

WCO Data Model 3.1

Harmonised Data Requirements
& Standardised Messaging
For the Single Window

**Rotterdam
10 November 2010**



SP SAHU

World Customs Organization





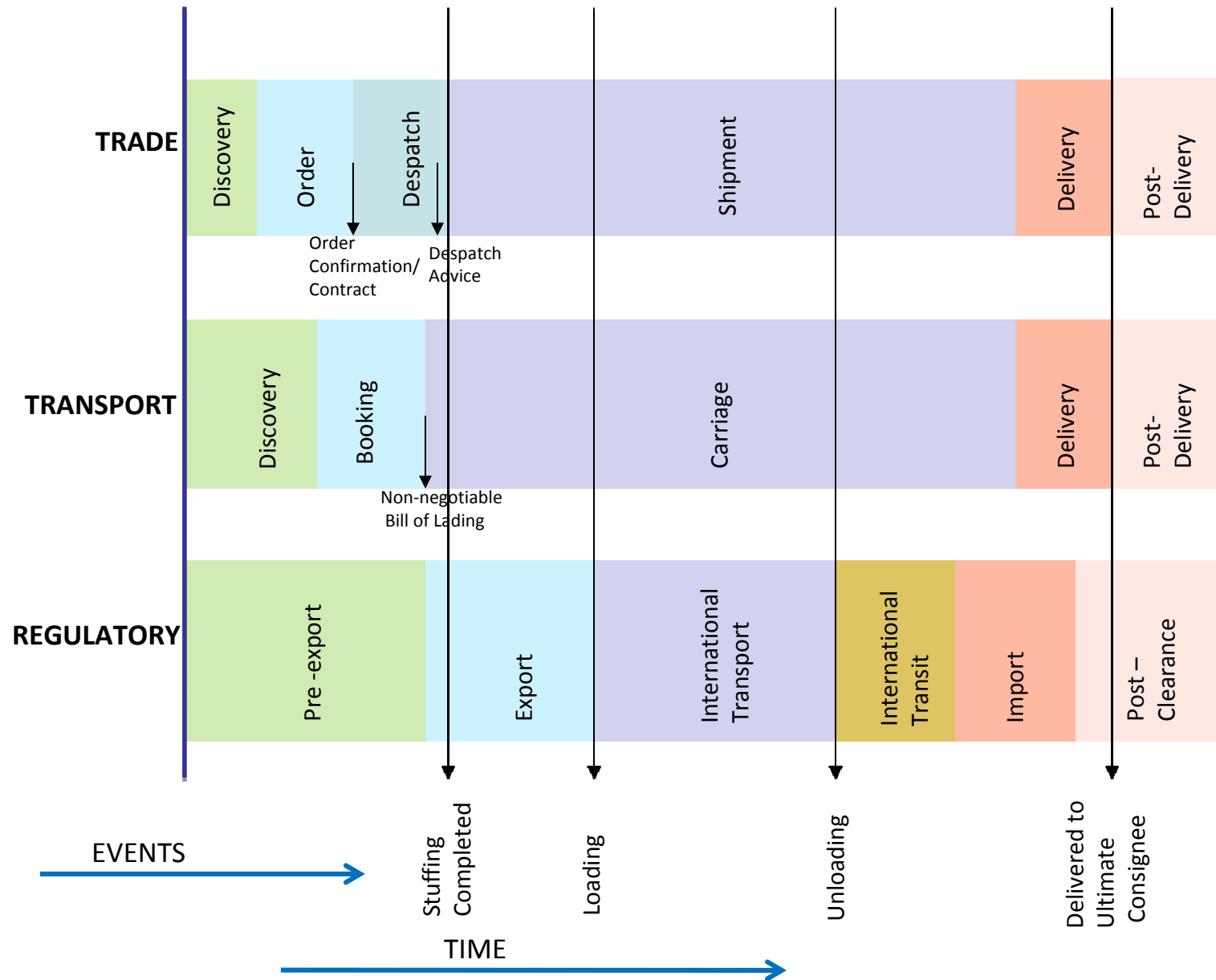
Facilitated Trade implies ...

- Reducing costs to trade
- Improving efficiencies in moving goods across borders
- Improving the service experience through:
 - Simplified regulatory interface
 - Simplified and harmonized procedures
 - Efficient collection and processing of regulatory data
 - Reliable, predictable, corruption-free behaviour
- Appropriate design of regulatory services
- Harmony between Trade, Transport and Regulatory procedures





Trade Transport & Regulatory procedures





Modeling in WCO Data Model

- **Identification of simple and generic business processes**
 - Using Revised Kyoto Convention (RKC)
 - To describe domain boundaries and scope –
 - Detailed enough to describe functionality but not specific enough
 - Only relevant high-level templates used
- **Regulatory forms and EDI messages used as basis**
 - Starting with G7 Countries Version 1.0
 - Subsequent versions built based on Data Maintenance Request
 - Driven by coverage of business processes
 - Version 1.0 covers import and export of goods and cargo
 - Version 2.0 additionally covers European transit and conveyance
 - Version 3.0 additionally covers all transit, Response and OGA
 - Release 3.1 is an improvement over Version 3.0
- **Data Set developed based on Data Maintenance Request processing**
 - Consisting of domain attributes
 - Organized according to object classes/ procedures in which they are used
 - Organized by procedures in which they are required





Modeling in WCO Data Model -contd

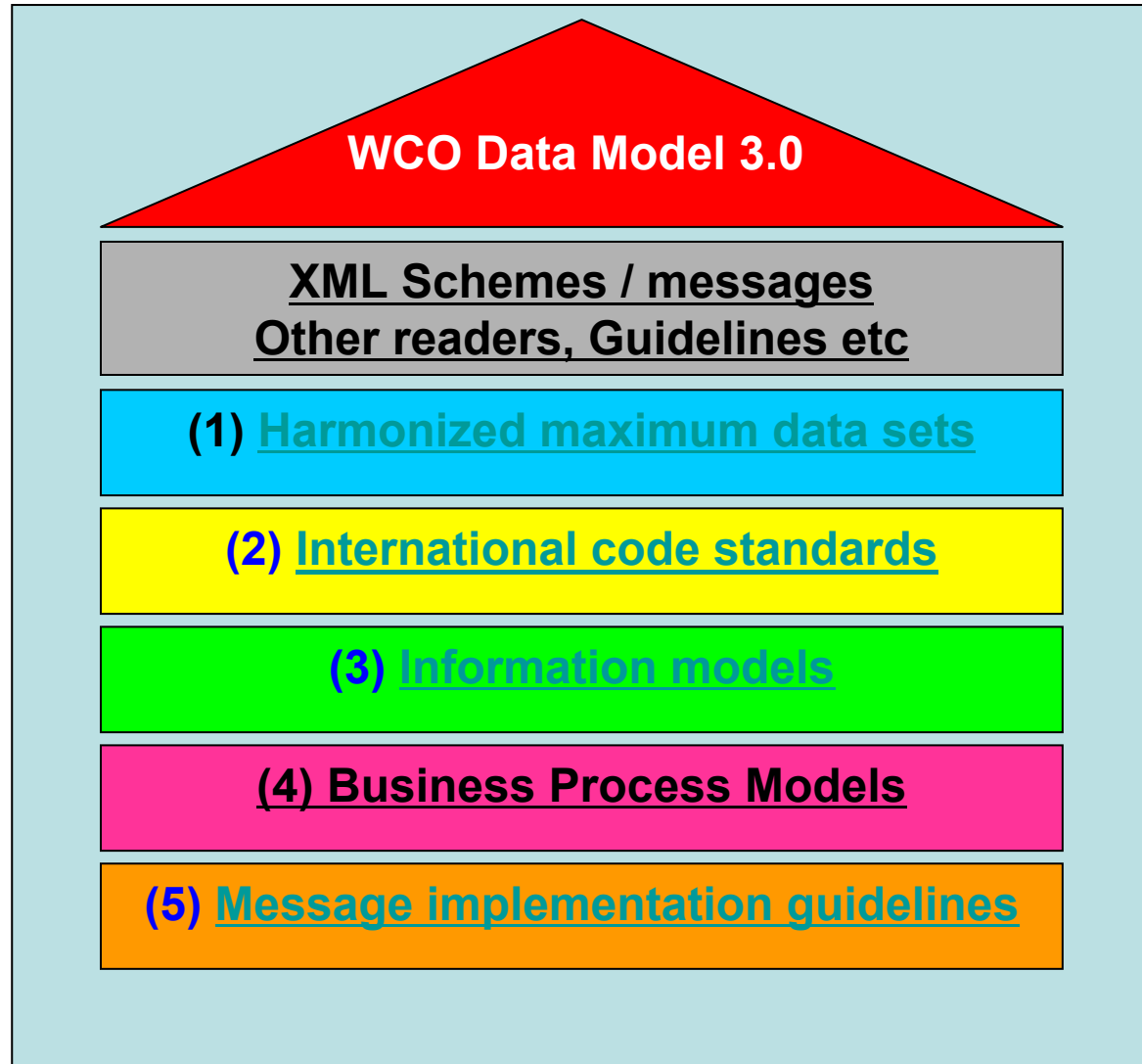
- UML modeling - Tool → UML 2 based
 - Classes/ attributes identified
 - Overall class diagrams is developed
 - Procedures –wise Class diagrams are developed
 - Associations (cardinality) re-defined based on Declaration as the root-class
 - Association names assigned
 - Re-usableSuper classes identified
- Message development -
 - Core Data Types defined
 - Matched with standards libraries (UNTDDED/ EDIFACT)
 - Hierarchical Model developed for each procedure
 - Overall Hierarchical Model developed
 - **EDIFACT Message developed based on overall model**
 - **XML profiles developed**





WCO Data Model Components

Data Model





Why is WCO DM Important?

Data Model ↔ Blueprint

- If a system is a Building then a data model is its blueprint and business processes are a way of using the building.
 - Especially crucial for electronic interfaces for document and data exchange
 - Establishes unvarying underlying structures
 - These are more stable than process-defined views
- Corporate Data Model is a key artifact in Systems Development lifecycle
- Corporate Data Model is an investment. It is
 - Logical structures that help organize information for the long term
 - The thought invested in planning a structure
 - Flexible enough to suit *changing* process-possibilities
 - An insurance against re-work and retro-fitment costs
 - Reference model for Trader and Other Government Agencies





'Data Modelling' & Database Design

Domain // Conceptual

Identify domain entity types, attributes

- Establish Standard naming conventions
- Map with industry domain models
 - International data Standards
 - Data definitions
 - Data representations
 - Code-lists
- Choose modeling techniques
 - E-R Diagrams
 - UML Models
- Identify relationships
 - Industry Domain standards
 - WCO UML Model
- Develop external messages
 - International Standard messages / EDIFACT/ XML

WCO DATA MODEL

Database Design // Physical

- Apply data model patterns (object-relational?)
- Detailed design – assign table spaces and keys
- Normalize – De-normalize
 - (Balance between low data redundancy and high performance)





How to use WCO Data Model?

- Develop a national database of:
 - Border regulation laws/ codes
 - Government Agencies interested in border regulation
 - Cross-border Regulatory forms
 - Regulatory data in electronic messages
 - Code-lists
 - Data used in procedures/ administrative data
 - Derived from running databases
- Produce mapping between national databases and international standards
 - WCO Data Model
 - UNTDED & UNCEFACT - Core Component Library (CCL)
 - Note – WCO DM is being aligned with UNCEFACT CCL and
- Use WCO Data Model definitions, representations and code lists
- Use WCO EDIFACT and XML structures
 - Preferably, use WCO element naming
- Use extensions of WCO DM if absolutely necessary as per national legislations
 - Submit data maintenance requests to WCO Data Model project team





The GOVCBR

- A flexible EDIFACT compliant message
- Helps compose specific messages for a specific purpose
- “Mini” message for a simplified procedure or a “compound message” for an export = import message)
- Submission of the legally required data only once (a key condition for a SW)
- The message can be transmitted in several parts.
- Caters for the legal requirements for:
 - Customs and Statistics.
 - Immigration (Crew),
 - Environment protection (Basel Convention),
 - Marine Safety,
 - Agriculture,
 - Food safety





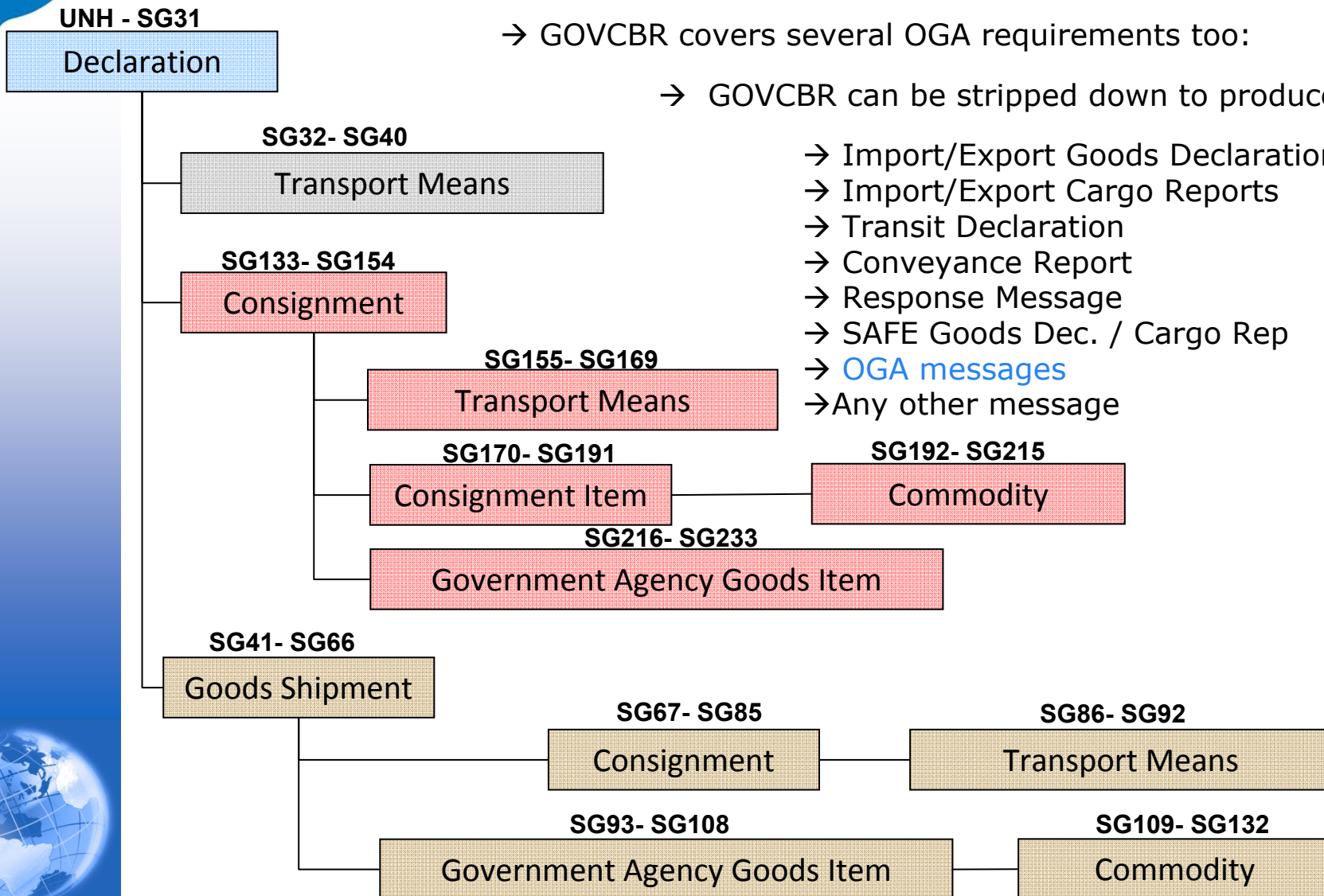
STRUCTURE OF GOVCBR

→ GOVCBR message represents the whole of the Data Model

→ GOVCBR covers several OGA requirements too:

→ GOVCBR can be stripped down to produce:

- Import/Export Goods Declaration
- Import/Export Cargo Reports
- Transit Declaration
- Conveyance Report
- Response Message
- SAFE Goods Dec. / Cargo Rep
- **OGA messages**
- Any other message





Principles of Single Submission

- Submit information only once:
 - Submitted information in parts -
 - In ‘small’ messages – or snippets
 - At the earliest available opportunity
 - From the responsible party that has it first
 - Use of multiple transmissions
 - Use ‘key fields’ to link-up different transmissions
 - Maintain data integrity and authentication
 - Ensuring that legal requirements are met in this regard.
 - Time-variant data may be re-submitted
 - It may changes during the transaction





Using GOVCBR

Header / Document Metadata

Key Fields

Govt. Procedure (s)

Control & Status

Transport Movement

Transport Means

Transport Equipment

Transport Contract Info

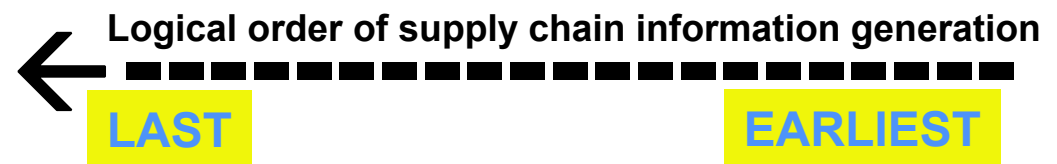
Goods Shipment Info

Transport Contract

Specific Regulatory Info

Invoice Information

Product / Product Instance

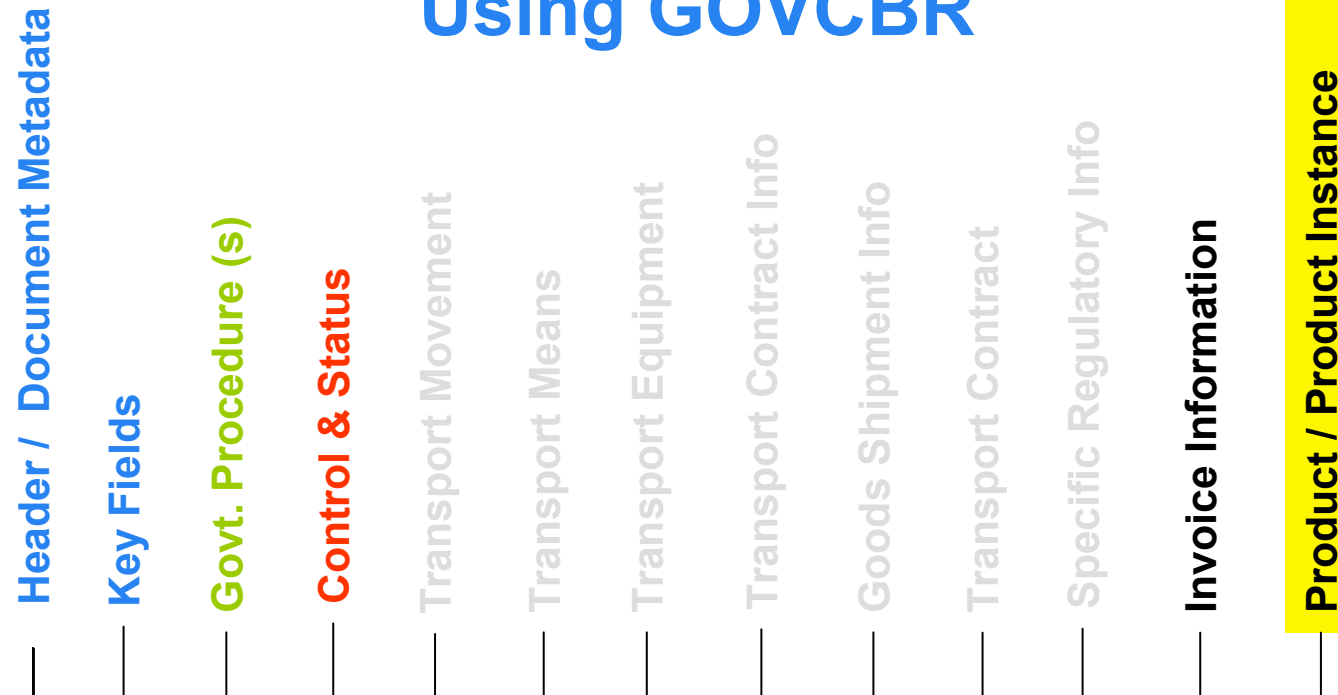


- Implications for Information Management in a SW
- Ideas for SW business processes
- **Small Messages for SW using GOVCBR**





Using GOVCBR



- **Regulatory & tariff information**
 - Query on regulatory regimes for a commodity
 - Duties & taxes by duty/tax type
 - Regulatory requirements for import or export etc.
 - Vital part of “Informed regulatory compliance” strategy





WCO Data Model; Top 4 Benefits

- Reduces costs to trade by simplifying data requirements
- Improves reporting and compliance by improving the quality of data
- A comprehensive reference on cross border regulatory data standards
- **Enables SW implementation**
 - Can be used as the basis for Data Harmonization
 - Includes data requirements from Customs, statistics, agriculture
 - Provides an electronic message solution for SW





- WCO SW Data Harmonization Guidelines

- Practical Tool for SW Developer
- Process Guidance on Data Harmonization

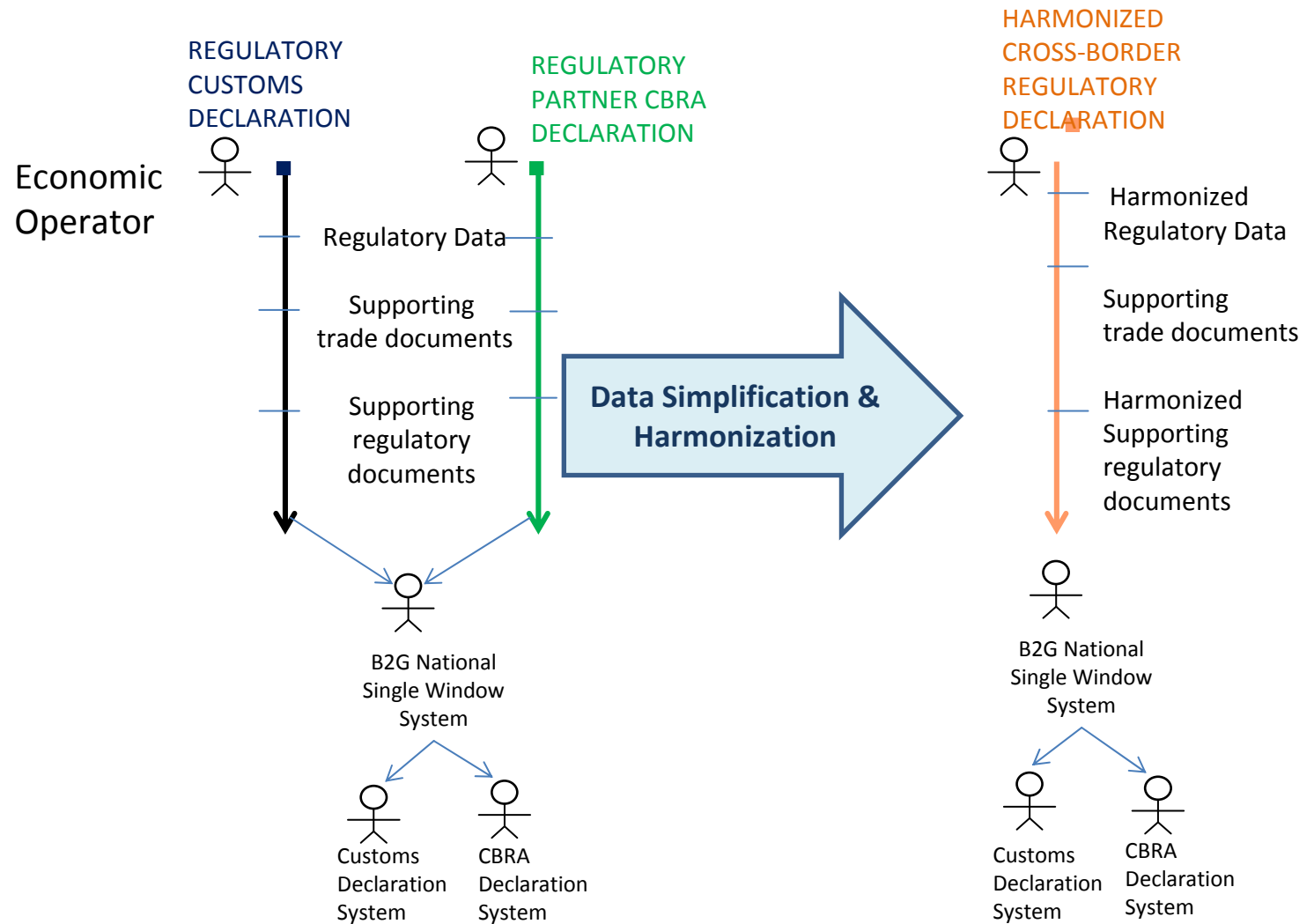
Data Capturing

Data Defining

Data Analysing

Data Reconciling







WCO tools for Single Window

- WCO Initial Functional Assessment

- Practical Tool for Customs
- Initial Assessment on data required by OGA
- Originally designed to identify functions of OGA in relation to WCO Data Model 3.0
- Also useful for initial stage of SW to identify stakeholders and their functions

Contents of Questionnaire

1. Demographic Information (Details of OGA)
2. OGA Functions/Capabilities (Import, Export, Post-Release, Enforcement ...)
3. OGA System Information





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Thank you for your kind attention.

**For more information please visit
the WCO Web site: www.wcoomd.org**

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WCO, Brussels

