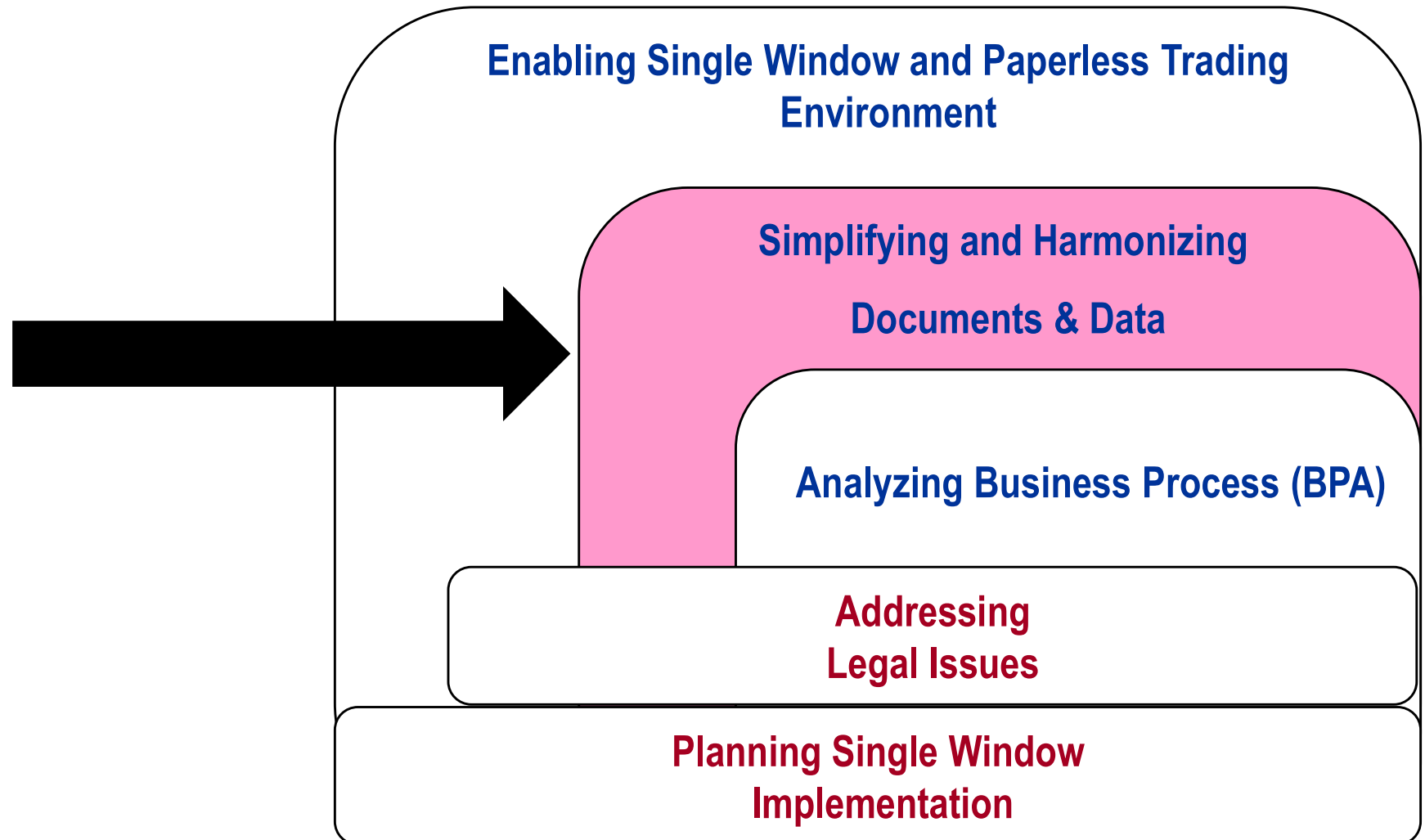


Introduction to Data Harmonization and Modelling

19 - 28 September 2022
Seoul, Republic of Korea

Sangwon Lim
Special Advisor
UNNExT

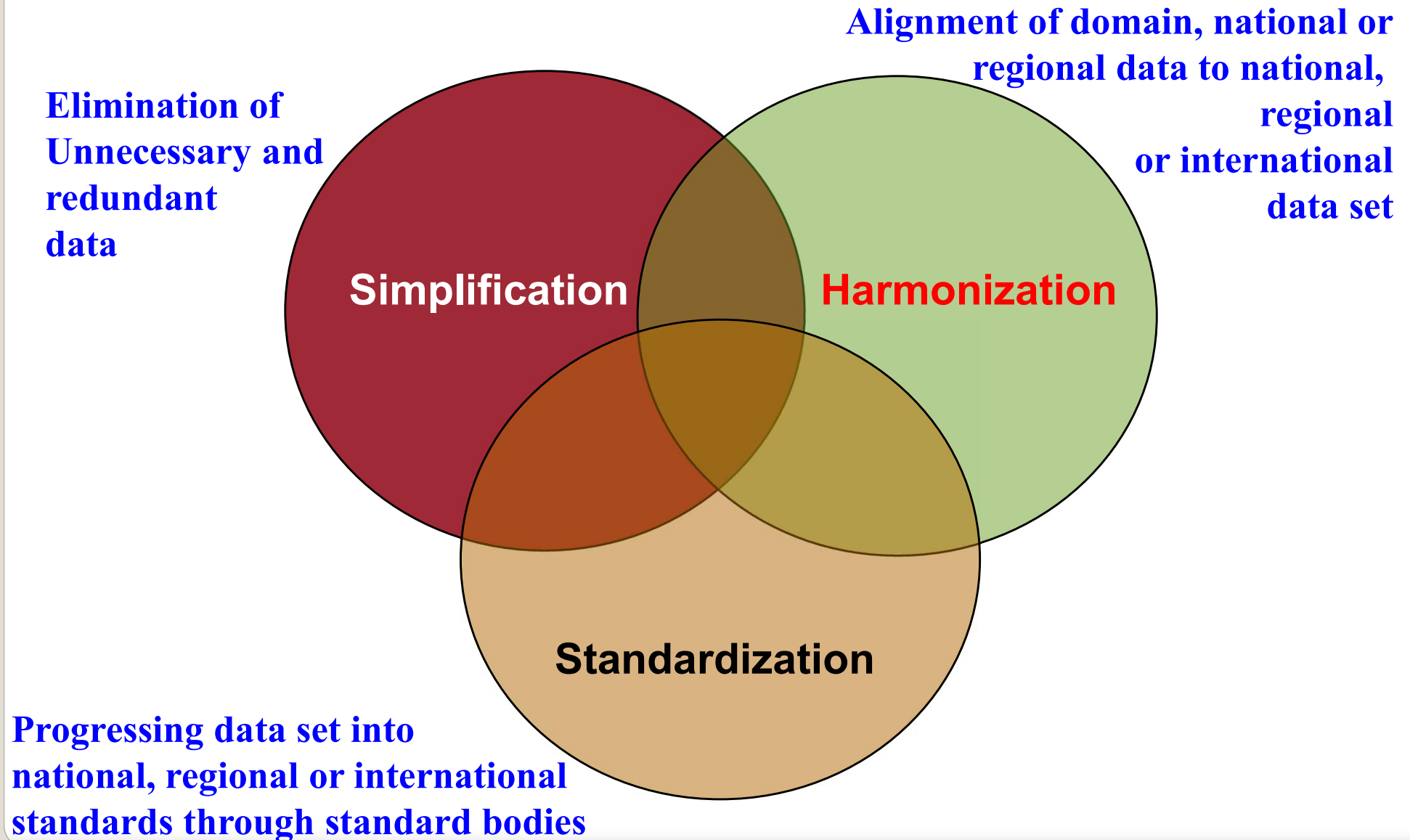
Data Harmonization and Modeling: Where does it fit in SW and paperless trade implementation?



Data Harmonization and Trade Facilitation

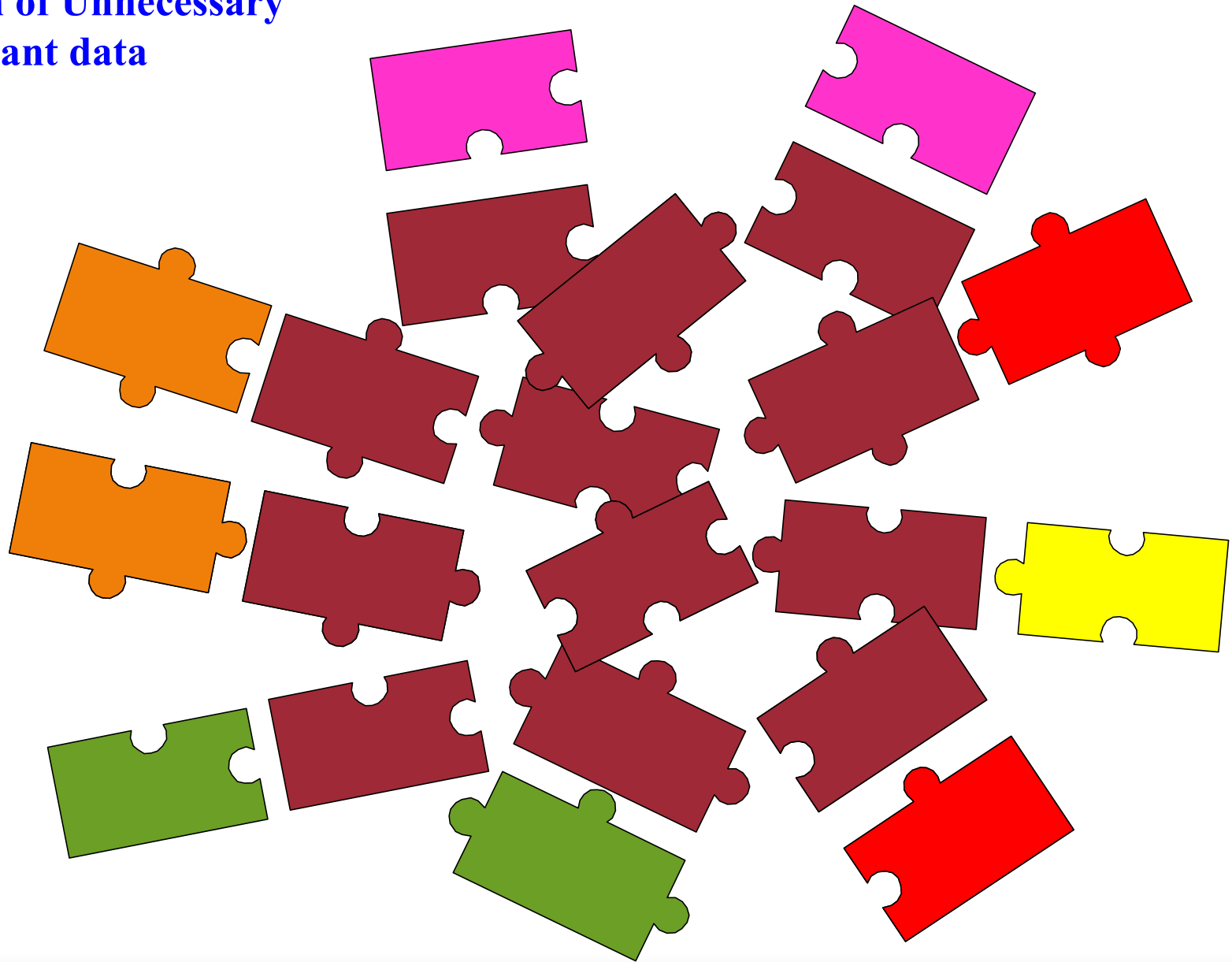
Trade Facilitation	APEC (Woo and Wilson, 2000)	OECD (OECD, 2002)	UNECE (UNECE, 2002; OECD, 2002)	WB (World Bank, 2005)	WTO (WTO Website, 2005; OECD 2002)
The simplification and harmonization of trade Procedures	✓	✓	✓	✓	✓
The harmonization and standardization of information and information flows associated 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



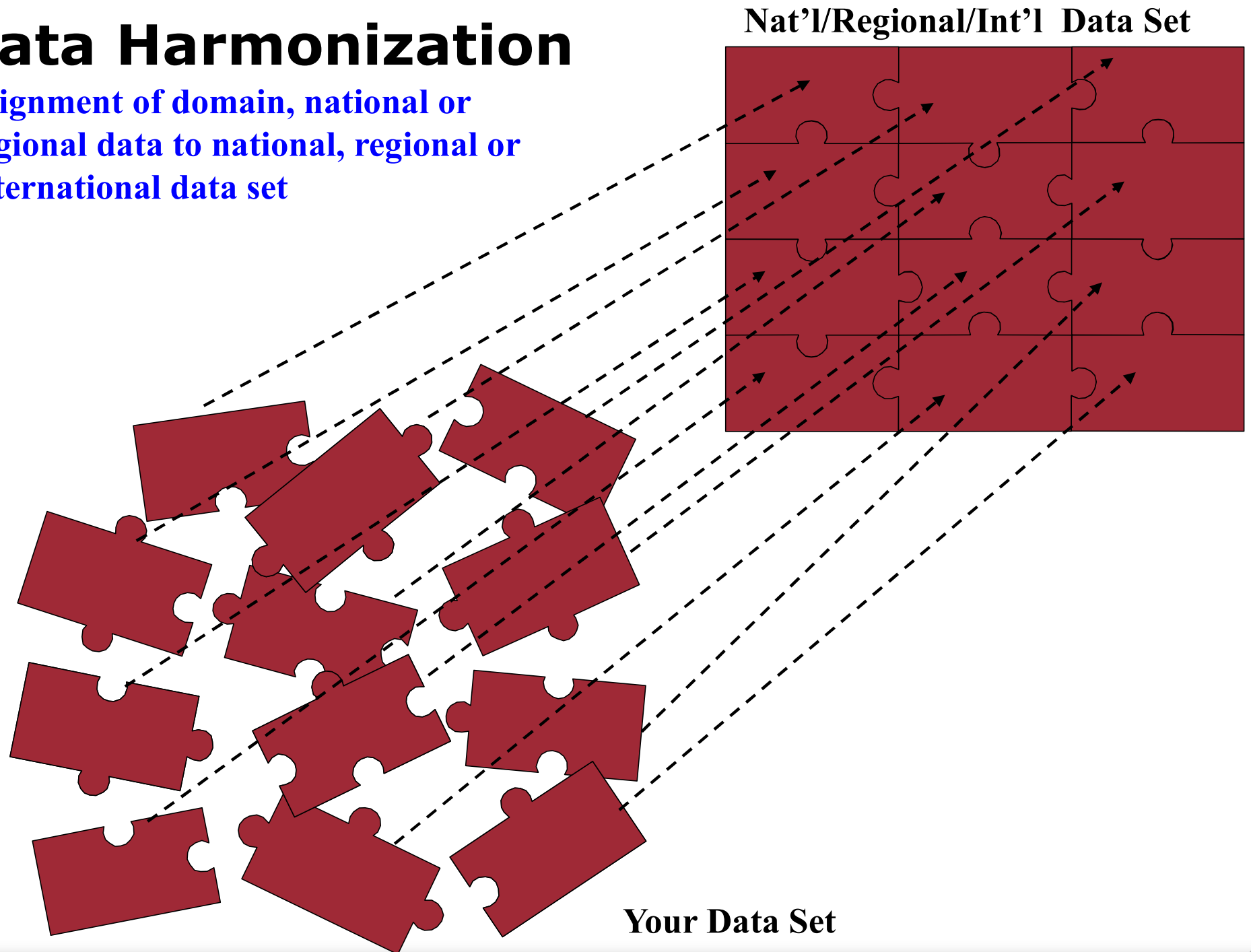
Data Simplification

Elimination of Unnecessary
and redundant data



Data Harmonization

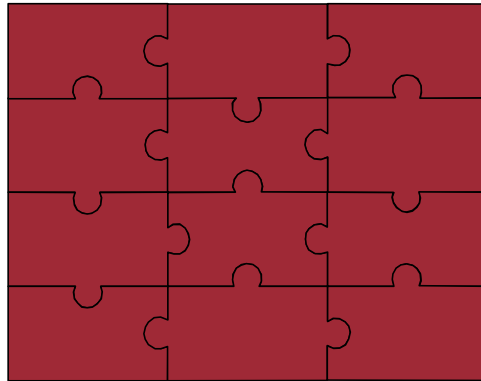
Alignment of domain, national or regional data to national, regional or international data set



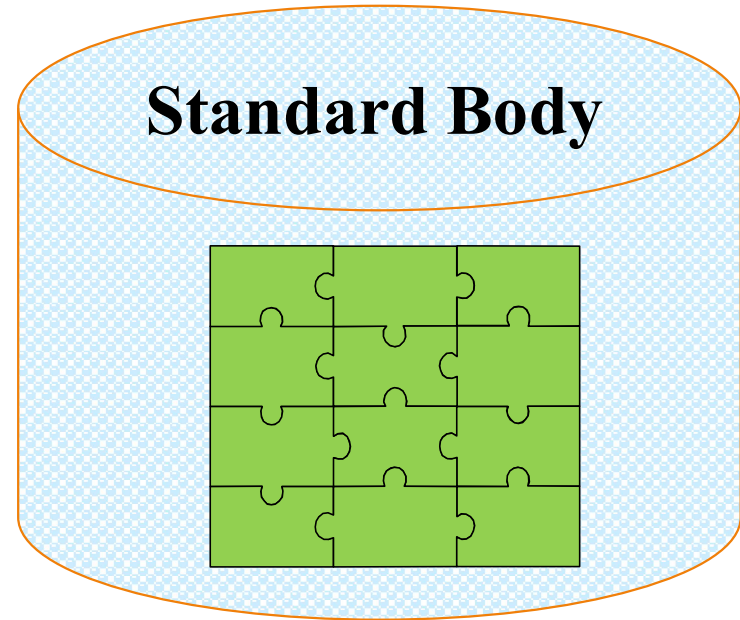
Data Standardization

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

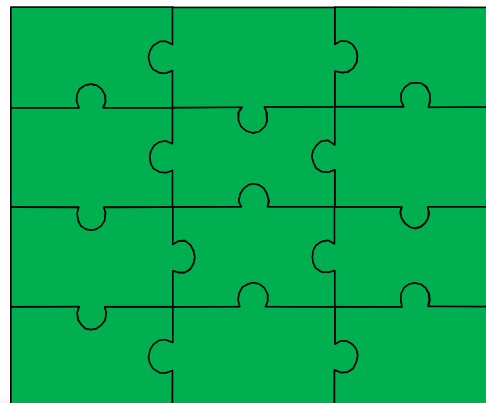
Harmonized Data



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)

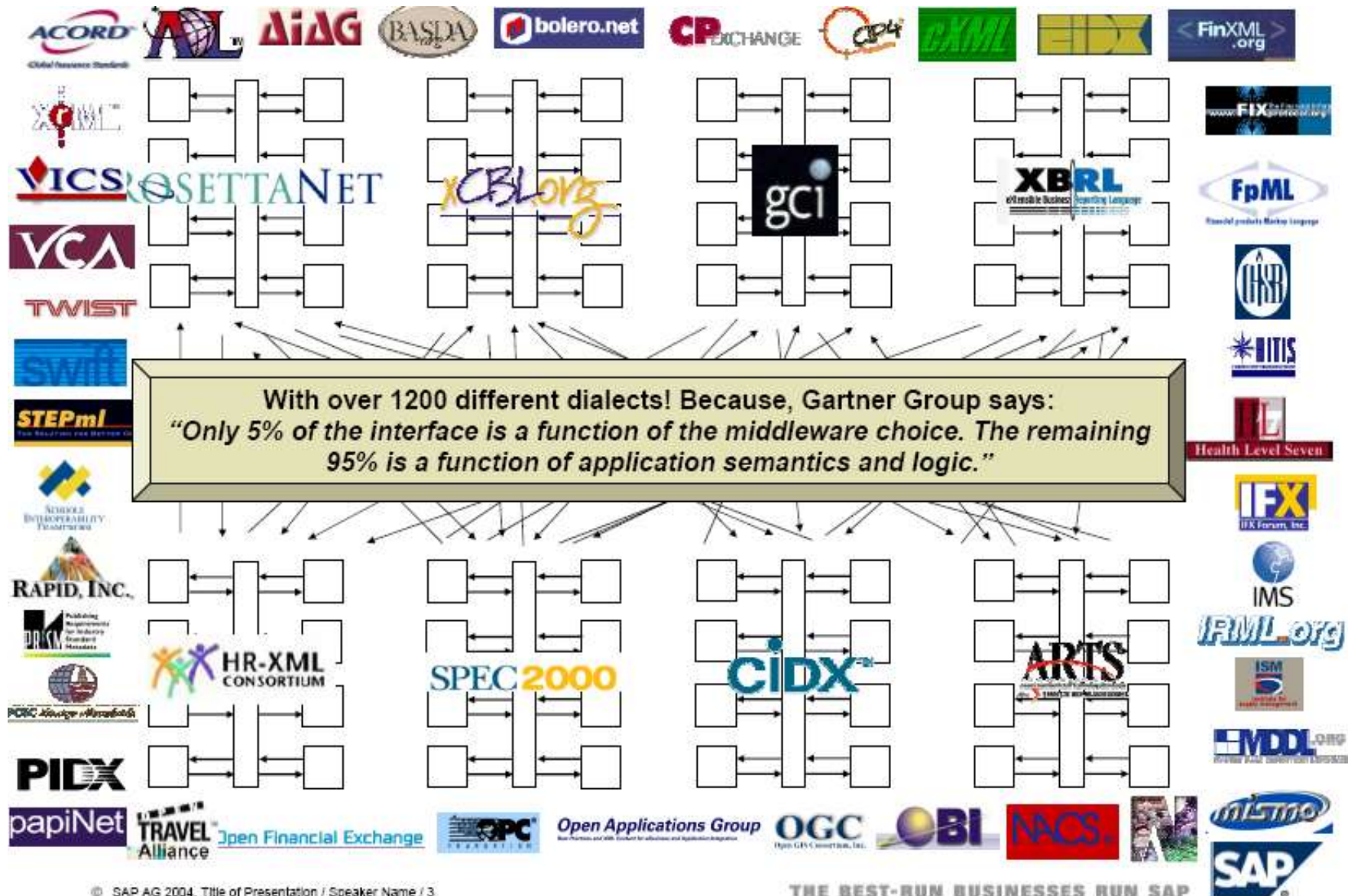
Definition \ Source		Certificate of Product Standards	Phytosanitary Certificate	Certificate of Origin
Core Data Element 1	The first point of arrival in the country of final destination*	Place of destination	Declared point of entry	Destination (Place)
Core Data Element 2	Free form description of the marks 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

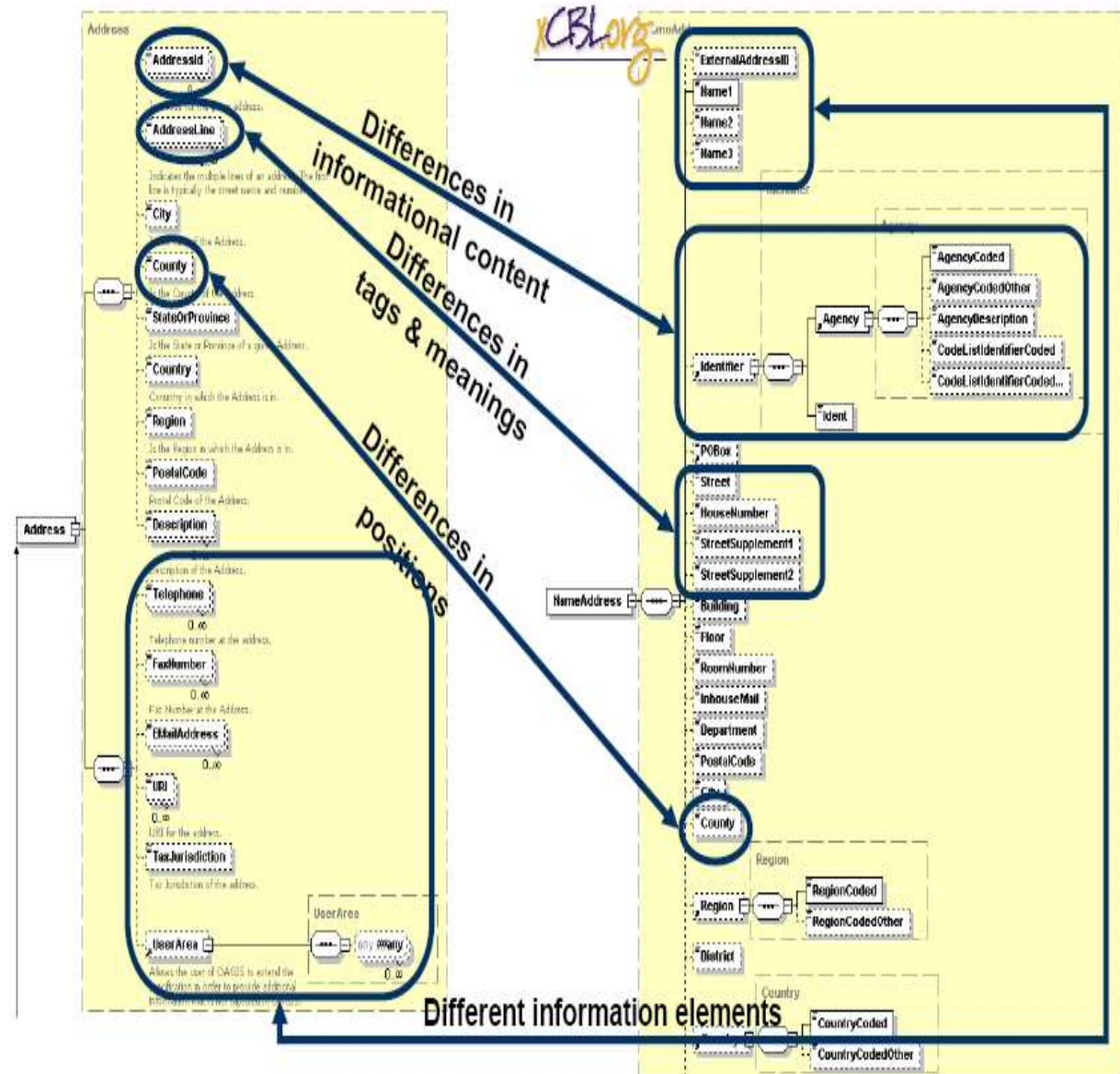


Why Data Harmonization?

Problems in Data Interoperability

Various representation formats of data

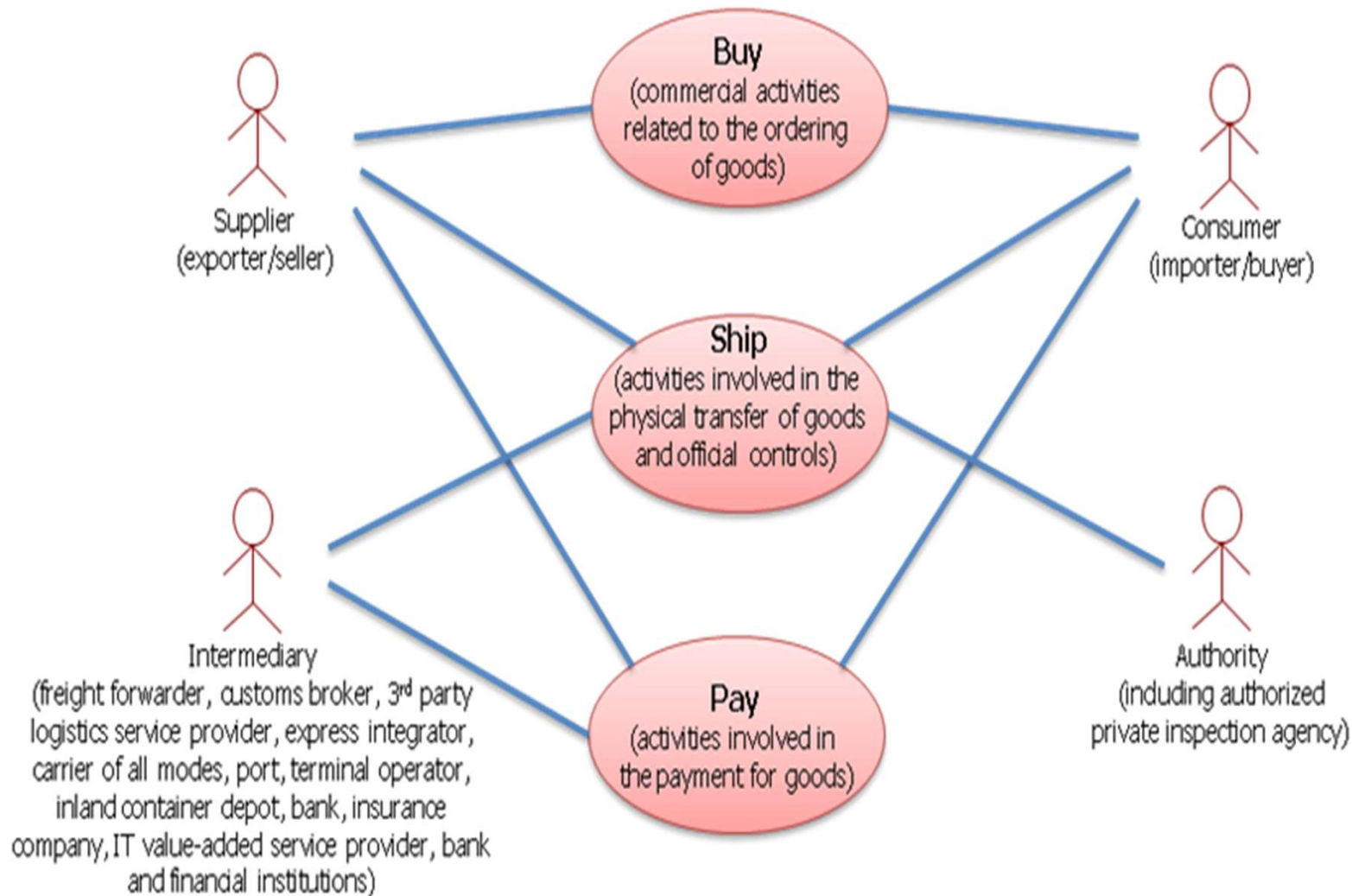
- DD/MM/YY
20/08/10
- DD/MM/YY (Buddhist year)
20/08/53
- DD-MM-YYYY
20-08-2010
- MM/DD/YY
08/20/10
- MM-DD-YYYY
08-20-2010
- YYMMDD
100820
- YYYYMMDD
20100820
- YYYY-MM-DD
2010-08-20
- DD MONTH YYYY
20 August 2010
- MONTH DD, YYYY
August 20, 2010



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	
		Pay	Payment	Application for Letter of Credit Letter of Credit Credit Advice Debit Advice Remittance Advice	

Outputs of Data Harmonization

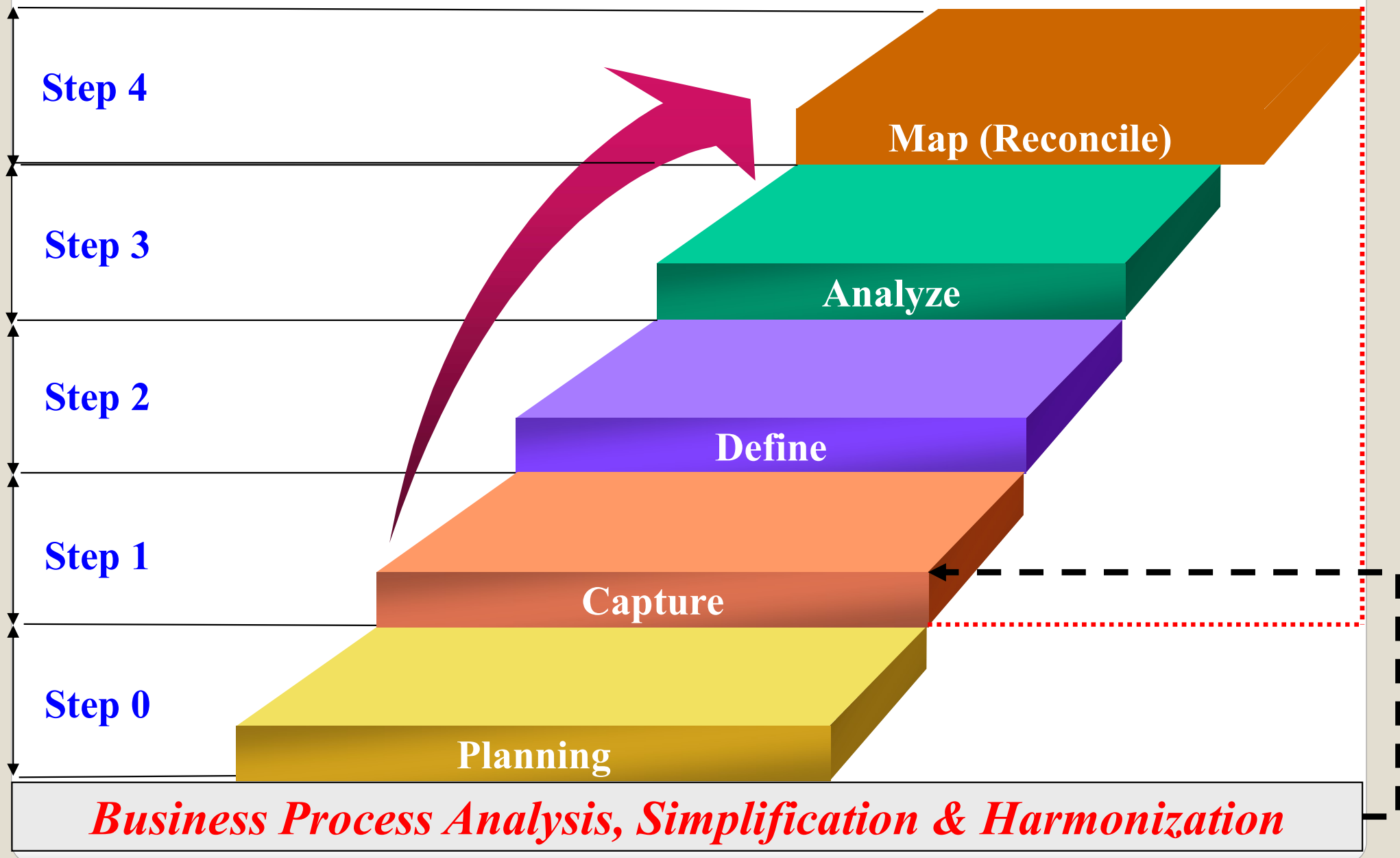
- ◆ A list of documents and electronic documents or messages that fall into the scope of the data harmonization project
- ◆ A set of Data Dictionaries that corresponds to the identified list of documents and electronic documents or messages
- ◆ National Standard Data Set that 1) consolidates data requirements 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?



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