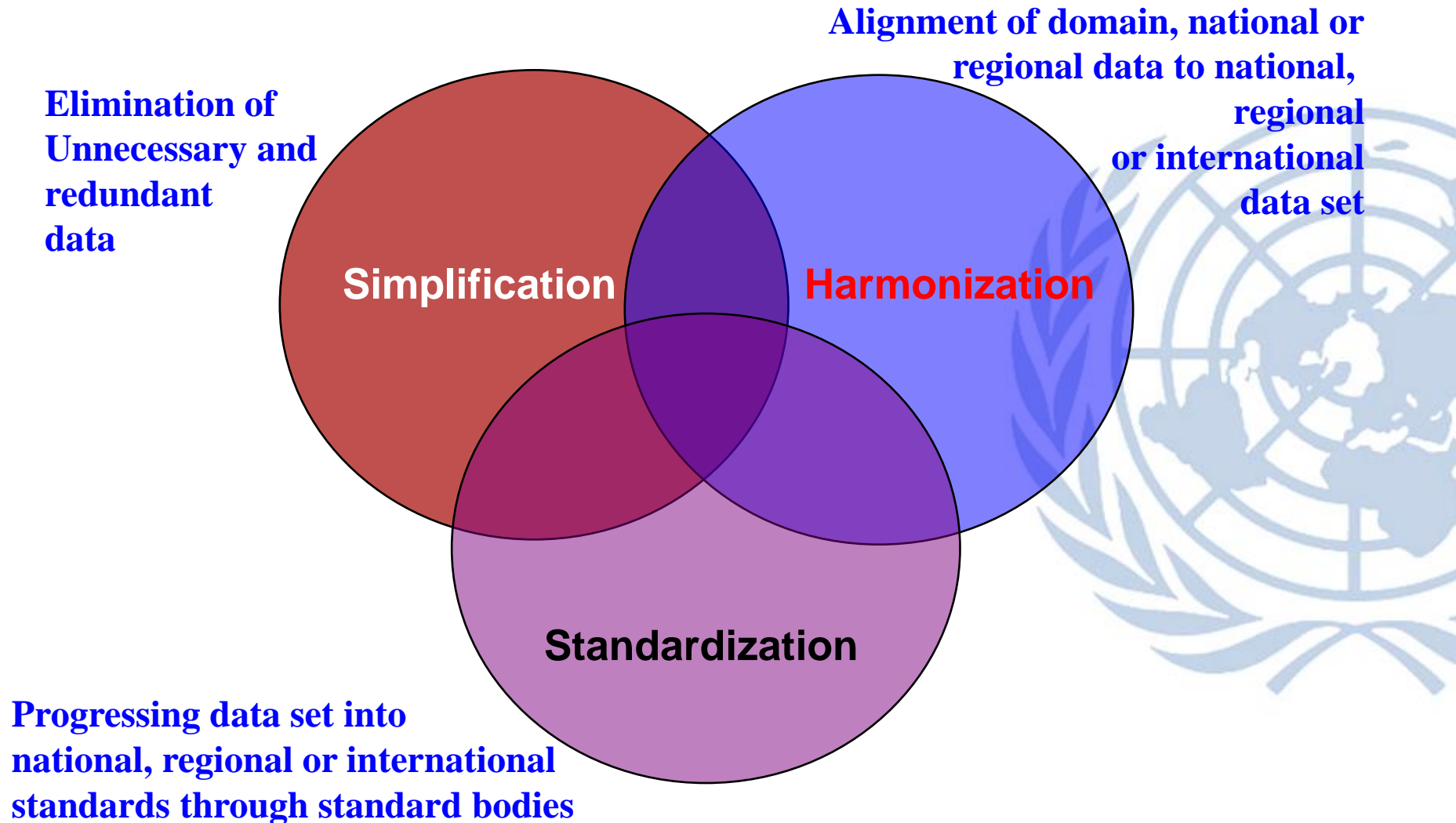
Data Harmonization and Modeling: Where does it fit in SW implementation?



Data Harmonization and Trade Facilitation

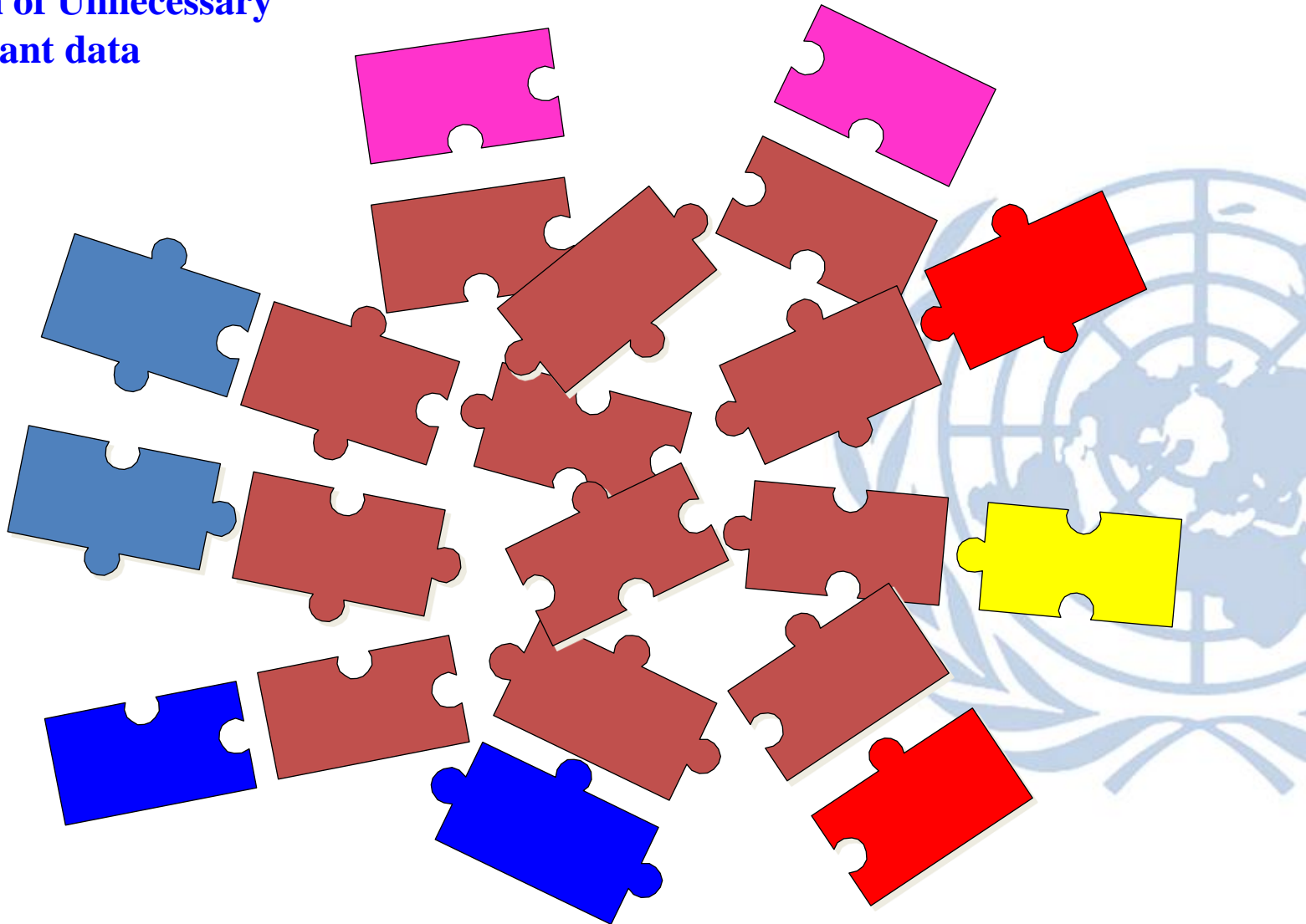
Trade Facilitation	APEC (Woo and Wilson, 2000)	OECD (OECD, 2002)	UNECE (UNECE, 2002; OECD, 2002)	WB (World Bank, 2005)	WTO (WTO Website, 2005; OECD 2002)
The simplification and harmonization of trade Procedures	✓	✓	✓	✓	✓
The harmonization and standardization of information and information flows associated with the international trade transaction		✓	✓	✓	✓
The use, standardization, and improvement of physical infrastructure and facilities	✓		✓	✓	
The harmonization of applicable laws and regulations with the international standards			✓	✓	
The automation of trade Procedures	✓			✓	
The removal of barriers to the mobility of business people	✓				

Data Simplification, Harmonization and Standardization



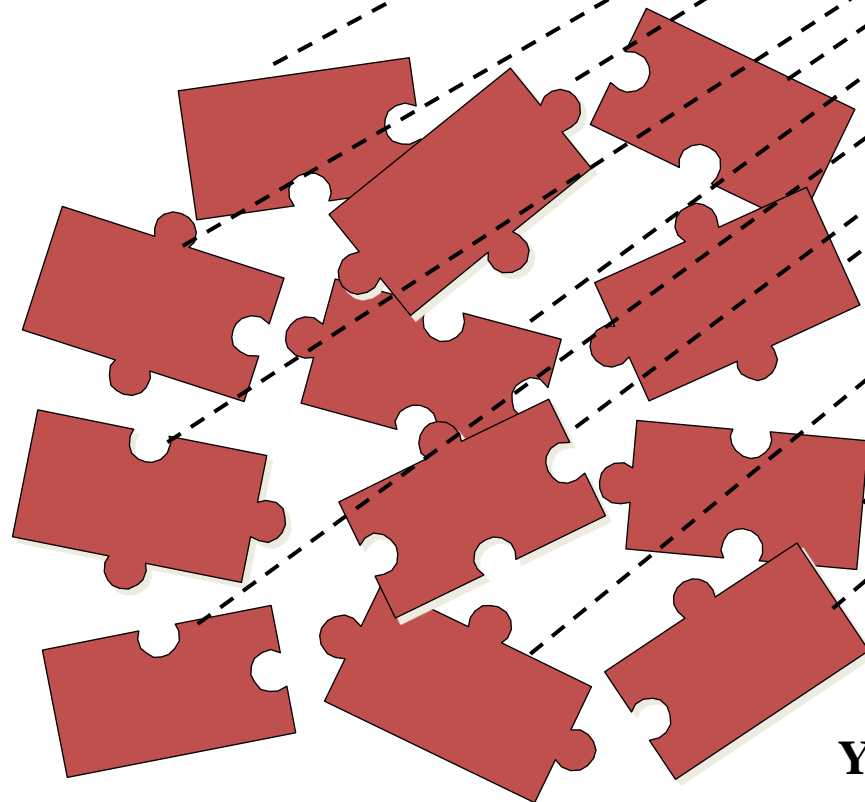
Data Simplification

Elimination of Unnecessary
and redundant data



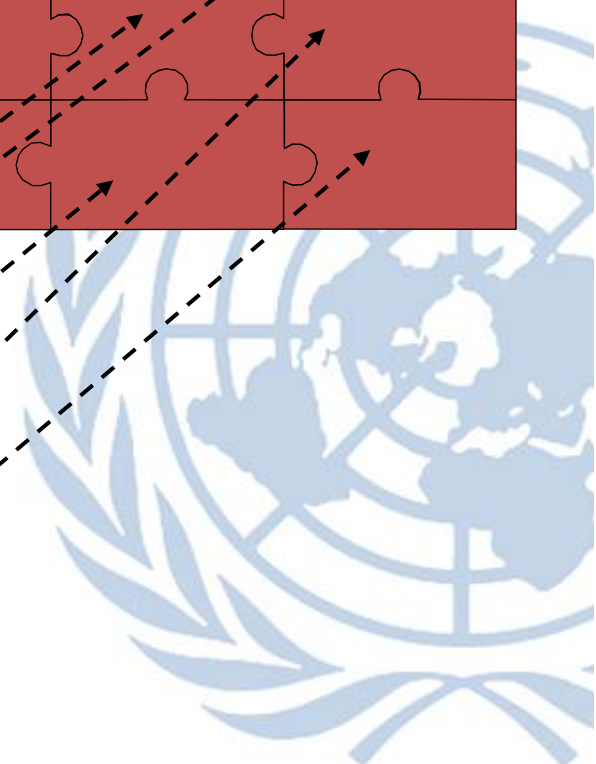
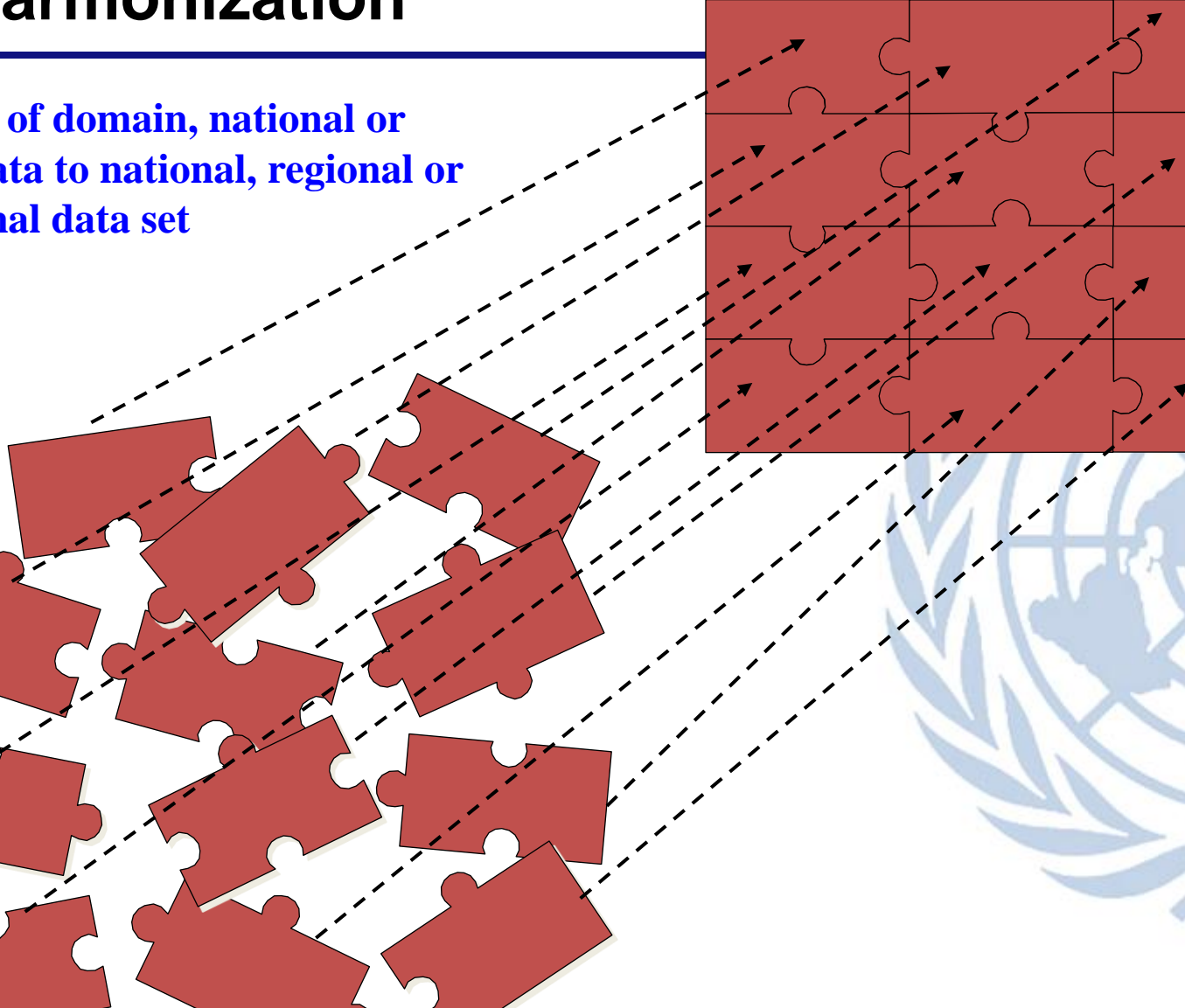
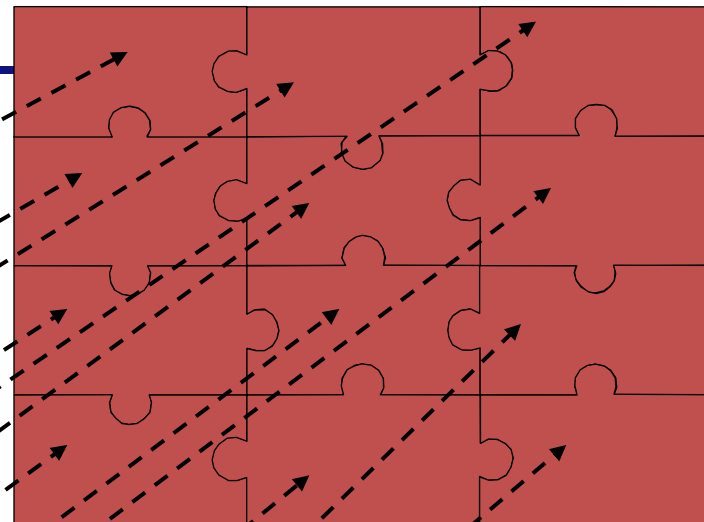
Data Harmonization

Alignment of domain, national or regional data to national, regional or international data set



Your Data Set

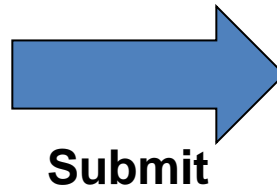
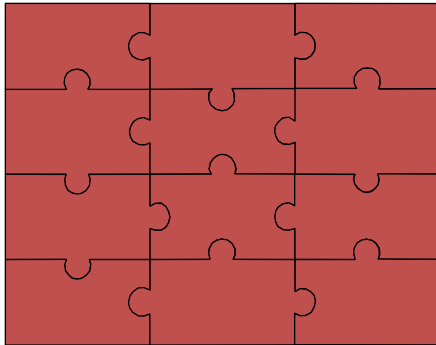
Nat'l/Regional/Int'l Data Set



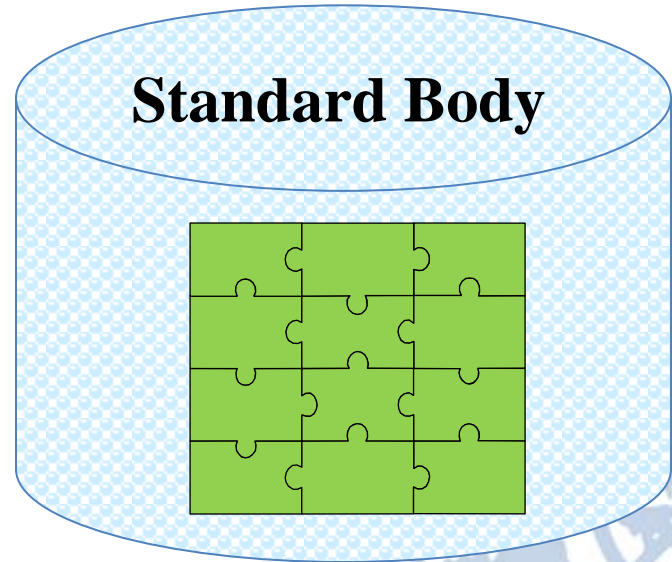
Data Standardization

Progressing data set into national, regional or international standards through standard bodies

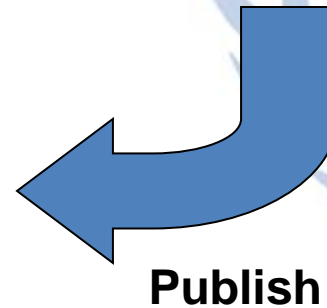
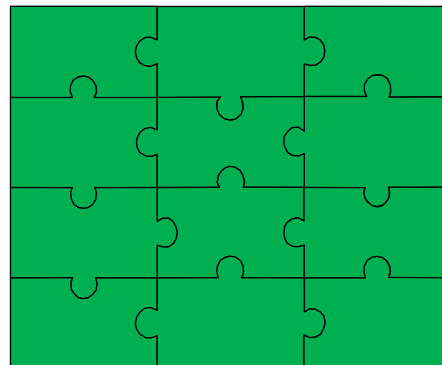
Harmonized Data



Standard Body



**Nat'l/Regional/Int'l
Standards**



Data Harmonization Defined

Definition

An act of reconciling the **definition (semantic)** and **representation formats (syntax)** of data elements in a domain of interest. It entails a set of activities that improves the consistency in the use of data elements in terms of their meaning and representation format.

Data harmonization will identify a set of core data elements (data elements expressed using different descriptions but with identical meaning)

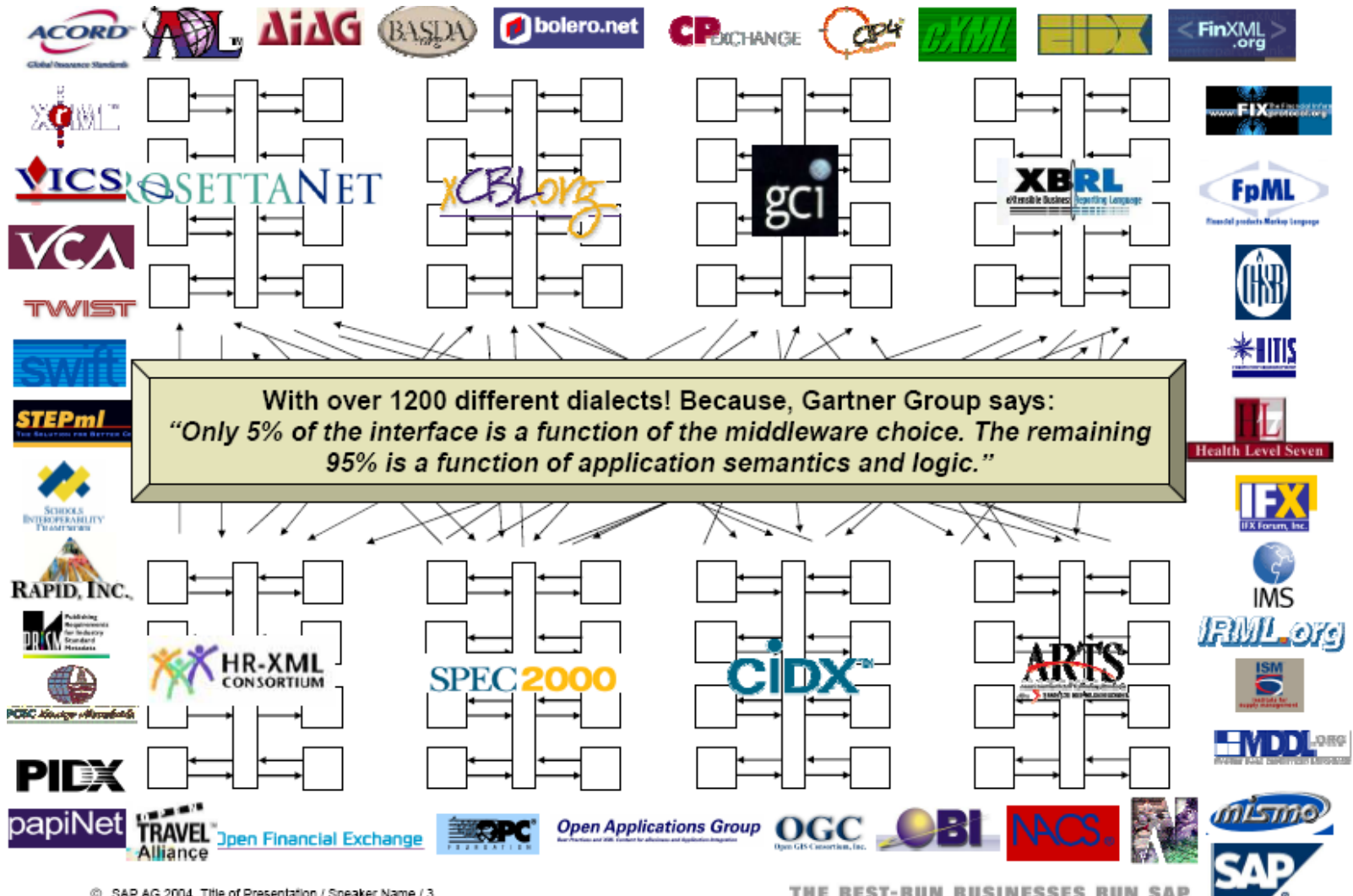
	Definition \ Source	Certificate of Product Standards	Phytosanitary Certificate	Certificate of Origin
Core Data Element 1 {	The first point of arrival in the country of final destination*	Place of destination	Declared point of entry	Destination (Place)
Core Data Element 2 {	Free form description of the marks and numbers on a transport unit or package**	Shipping mark	Distinguishing mark	Mark

* International Standards for Phytosanitary Measures, Guidelines for Phytosanitary Certificates (Publication No. 12)

** UN/CEFACT Export Certification (eCert) RSM

Why Data Harmonization?

Lack of Semantic Interoperability

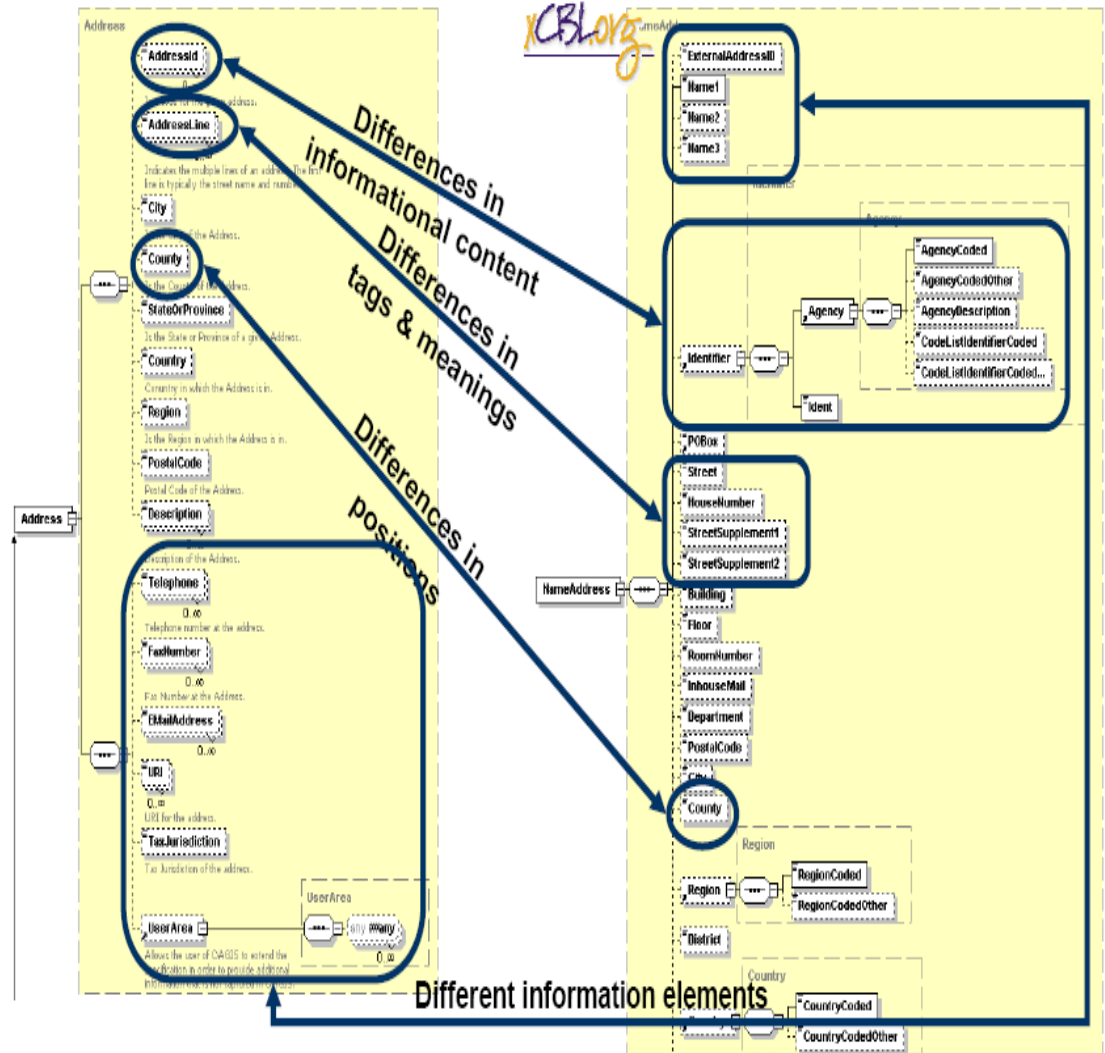


Why Data Harmonization?

Problems In Data Interoperability

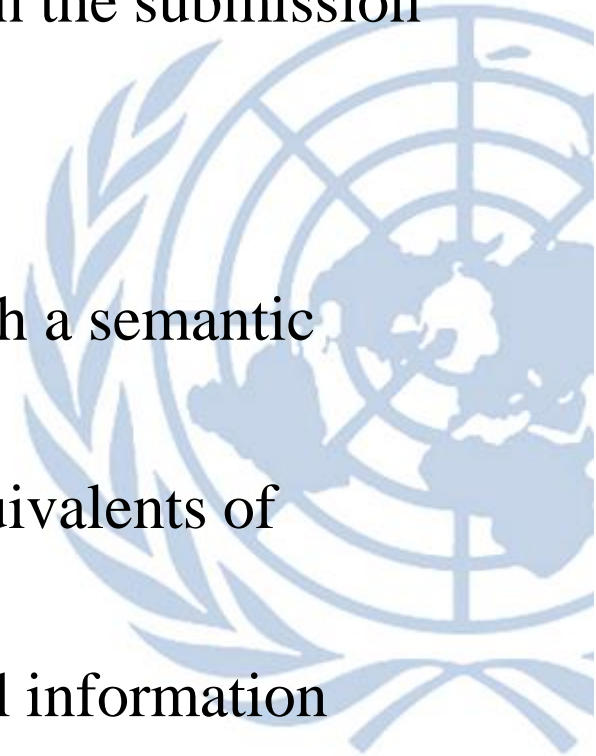
Various representation formats of data

- DD/MM/YY
20/08/10
- DD/MM/YY (Buddhist year)
20/08/53
- DD-MM-YYYY
20-08-2010
- MM/DD/YY
08/20/10
- MM-DD-YYYY
08-20-2010
- YYMMDD
100820
- YYYYMMDD
20100820
- YYYY-MM-DD
2010-08-20
- DD MONTH YYYY
20 August 2010
- MONTH DD, YYYY
August 20, 2010

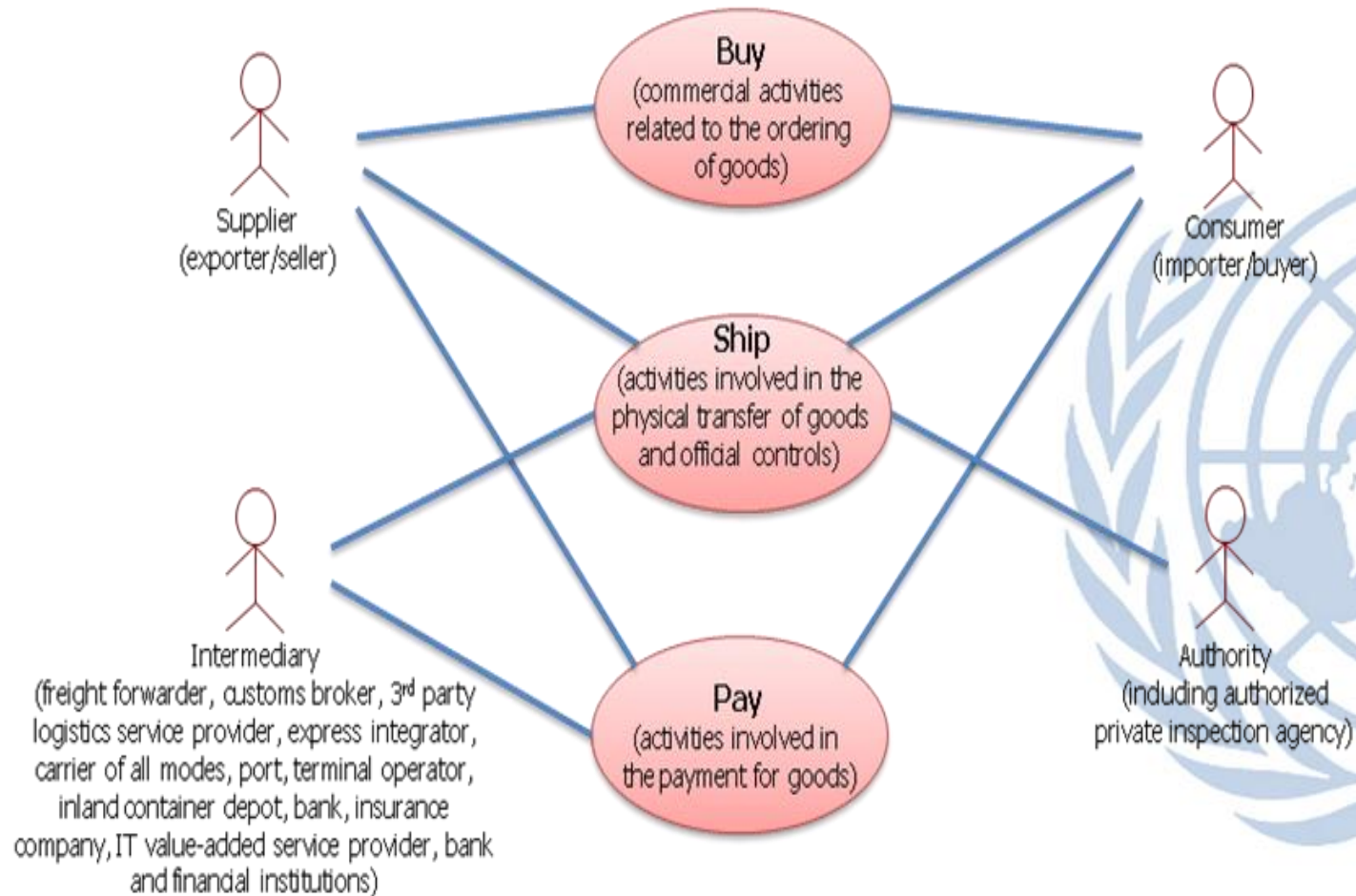


Objective and Goal of Data Harmonization

- The objective of data harmonization:
 - to eliminate redundancies and duplication in the submission of international trade data
- The ultimate goal:
 - A set of core data elements harmonized with a semantic standard
 - .. that can be used to develop electronic equivalents of paper documents
 - .. for data interoperability among individual information systems in the supply chain

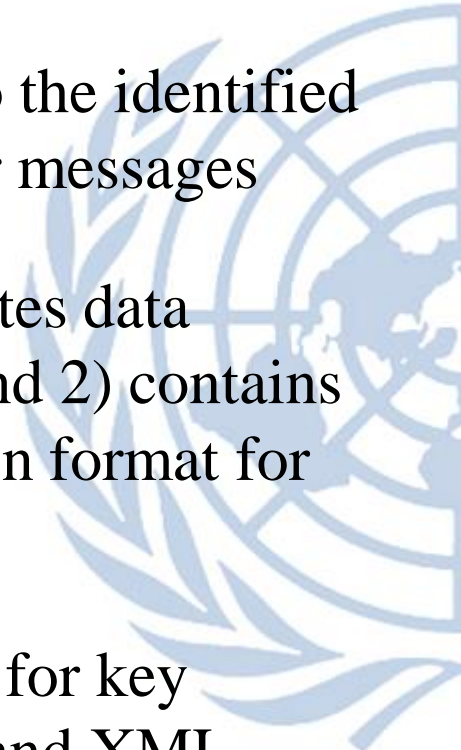


Scope of Data Harmonization



Process	UNLK Document Family		Document	
Buy	Commercial Transaction		Proforma Invoice Purchase Order Commercial Invoice Packing List	
Ship	Transport and Related Services	Forwarding and Cargo Handling	Single Consignment	N/A
			Multiple Consignments	N/A
			Transport Equipment(s)	TKT 308.2 (Gate Pass) Equipment Interchange Report (EIR)
		Transport	Single Consignment	Bill of Lading Booking Request Form – Border Crossing Booking Confirmation – Border Crossing Booking Request Form – Inland Transport Booking Confirmation – Inland Transport
			Multiple Consignments	Manifest
			Transport Equipment(s)	Container Loading List Container List Message Outward Container List
		Insurance	Cargo Insurance Application Form Cover Note Insurance Policy	
		Official Controls		Application for Permission to Export Rice (KP. 2) Sales Report (KP 3) Application for the Collection of the Permit for the Export of Rice (A. 3) Permit for the Export of Rice (A. 4) Application for Certificate of Standards of Product (MS. 13) Rice Quality Certificate Certificate of Standards of Products (MS. 24) Application for Phytosanitary Certificate (PQ. 9) Phytosanitary Certificate Application for Certificate of Origin Certificate of Origin Export Declaration Good Transition Control List
		Payment		Application for Letter of Credit Letter of Credit Credit Advice Debit Advice Remittance Advice
Pay	Payment		Application for Letter of Credit Letter of Credit Credit Advice Debit Advice Remittance Advice	

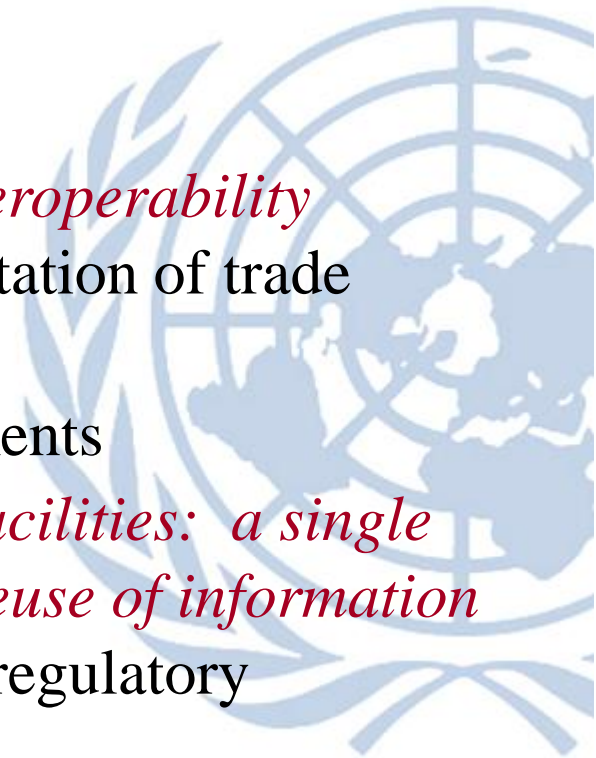
Outputs of Data Harmonization

- ◆ A list of documents and electronic documents or messages that fall into the scope of the data harmonization project
 - ◆ A set of Data Dictionaries that corresponds to the identified list of documents and electronic documents or messages
 - ◆ National Standard Data Set that 1) consolidates data requirements listed in each Data Dictionary and 2) contains standard semantic definition and representation format for each data requirement
 - ◆ A set of Message Implementation Guidelines for key documents that supports both UN/EDIFACT and XML messaging syntaxes
- 

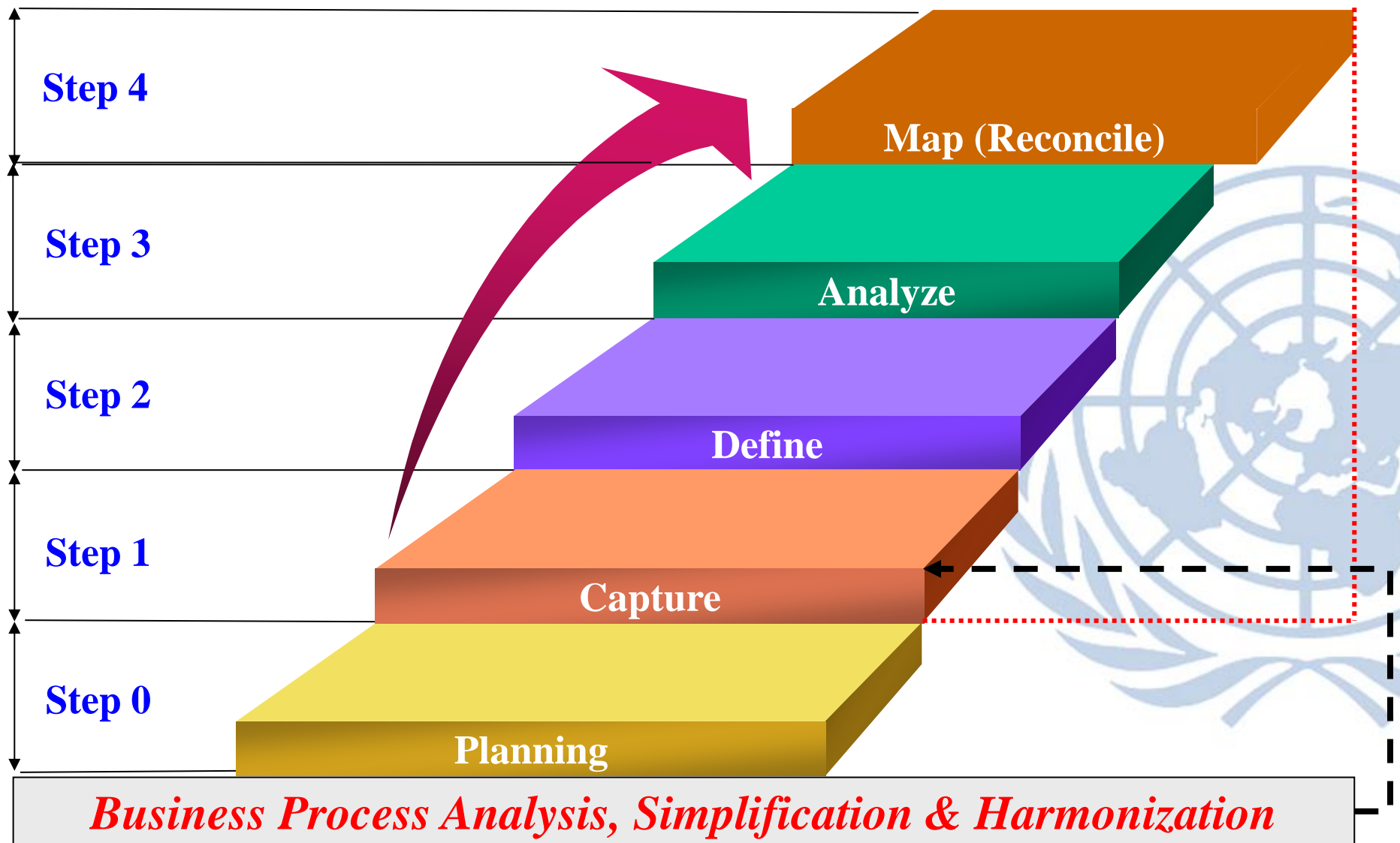
Benefits of Data Harmonization

The data harmonization and its outputs...

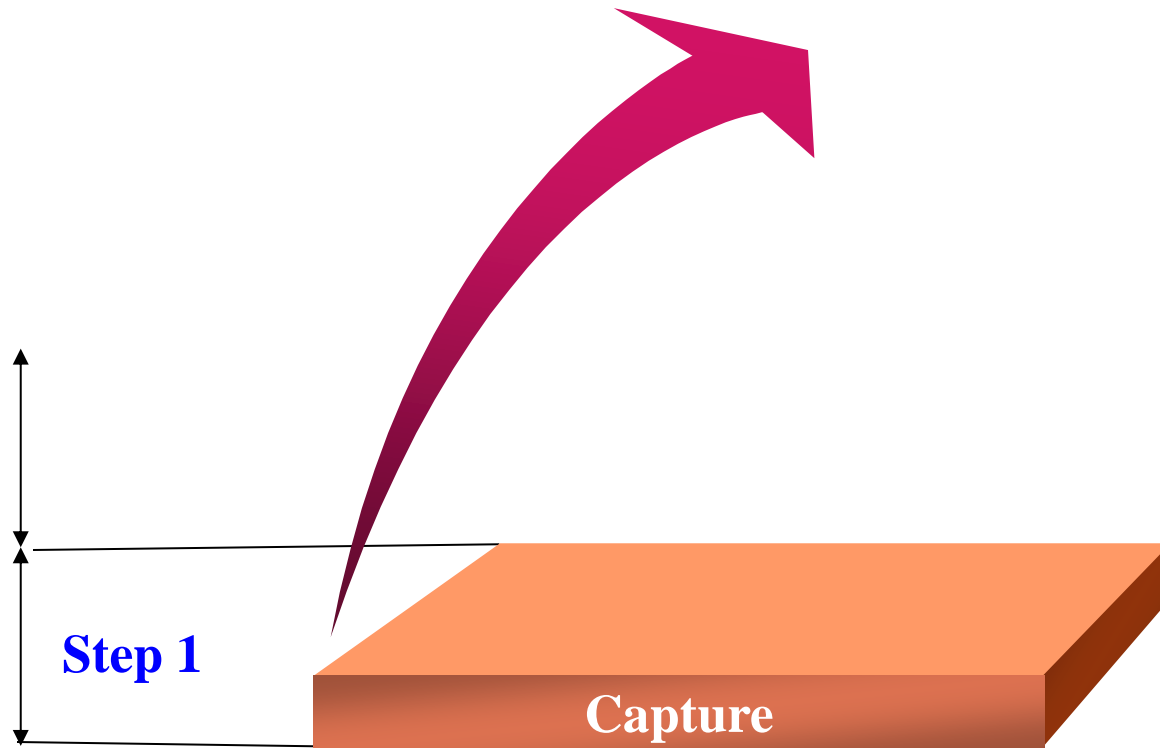
- provide *common semantic standards* for import, export and logistics information
- *decrease data redundancy and duplication*
- ensure *data compatibility* and enable *data interoperability* among stakeholders, resulting in further facilitation of trade procedures
- preparation to develop electronic trade documents
- support the *establishment of Single Window facilities: a single entry point of standardized information and reuse of information* to fulfill all import, export and transit related regulatory requirements



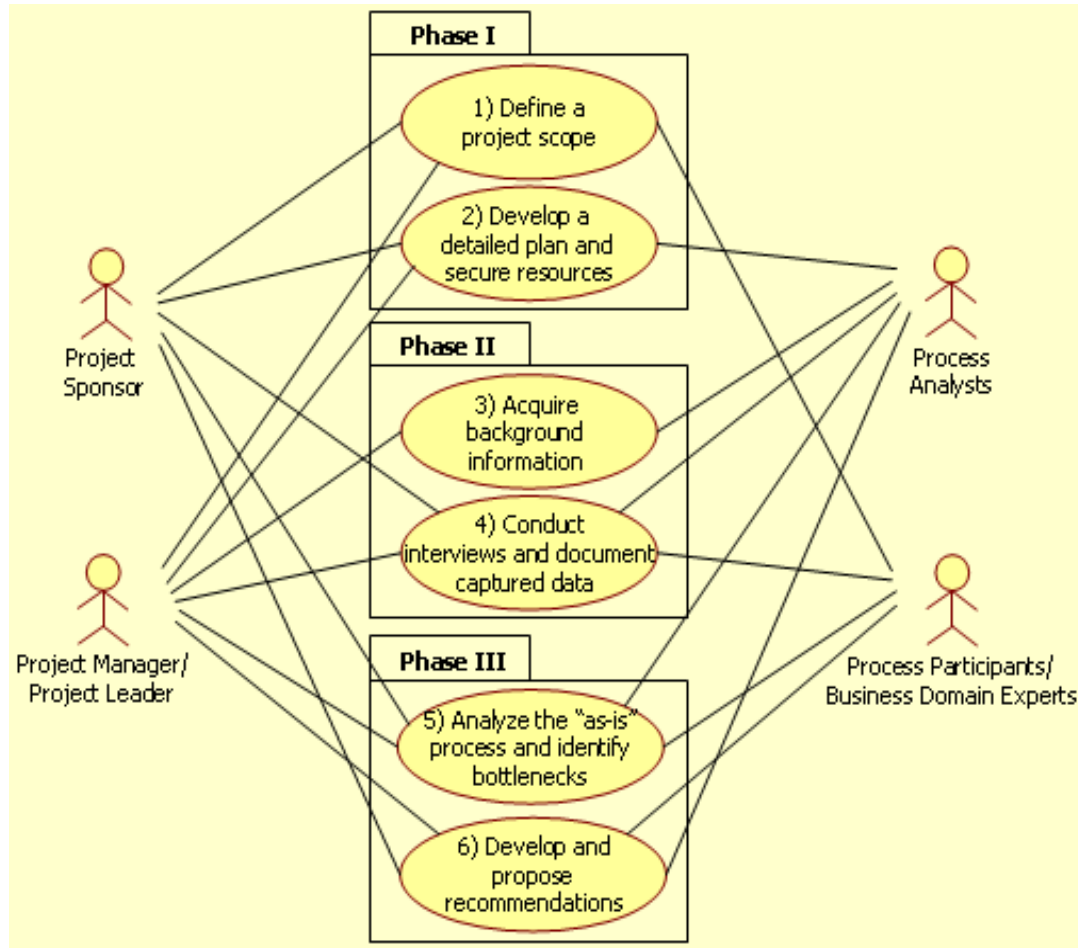
How to Do Data Harmonization Stepwise?



Capture business processes and identify documents and basic data requirements



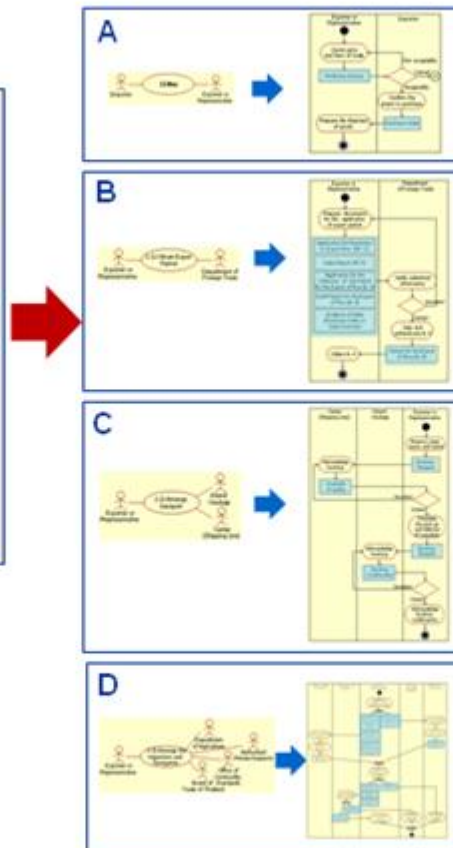
Major Phases of Business Process Analysis



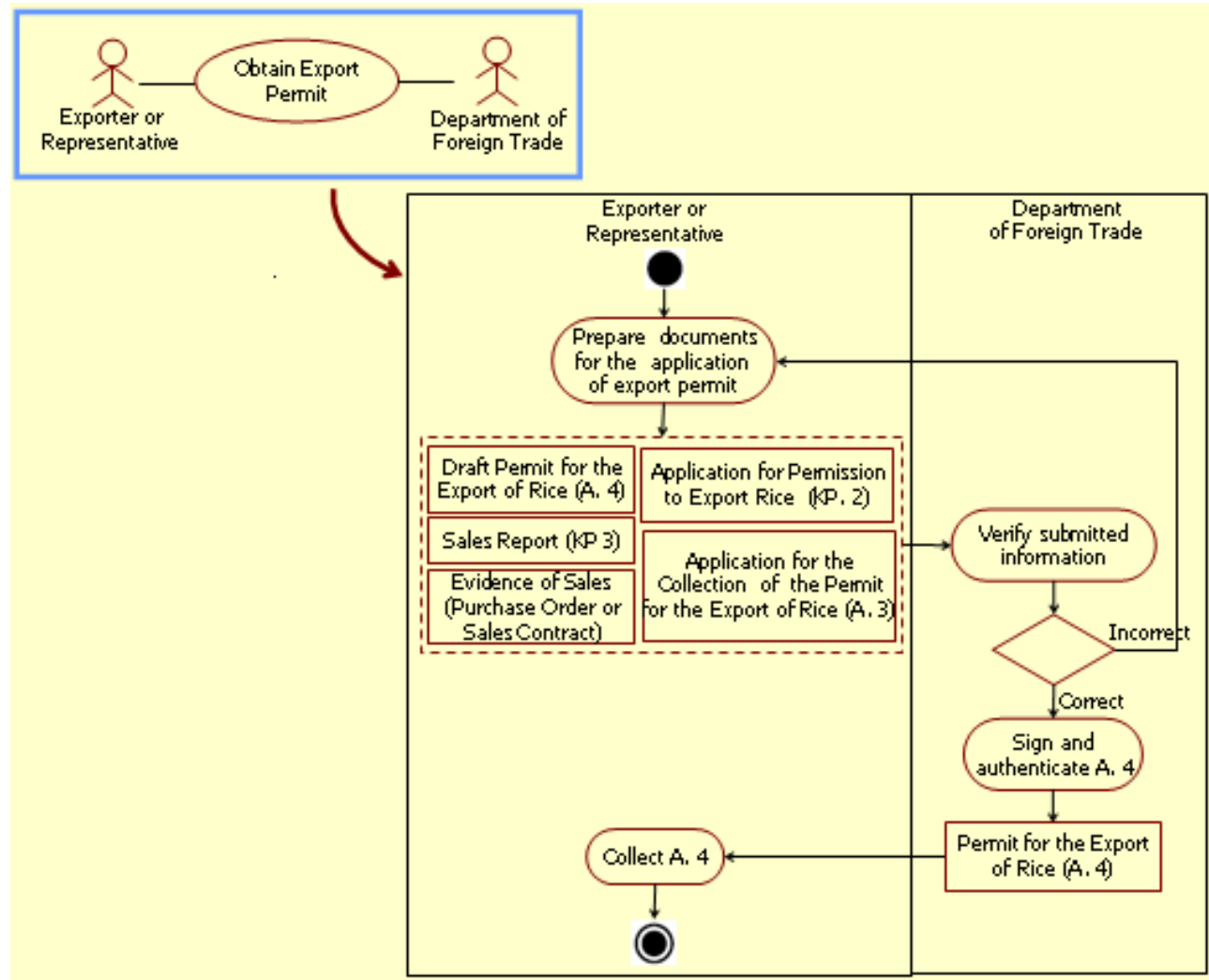
Phase I: **Scope setting**

Phase II: **Data collection & process documentation**

Phase III: **Process analysis & recommendations development**



Use Case to Activity Diagram



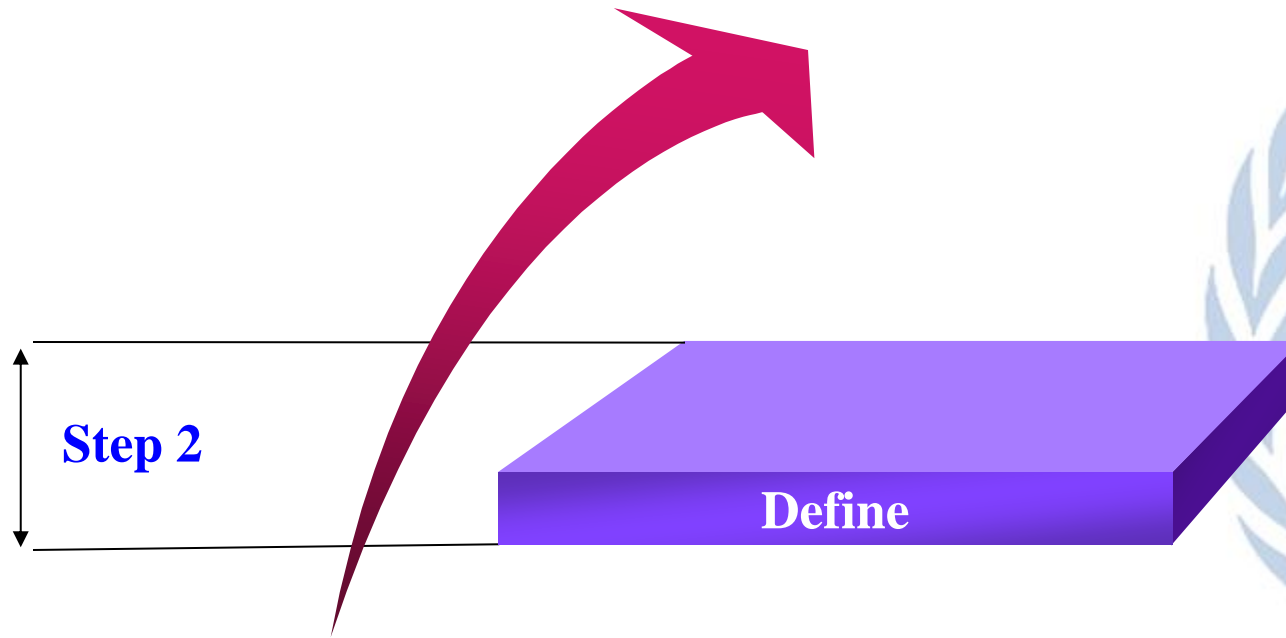
Output: Collection of Documents, Forms and Messages

Sample List of Documents and Forms Captured from Activity Diagrams

- | | |
|---|---|
| 1. Proforma Invoice | 19. Cover Note |
| 2. Purchase Order | 20. Bill of Lading |
| 3. Application for Permission to Export Rice (KP, 2) | 21. Insurance Policy |
| 4. Sales Report (KP 3) | 22. Export Declaration |
| 5. Application for the Collection of the Permit for the Export of Rice (A, 3) | 23. Good Transition Control List |
| 6. Permit for the Export of Rice (A, 4) | 24. TKT 308.2 |
| 7. Application for Certificate of Standards of Product (MS, 13) | 25. Equipment Interchange Report (EIR) |
| 8. Rice Quality Certificate | 26. Container Loading List |
| 9. Certificate of Standards of Products (MS, 24) | 27. Container List Message |
| 10. Application for Phytosanitary Certificate (PQ, 9) | 28. Outward Container List |
| 11. Booking Request Form – Border Crossing | 29. Manifest |
| 12. Booking Confirmation – Border Crossing | 30. Phytosanitary Certificate |
| 13. Booking Request Form – Inland Transport | 31. Certificate of Origin |
| 14. Booking Confirmation – Inland Transport | 32. Application for Certificate of Origin |
| 15. Cargo Insurance Application Form | 33. Application for Letter of Credit |
| 16. Commercial Invoice | 34. Credit Advice |
| 17. Letter of Credit | 35. Debit Advice |
| 18. Packing List | 36. Remittance Advice |



Analyze data in each document and **define** the meaning (semantic) of the data and the data formats (syntax)



To identify the exact meaning of the data and extract data type, representation, format, and constraints based on these sources, for example:

- Document/form, with sample filled-in data and/or box completion guideline if available
- EDI Message Implementation Guide
- User Interface (Data Entry Screens), with its data dictionary if available
- Interviews with users of the document
- Internationally-accepted standard repository (e.g. WCO Data Set, UNTD ED) for the semantic of data elements used in international trade



Ex) Trade Data Elements Directory (UNTDDED – ISO 7372: 2005)

Change indic.	Tag UID	New Name	Description	repr.	Old name	Business Term	Notes	Locations, Bridges
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
cnd	1000	Document. Type.Name.Text	Free text name of a document such as 'Proforma invoice', 'Commercial invoice'.	an..35	Document/m essage name	Document/ message name		UNLK: L 02, P 45-80 MAR: IMO/FAL 1-7
cndr	1001	Document. Type.Code	Code specifying the name of a document such as 352 for proforma invoice, 380 for commercial invoice.	an..3	Document/m essage name, coded	Document/ message name code		UNLK: L 04, P 41-45 CIMP: (120): a1 SAD: (SAD 1(first to third subdivision))
x	1002	.			Message name		DE to use instead - 1000	
cnd	1003	Document. Type.Identifier	Document type identifier such as INVOIC. See also 0065	an..6	Message name, coded	Message name code		CIMP: (101): a3
cnd	1004	Document. Identifier	Reference number identifying a specific document.	an..35	Document/m essage number	Document/ message number		CIMP: (112) n3 and (114) an6 or (805) n8 and (118) n6 MAR: IMO/FAL 2 UNLK: an..17 L 04, P 63-80 SAD:
add	1007	Event. Identifier	Reference number identifying an event.	an..35				
add	1008	Event. Sequence.Identifier	Sequence number differentiating a specific event amongst others	n..5				
cnd	1010	Additional Document. Identifier	Identifier of a document providing additional information.	an..35	Additional document reference			SAD: (SAD 44)
add	1012	Packing List Document. Item Sequence.Identifier	Sequence number differentiating a specific packing list item within a packing list.	n..5				
cndr	1014	Packing List Document. Identifier	Reference number to identify a packing list	an..35	Packing List number			UNLK: an..17, L 04 P 63-80
cndr	1016	Consignment. Carrier Assigned.Identifier	Reference number assigned by a carrier or its agent to identify a specific consignment such as a booking reference number when cargo space is reserved prior to loading.	an..35	Booking reference number	Reservation number of shipment		CIMP: (117): an..15 MAR: IMO/FAL 7 UNLK: an..17 L 04, P 63-80
cndr	1018	Order Acknowledgement Document. Identifier	Reference number identifying the acknowledgement of an order.	an..35	Acknowledg ement of Order number	Purchase order response number		UNLK: L 04, P 63-80

United Nations Trade Data Element Directory (UNTDDED, ISO 7372)

- An internationally accepted standard *repository for the semantic of trade data elements* used in international trade
- A method to describe information requirements from business perspective (*a non-technical description of trade information*).
- The definition is *syntax-neutral* and provides the *basis for a later automation of document* for paperless trade.
- Defining the data content in terms of the UNTDED makes *different trade documents become directly comparable*, which helps identify duplication and reduce the number of documents to the strict minimum.

How does UNTDED work?

- Each UNTDED element consists of a data element *tag* in the form of a four-digit number, *a name (informative) and a description (definition)*.

- The data element may have *a reference to a UN-recommended code list*.

- For document alignment, it is recommended to *use the tag, the dictionary's old name or the business term and the description of the ISO 7372:2005 release when defining the Box Completion Guideline*.

- The format of the UNTDED Revision 2005 (ISO 7372:2005) contains *additional fields such as dictionary entry name for core component libraries* so as to integrate the requirements of electronic business and paperless trade.

Grouping used in the Trade Data Element Directory (TDED)

- Group 1: (0001-1699)** Documentation, references
- Group 2: (2000-2699)** Dates, times, periods of time
- Group 3: (3000-3699)** Parties, addresses, places, countries
- Group 4: (4000-4699)** Clauses, conditions, terms, instructions
- Group 5: (5000-5699)** Amounts, charges, percentages
- Group 6: (6000-6699)** Measures, identifiers, quantities (other than monetary)
- Group 7: (7000-7699)** Goods and articles: descriptions and identifiers
- Group 8: (8000-8699)** Transport modes, means, and equipments
- Group 9: (9000-9799)** Other data elements (Customs, etc.)

TDED 3404 Person name
Family name and given names of an individual.

Change indic.	Tag UID	New Name	Description	repr.	Old name	Business Term	Notes	Locations, Bridges
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
cnd	1000	Document. Type.Name.Text	Free text name of a document such as 'Proforma invoice', 'Commercial invoice'.	an..35	Document/m essage name	Document/ message name		UNLK: L 02, P 45-80 MAR: IMO/FAL 1-7
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x	1002	.			Message name		DE to use instead - 1000	
cnd	1003	Document. Type.Identifier	Document type identifier such as INVOIC. See also 0065	an..6	Message name, coded	Message name code		CIMP: (101): a3
cnd	1004	Document. Identifier	Reference number identifying a specific document.	an..35	Document/m essage number	Document/ message number		CIMP: (112) n3 and (114) an6 or (805) n8 and (118) n6 MAR: IMO/FAL 2 UNLK: an..17 L 04, P 63- 80 SAD:
add	1007	Event. Identifier	Reference number identifying an event.	an..35				
add	1008	Event. Sequence.Identifier	Sequence number differentiating a specific event amongst others	n..5				
cnd	1010	Additional Document. Identifier	Identifier of a document providing additional information.	an..35	Additional document reference			SAD: (SAD 44)
add	1012	Packing List Document. Item Sequence.Identifier	Sequence number differentiating a specific packing list item within a packing list.	n..5				
cndr	1014	Packing List Document. Identifier	Reference number to identify a packing list	an..35	Packing List number			UNLK: an..17, L 04 P 63- 80
cndr	1016	Consignment. Carrier Assigned.Identifier	Reference number assigned by a carrier or its agent to identify a specific consignment such as a booking reference number when cargo space is reserved prior to loading.	an..35	Booking reference number	Reservation number of shipment		CIMP: (117): an..15 MAR: IMO/FAL 7 UNLK: an..17 L 04, P 63- 80
cndr	1018	Order Acknowledgement Document. Identifier	Reference number identifying the acknowledgement of an order.	an..35	Acknowledg ement of	Purchase order		UNLK: L 04, P 63-80

Output: Document Data Dictionary for Each Document

A **Data Dictionary** describes in detail the data elements contained in a document, with the following pieces of information:

- ☐ Document title
- ☐ Document purpose
- ☐ Name of document owner
- ☐ Identification number for each data element name
(e.g. Box Number in the document)
- ☐ Data element name from the document to be modeled
- ☐ Data element definition in local language and/or English as
given by the document owner and/or relevant standards
(e.g. WCO Data Set, UNTDED, UN/CEFACT CCL)
- ☐ Data format (alpha, numeric) and size (length of a data element,
value in terms of digit or characters)
- ☐ Constraint on the occurrence of each data element
(MinOccurs, MaxOccurs)
- ☐ Code lists & subsets of code lists



Example of Document Data Dictionary

Document Title ASEAN ATIGA FORM D

Document Purpose A Certificate of Origin is a document/message identifying goods, in which the authority or body authorized to issue it, certifies expressly that the goods to which the certificate relates originate in a specific country.

Name of Document Owner Issuing Authorities, ASEAN Nations

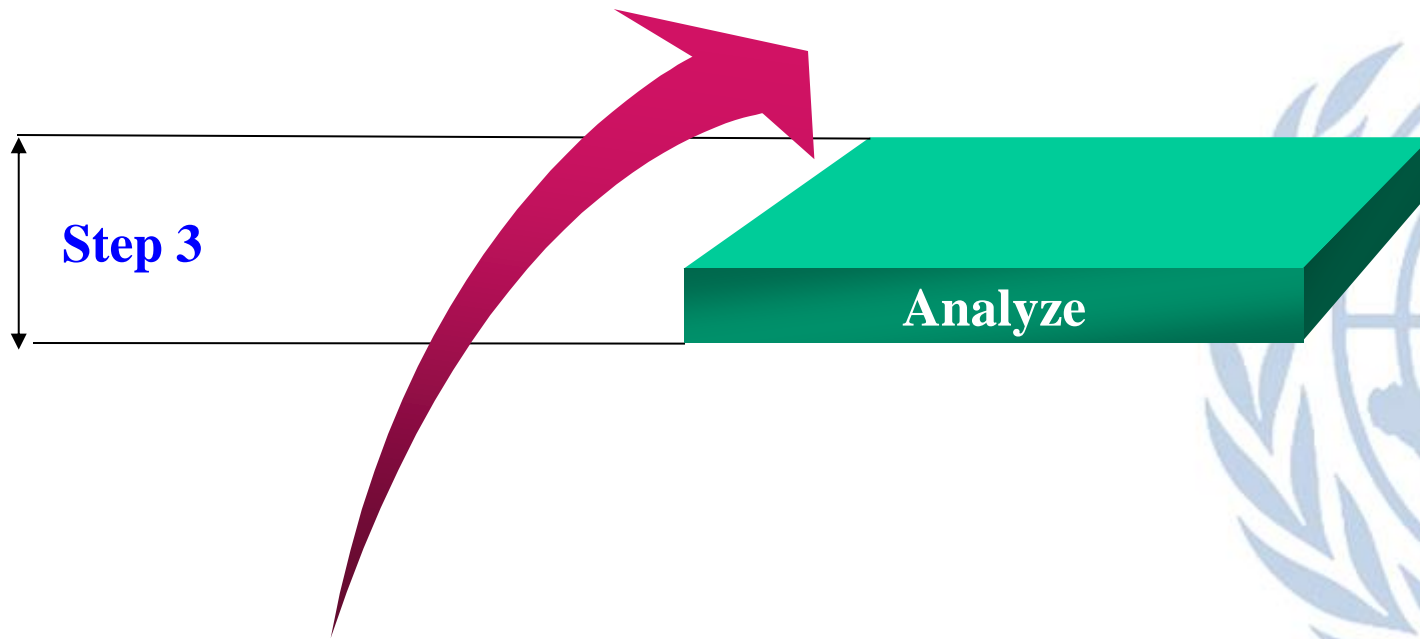
ASEAN ATIGA FORM D Data
0-1 Reference Number TDED 1004: Reference number identifying a specific document. an..35 (Min=1, Max=1)
1 Goods consigned from (Exporter's business name, address, country) TDED 3036: Name (and address) of the party consigning the goods as stipulated in the contract by the party ordering the transport (This may be the exporter or seller.) an..35 (Min=1, Max=1)
2 Goods consigned to (Consignee's name, address, country) TDED 3132: Name and address of party to which goods are consigned an..512 (Min=1, Max= 1)
3-1 Departure date TDED 2380: The value of a date, a date and time, a time or of a period in a specified representation. an..35 (Min=1, Max= 1)
3-2 Vessel's name/aircraft etc. TDED 8212: Name of a specific means of transport such as the vessel name an..35 (Min=1, Max= 1)
3-3 Port of discharge TDED 3224: Name of a location. an..256 (Min=1, Max=1)
4 For official use (Declaration Type) TDED 1001: Code specifying the name of a document. an..3 (Min=1, Max=1)
5 Item No. TDED 1050: To identify a position within a sequence an..10 (Min=1, Max=1)

Mapping of Data from Paper Form to Document Data Dictionary

1. Goods consigned from (Exporter's business name, address, country)			Reference No. ASEAN TRADE IN GOODS AGREEMENT/ ASEAN INDUSTRIAL COOPERATION SCHEME CERTIFICATE OF ORIGIN (Combined Declaration and Certificate) FORM D Issued in _____ (Country) See Overleaf Notes		
2. Goods consigned to (Consignee's name, address, country)					
3. Means of transport and route (as far as known) Departure date Vessel's name/Aircraft etc. Port of Discharge			4. For Official Use <input type="checkbox"/> Preferential Treatment Given Under ASEAN Trade in Goods Agreement <input type="checkbox"/> Preferential Treatment Given Under ASEAN Industrial Cooperation Scheme <input type="checkbox"/> Preferential Treatment Not Given (Please state reason/s)		
			Signature of Authorised Signatory of the Importing Country		
5. Item number	6. Marks and numbers on packages	7. Number and type of packages, description of goods (including quantity where appropriate and HS number of the importing country)	8. Origin criterion (see Overleaf Notes)	9. Gross weight or other quantity and value (FOB)	10. Number and date of invoices
11. Declaration by the exporter The undersigned hereby declares that the above details and statement are correct; that all the goods were produced in (Country) and that they comply with the origin requirements specified for these goods in the ASEAN Trade in Goods Agreement for the goods exported to (Importing Country) Place and date, signature of authorised signatory			12. Certification It is hereby certified, on the basis of control carried out, that the declaration by the exporter is correct. Place and date, signature and stamp of certifying authority		
13 <input type="checkbox"/> Third Country Invoicing <input type="checkbox"/> Exhibition <input type="checkbox"/> Accumulation <input type="checkbox"/> De Minimis <input type="checkbox"/> Back-to-Back CO <input type="checkbox"/> Issued Retroactively <input type="checkbox"/> Partial Cumulation					

ASEAN ATIGA FORM D Data
0-1 Reference Number TDED 1004: Reference number identifying a specific document. an..35 (Min=1, Max=1)
1 Goods consigned from (Exporter's business name, address, country) TDED 3036: Name (and address) of the party consigning the goods as stipulated in the contract by the party ordering the transport (This may be the exporter or seller.) an..35 (Min=1, Max=1)
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Analyze data elements across various documents and organize them in a comparable manner



To organize data specifications from different documents in a comparable manner for consistent mapping of data elements to a data model in the next step

- **Document categorization** according to the type of trade documents that they belong to, for example:
 - ✓ *Category 1: documents related to commercial transaction and payment.*
 - ✓ *Category 2: documents for transport and official control that provide information of a single consignment (e.g. customs declaration)*
 - ✓ *Category 3: documents of transport and official control that provide information of multiple consignments (e.g. manifest)*
- **Data dictionaries compilation** according to document categories/families

Document Categorization

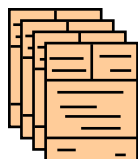
Example of Document Categorization based on UNLK

UNLK Document Families



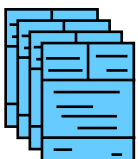
Commercial Transaction Document Family

(e.g. Quotation, Order, Invoice, etc.)

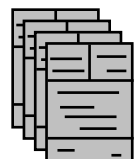


Transport & Related Services Document Family

(e.g. Bill of Lading, Cargo Manifest, Insurance Contract, etc.)



Official Controls Document Family (e.g. Goods Declarations, Export/Import Licenses, Certificate of Origin, etc.)



Payment Document Family (e.g. Letter of Credit, Documentary Credit, etc.)

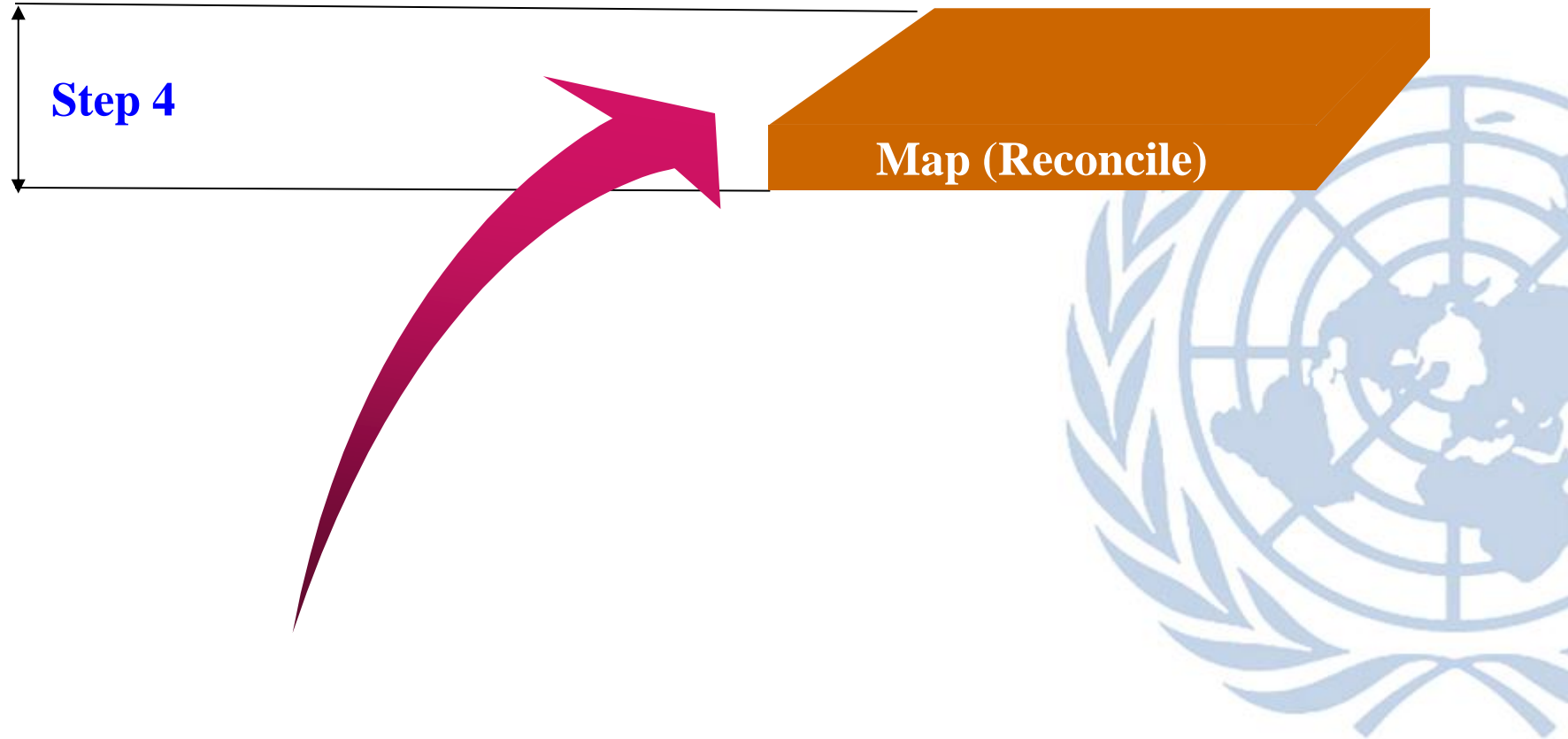
Process	UNLK Document Family		Document	
Buy	Commercial Transaction		Proforma Invoice Purchase Order Commercial Invoice Packing List	
Ship	Forwarding and Cargo Handling	Single Consignment	N/A	
		Multiple Consignments	N/A	
		Transport Equipment(s)	TKT 308.2 (Gate Pass) Equipment Interchange Report (EIR)	
	Transport	Single Consignment	Bill of Lading Booking Request Form – Border Crossing Booking Confirmation – Border Crossing Booking Request Form – Inland Transport Booking Confirmation – Inland Transport	
		Multiple Consignments	Manifest	
		Transport Equipment(s)	Container Loading List Container List Message Outward Container List	
	Insurance		Cargo Insurance Application Form Cover Note Insurance Policy	
	Official Controls		Application for Permission to Export Rice (KP. 2) Sales Report (KP. 3) Application for the Collection of the Permit for the Export of Rice (A. 3) Permit for the Export of Rice (A. 4) Application for Certificate of Standards of Product (MS. 13) Rice Quality Certificate Certificate of Standards of Products (MS. 24) Application for Phytosanitary Certificate (PQ. 9) Phytosanitary Certificate Application for Certificate of Origin Certificate of Origin Export Declaration Good Transition Control List	
	Payment		Application for Letter of Credit Letter of Credit Credit Advice Debit Advice Remittance Advice	
Pay	Payment		Application for Letter of Credit Letter of Credit Credit Advice Debit Advice Remittance Advice	

Data Dictionary Compilation

Sample Template of Document Data Dictionary Compilation

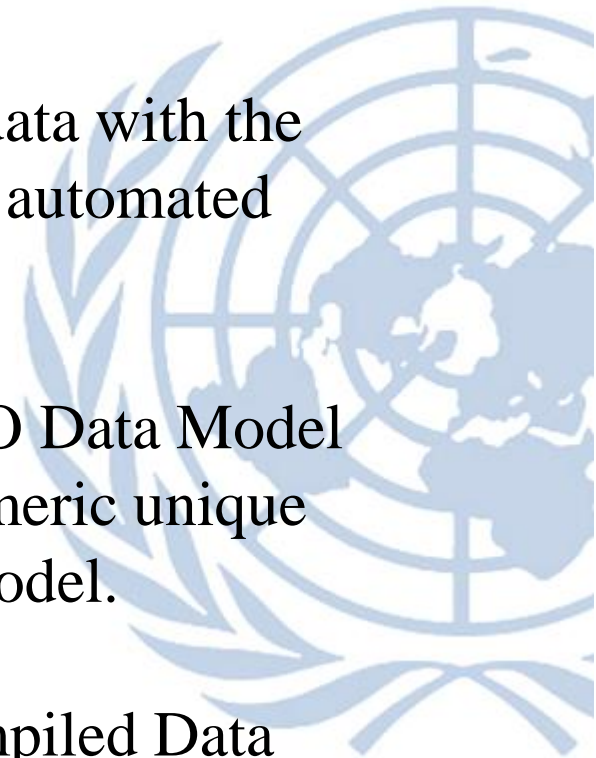
ASEAN ATIGA FORM D A Certificate of Origin certifies expressly that the goods to which the certificate relates originate in a specific country. Issuing Authorities, Thailand	Permit for the Export of Rice (A. 4) Permit for the Export of Rice (A. 4) is only given to rice exporters who follow the Ministry of Commerce's Regulation for Rice Exportation 1997. Department of Foreign Trade, Ministry of Commerce, Thailand	Certificate of Standards of Products (MS. 24) Certificate of Standards of Products (MS. 24) certifies that the rice to be exported has the quality set by importer. Board of Trade of Thailand
	11 Place of departure TDED 3214: Name of the port, airport or other type of location from which a means of transport is scheduled to depart or has departed an.. 256 (Min = 1, Max = 1)	20 Place of departure TDED 3214: Name of the port, airport or other type of location from which a means of transport is scheduled to depart or has departed an.. 256 (Min = 1, Max = 1)
11-2 Country of Exportation TDED 3229: Country subdivision time of the departure of the goods item original consignor an..2 (Min=1, Max=1)	5 Destination country TDED 3216: Name of the country to which the goods are to be delivered to the final consignee or buyer an..35 (Min = 1, Max = 1)	21 Country of destination of goods TDED 3014: Name of the country to which a consignment of goods is to be or has been delivered an..35 (Min = 1, Max = 1)
5 Item Number TDED 1050: Number indicating the position in a sequence n..5 (Min = 1, MAX = unbounded)	12 Line item TDED 1082: An identifier differentiating an individual line item from within a series an..6 (Min = 1, Max = unbounded)	
9-2 Item Price TDED 5032: Amount declared for Customs purposes of those goods in a consignment which are subject to the same Customs procedure, and have the same tariff/statistical heading, country information and duty regime an..16,2 (Min = 1, Max = unbounded)	17 Price (FOB) TDED 5032: Amount declared for customs purposes of those goods in a consignment which are subject to the same customs procedure, and have the same tariff/statistical heading, country information and duty regime an..18 (Min = 1, Max = unbounded)	13 FOB Amount TDED 5032: Amount declared for customs purposes of those goods in a consignment which are subject to the same customs procedure, and have the same tariff/statistical heading, country information and duty regime an..18 (Min = 1, Max = unbounded)
6 Marks and numbers on packages TDED 7102: Free form description of the marks and numbers on a transport unit or package an..512 (Min=1, Max= unbounded)		18 Marks and numbers on packages TDED 7102: Marks and numbers identifying individual packages an..512 (Min = 1, Max = unbounded)

Map data elements to a Reference Data Model



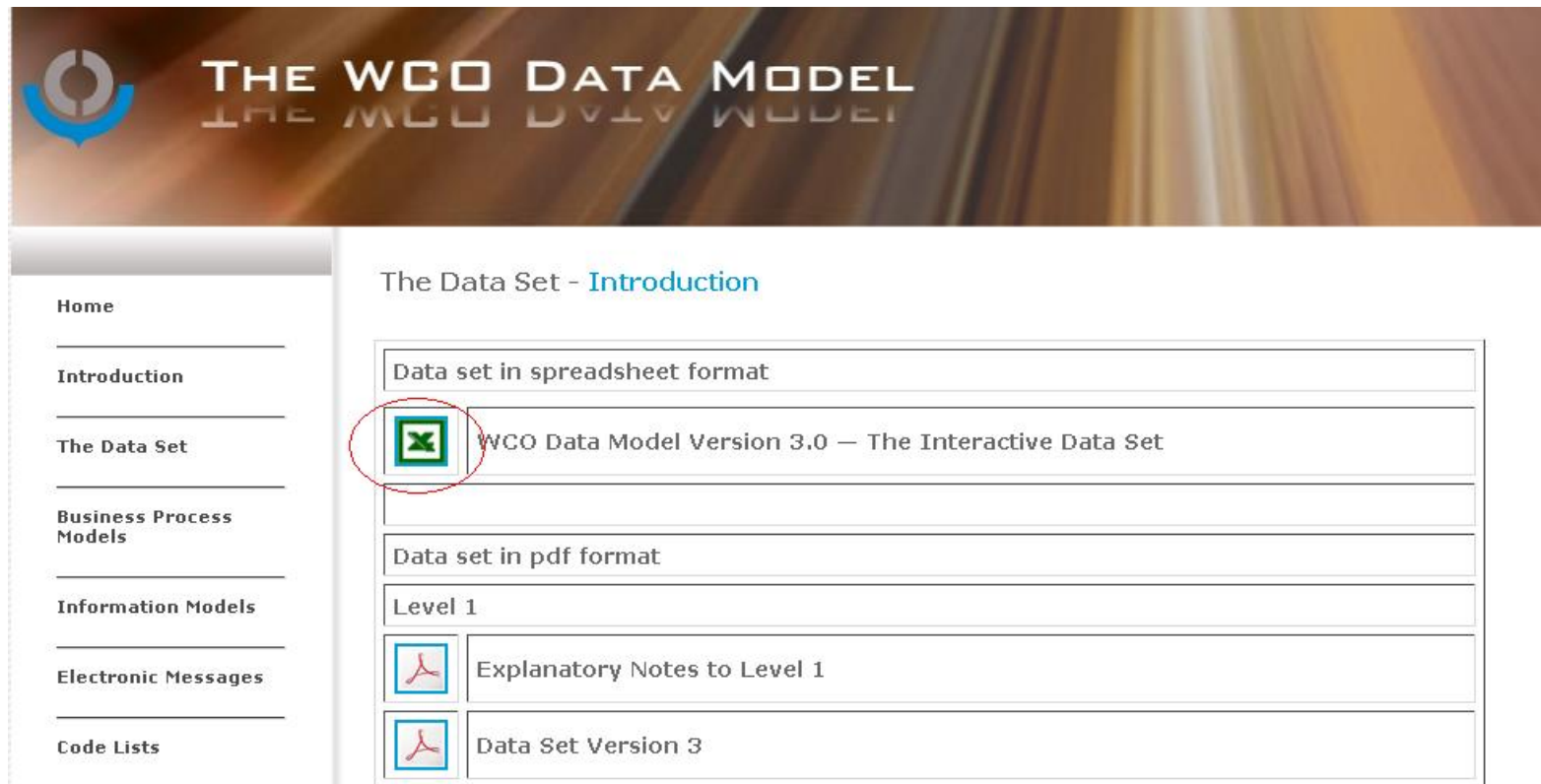
To map the data elements in the compiled Data Dictionary with the semantically equivalent data element in Reference Data Model (example here is WCO DM).

- ❑ The **WCO Data Model** describes the same data with the detailed structure and precision required for automated information processing
- ❑ The corresponding data element in the WCO Data Model is identified with the **WCO ID**, an alphanumeric unique identifier of the data element in the Data Model.
- ❑ The WCO ID should be included in the compiled Data Dictionary.



Mapping Process (1)

WCO Data Model 3.0 with Link to interactive Data Set



The WCO DATA MODEL

THE WCO DATA MODEL

Home

Introduction

The Data Set




Business Process Models

Information Models

Electronic Messages

Code Lists

The Data Set - [Introduction](#)

Data set in spreadsheet format	
	WCO Data Model Version 3.0 — The Interactive Data Set
Data set in pdf format	
Level 1	
	Explanatory Notes to Level 1
	Data Set Version 3

Click the **green icon** to open the Excel file
“WCO Data Model Version 3.0 – The Interactive Data Set”

Mapping Process (2)

WCO Interactive Data Set with UNTDED UID and WCO ID

WCO details				Import	Export	Conveyance	Transit	Response	WCO details		UNTDED Details		DENS	SAFE
WCO ID	Name	Definition	Data Model Classes						Format	Code remarks	UID	Name		
137	Description of goods	Plain language description of the nature of a goods item sufficient to identify it for customs, statistical or transport purposes.	Commodity	X	X		X		an..512		7002	GoodsItem.Description.Text		X
258	Commodity name	A name or a term that identifies the goods are assigned by a seller as distinct from those of other sellers, also known in legal terms as trademark. A brand helps to identify one item, a family of items, or all items of that seller.	Commodity	X	X				an..35		7002	Goods Item.Description.Text		

- **“UID”** column identifies the UNTDED tag of the data element
- **“WCO ID”** column identifies the corresponding WCO ID.

Different Mapping Cases to Deal With

When mapping to the WCO Data Model, a data modeler need to deal with the following cases:

- One TDED Data Element maps to exactly one WCO Data Element
- One TDED Data Element maps to more than one WCO Data Elements
- One TDED Data Element does not have a direct mapping to a WCO Data Model



One TDED Data Element maps to exactly one WCO Data Element

- ❑ For example, the data element in box “Marks and numbers on packages” of the CoO, in the Data Dictionary Table below, is mapped to “TDED 7102”

Document Title	Certificate of Origin			
Document Purpose	A Certificate of Origin is a document/message identifying goods, in which the authority or body authorized to issue it, certifies expressly that the goods to which the certificate relates originate in a specific country.			
Name of Document Owner	Ministry of Commerce, Thailand			
Data Element Name	Data Element Definition	Format	MinOccur	MaxOccur
Exporter (name and address)	TDED 3336: Name (and address) of the party consigning the goods as stipulated in the contract by the party ordering the transport (This may be the exporter or seller.)	an..256	1	1
Consignee (name and address including country)	TDED 3132: Name and address of party to which goods are consigned	an..256	1	1
Marks and numbers on packages	TDED 7102: Marks and numbers identifying individual packages	an..512	1	unbounded

- ❑ Search the column “UID” with a TDED tag “7102” to obtain one single WCO Data Element and find the corresponding “WCO ID 142” from the WCO Interactive Data Set

WCO details				Import	Export	Conveyance	Transit	Response	WCO details		UNTDDED Details		DENS	SAFE
WCO ID	Name	Definition	Data Model Classes						Format	Code remarks	UID	Name		
142	Shipping marks	Free form description of the marks and numbers on a transport unit or package.	Packaging	X	X		X		an..512	UNECE Recommendation 15	7102	GoodsItem.ShippingMarks.Text		

One TDED Data Element maps to more than one WCO Data Element

WCO details				Import	Export	Conveyance	Transit	Response	WCO details	UNTDDED Details		DENS	SAFE
WCO ID	Name	Definition	Data Model Classes						Format	UID	Name		
137	Description of goods	Plain language description of the nature of a goods item sufficient to identify it for customs, statistical or transport purposes.	Commodity	X	X		X		an..512	7002	GoodsItem.Description.Text		X
258	Commodity name	A name or a term that identifies the goods are assigned by a seller as distinct from those of other sellers, also known in legal terms as trademark. A brand helps to identify one item, a family of items, or all items of that seller.	Commodity	X	X				an..35	7002	Goods Item. Description.Text		

- ☐ In the WCO Data Model one TDED element can be mapped to several WCO ID's.
- ☐ A data modeler needs to analyse how the data element is used in the trade document and decide which of the two mappings provides the best match.

One TDED Data Element does not have a direct mapping to a WCO Data Element

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	WCO details				Import	Export	Conveyance	Transit	Response	WCO details		UNTDDED Details			
	WCO ID	Name	Definition	Data Model Classes						Format	Code remarks	UID	Name	DENs	SAFE
45	105	Free text	Free text field available to the message sender for information.	AdditionalInformation	X	X	X	X		an..512		4440	FreeText.Text		
157	225	Additional statement text	Description of an additional statement	AdditionalInformation	X	X		X	X	an..512	Certificate text	4440	FreeText.Text		
172	304	Criteria conformance text	A statement indicating specific conformance with statutory and regulatory requirements	Commodity	X					an..512		4440	FreeText.Text		
229	362	Package filler description	Free text description of the material found within a package used to cushion the commodity or otherwise empty space	CommodityRelatedPackaging	X					an..256		4440	Free text subject code		
231	364	Ship-to-ship activity	Text description of ship-to-ship activity.	BorderTransportMeans			X			an..256		4440	Free Text.Text		

For the data element that cannot be directly mapped to the WCO DM, all related data elements of the WCO DM 3.0 are mapped to the generic TDED data element instead.

Output: Data Dictionary with Mapping to WCO Data Model

Example of Data Dictionary of Certificate of Origin (CoO) Mapped to WCO Data Model 3.0

ASEAN ATIGA FORM D Data	WCO ID	Data model Classes	WCO Dictionary Entry Name
0-1 Reference Number TED 1004: Reference number identifying a specific document. an..35 (Min=1, Max=1)	D014	Declaration	Declaration. Identification. Identifier
1 Goods consigned from (Exporter's business name, address, country) TED 3036: Name (and address) of the party consigning the goods as stipulated in the contract by the party ordering the transport (This may be the exporter or seller.) (Min=1, Max=1)	R031	Exporter	Exporter. Name. Text
2 Goods consigned to (Consignee's name, address, country) TED 3132: Name and address of party to which goods are consigned an..256 (Min=1, Max= 1)	R037	Importer	Importer. Name. Text
3-1 Departure date TED 2380: Date and optionally time of the departure of the goods from original consignor. an..35 (Min=1, Max= 1)	030	GoodsShipment	GoodsShipment. Departure. Datetime
3-2 Vessel's name/aircraft etc. TED 8212: name of specific means of transport such as vessel name an..35 (Min=1, Max= 1)	T001	ArrivalTransport Means	ArrivalTransportMeans. Name. Text
3-3 Port of discharge TED 3224: Name of a location an..256 (Min=1, Max=1)	L012	UnloadingLocation	UnloadingLocation. Name. Text
4 For official use (Declaration Type) TED 1001 : Code specifying the name of a document. an..3 (Min=1, Max=1)	D013	Declaration	Declaration.Type. Code
5 Item No. TED 1050: Number indicating the position in a sequence n..10 (Min=1, Max=1)	006	Commodity	Commodity. Sequence. Numeric

In Summary

- Harmonization of data used in trade documents and their alignment with international standards would **help to automate and streamline trade procedures in an interoperable manner**.
- Streamlined trade procedures and documents could help in **time and cost savings** resulting in improvement in trade and competitiveness.
- Data harmonization is an essential step for development of a system for electronic data sharing and exchange.
- In the context of trade facilitation, the scope of data harmonization **covers data requirements of all stakeholders** in the international supply chain.
- The outputs of data harmonization provide **one standard data set** for further development of an individual system that **helps ensure data exchange and interoperability** at the semantic level.

Thank you

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