

# Ghana National Single Window (GNSW)

## The Role of Data Models, Communication and Security Controls in a Single Window environment - Ghana Case

6 September 2016

This is a confidential document intended for the use and information of the client to whom it is addressed and implementing partners



-  **The Ghana Environment**
-  **The Role of Data Models, Communication and Security Controls**





**20+**

**Business  
Actor Groups**

(PGAs, Traders, Banks, Insurance,  
Security Agencies etc.)

**50+**

**Systems  
Actors**

(PAARS, GCMS, eMDA Portal, TOS,  
GICSS)

**200+**

**Document  
Processes**

(Import, Export, Transit,  
Transshipment, Warehouse, etc.)

**1**

**Harmonized  
Data set**

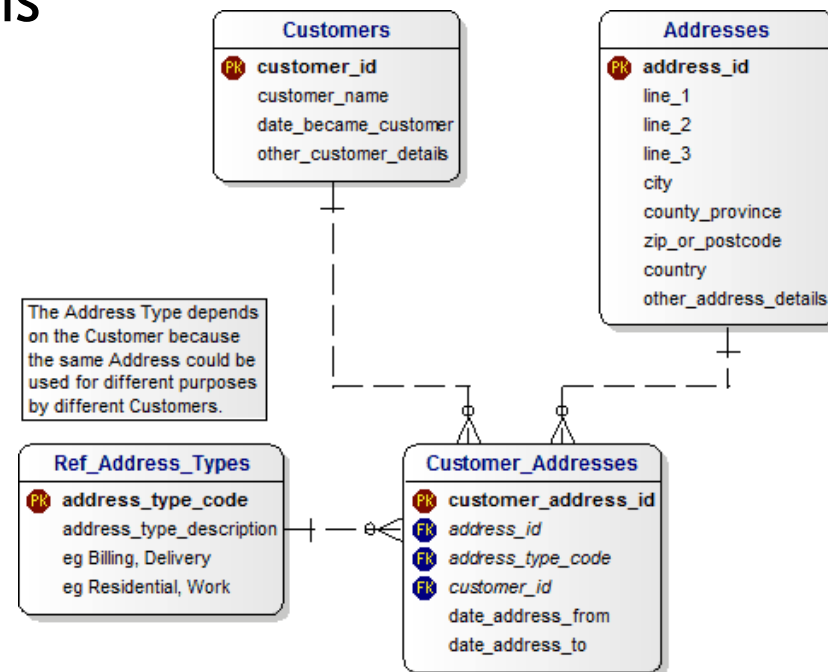
(2016. Reference: WCO Data Model)

- **Multiple documentation submission & data duplication**
- **Mostly paper-based processing & operations** (both front-end public services & internal workflow of the agency) - even though some documents available electronically.
- The current paper-based operations make it **difficult to validate the information within the paper documents (data validation)**, especially when handling paper documents from several Participating Government Agencies (PGAs).
- **Difficult, costly and time consuming work coordination** among several regulatory agencies and business stakeholders during trade facilitation/supply chain operations.
- **Varying ICT-readiness among Stakeholders**



- **Single submission**
- Business process re-engineering and process simplification
- Internal workflow automation for PGAs and Automatic electronic information exchange among PGAs
- Improved ICT Infrastructure.
- Capacity Building

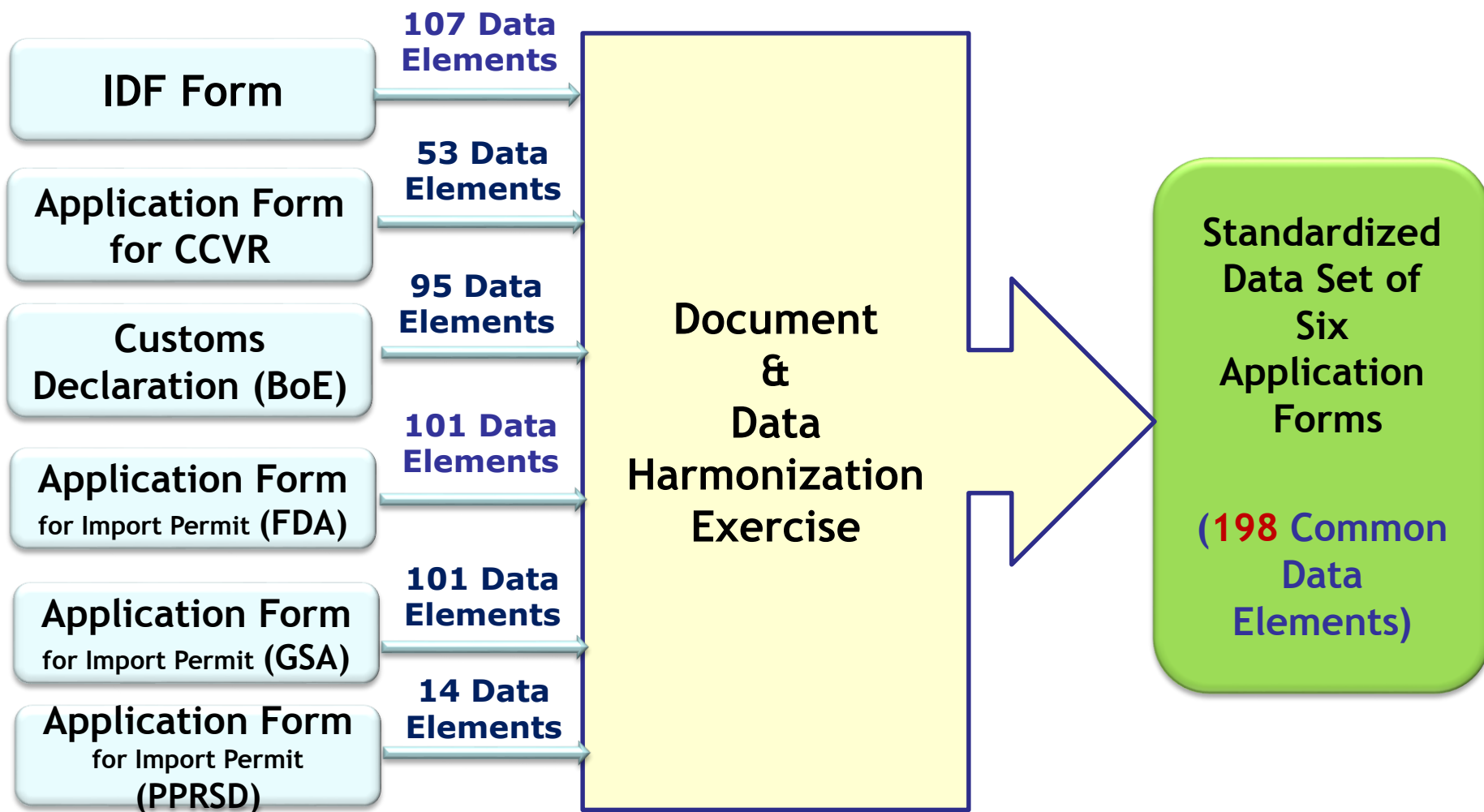
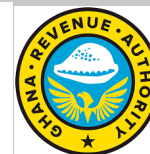
- A **Data Model** is an abstract model that **organizes** elements of **data** and **standardizes** how they **relate** to **one another** and to **properties** of the **real world**.
- Ensures **compatibility** of data and ease of **sharing** data across systems hereby reducing cost of systems
- Can be used as a **blueprint** for the **construction** of **new** software or for **re-engineering** a **legacy** application





- Assist in the definition of business rules.
- Assist to define **primary source** /ownership and **usage** (business processes) of each data element.
- Assist to enforce **control**, **confidentiality** and **integrity**.
- Reduce replication of data, data structure, and functionality, together with the attendant costs of that duplication in development and maintenance.

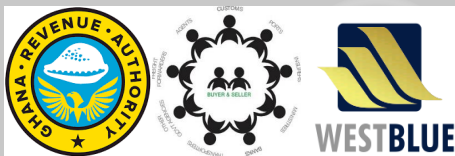
# Document & Data Harmonization of 6 documents (normally submitted by the Rice Importer/Agent)



**The harmonization exercise can reduce the number of data elements from 107+53+95+101+101+14 = 471 (of these 6 documents) to **198** common data elements.**



# Electronic Single Window Scenario for Rice Import (pre-arrival process)



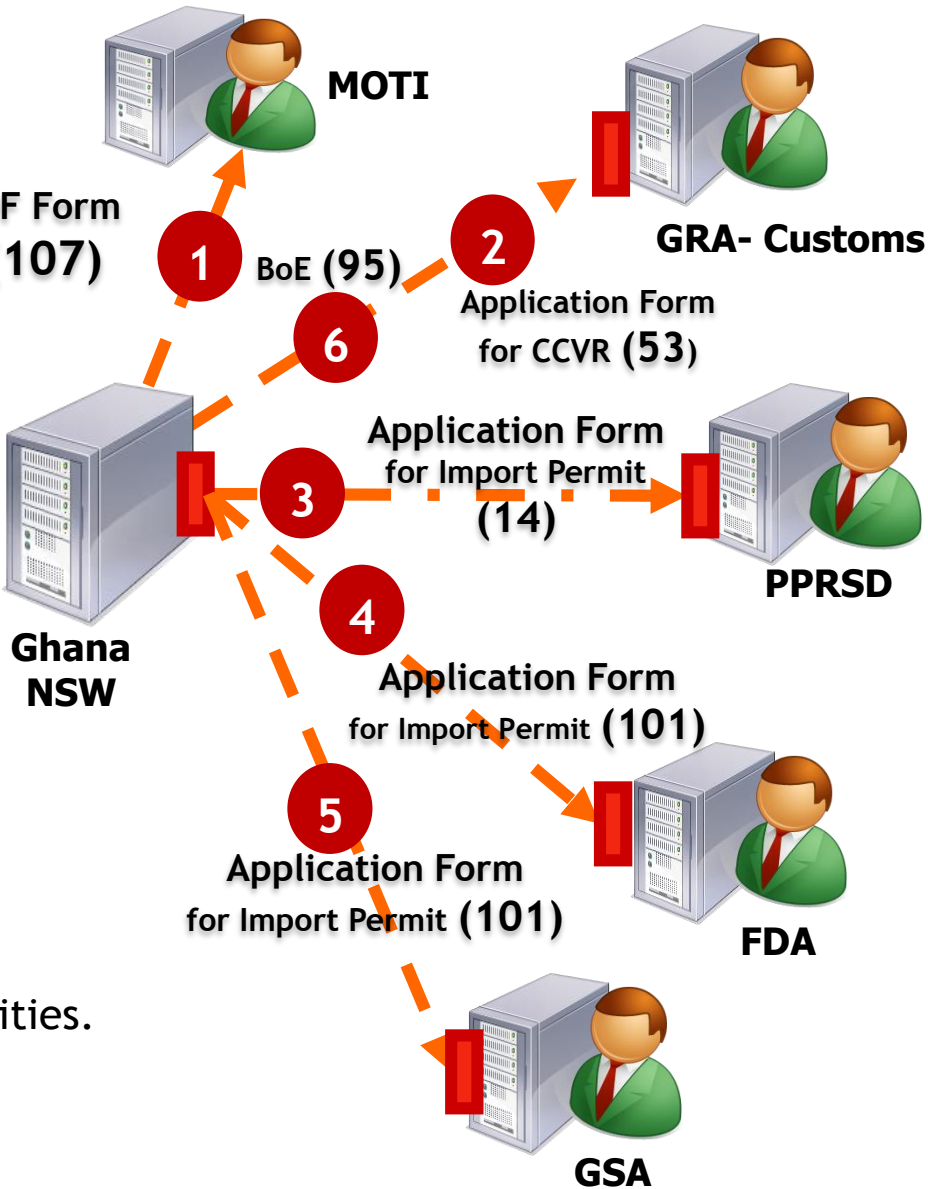
## Single Window Entry for Traders/Agents



Importer/Agent



Submitting electronically  
**198** data elements,  
each only once



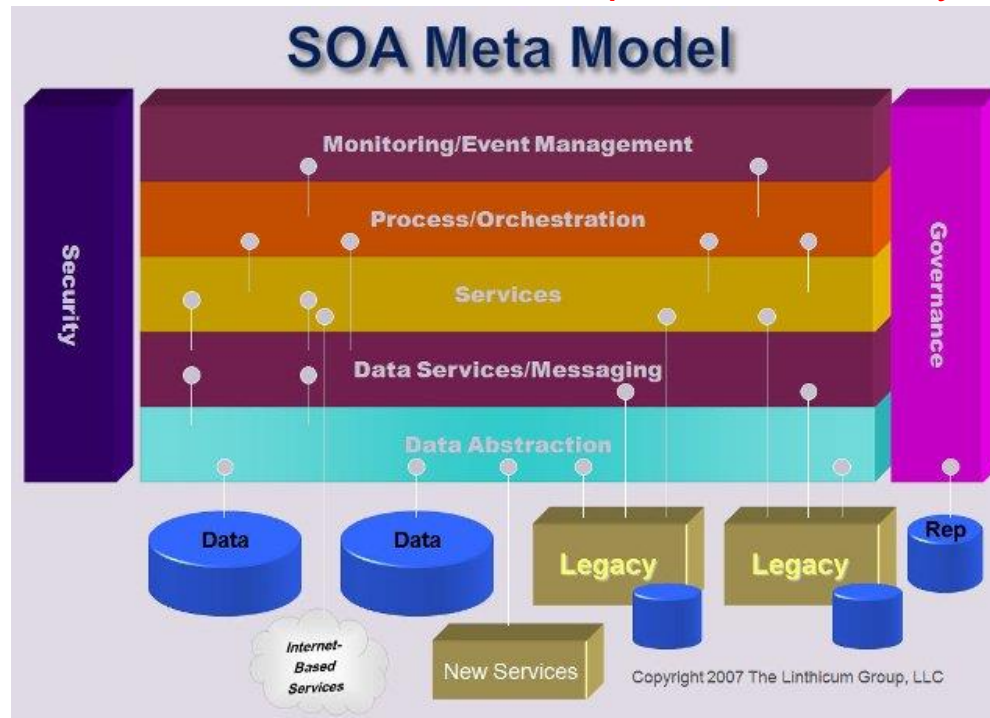
Electronic information of each data element is submitted once, then several electronic application forms can be automatically generated and sent electronically to multiple relevant authorities.

-----> Electronic Process

# The role of a Service Oriented Architecture



A **service-oriented architecture (SOA)** is an architectural pattern in computer software design in which application components provide services to other components via a communications protocol, typically over a network. The principles of **service-orientation** are independent of any vendor, product or technology.



The adoption of this approach in Single Window environments will **ensure reusable services**; **interoperability of systems** and **client ownership** of environment.

# THANK YOU!

