UNITED NATIONS
ESCAP
Economic and Social Commission for Asia and the Pacific

Subregional Capacity Building Workshop on Business Process Re-engineering (BPR) for Trade Facilitation

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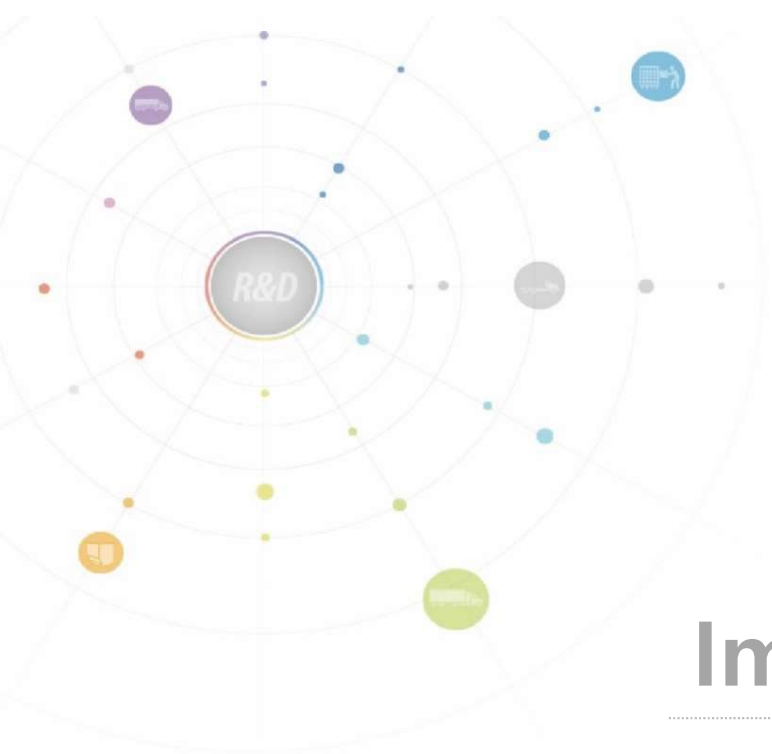
CONTENTS of Part 4



Implementation Methodology

Implementation Methodology

Pre-Plan	Plan	Analysis	Design	Implementation	Test and Delivery
BPR(Business Process Re-engineering)	Analyze of Current System Environment	Work and BP Analysis	Service Definition	Setup implementing environment	Test
ISP(Information Strategic Planning)	Setup system development plan	Current System Analysis	Architecture Definition	Component Implement	Training
Roadmap or Masterplan		Single Window Model Analysis	Component Design	Interface Implement	Delivery
		Define the requirements	Interface design	UI Implement	
		Extracts the advanced items	Interface design	Service Implement	

Source : IMO FAL Single Window Guideline

Planning

#	Phase	Task	Remark
1	Understand system environment	· Understand environment related to system development · Identify functions, interests and issues of each entity	
2	Establish development plan	· Establish Development schedule · Form a project team · Define roles of team members	

Source : IMO FAL Single Window Guideline

Analysis

#	Phase	Task	Remark
1	Analyze business and business process	·Analyze existing target business and business process ·Conduct use case modeling ·Derive services and processes to be implemented ·Identify functions, interests and issues of each entity	·Analyze and list business flows occurring in maritime transport such as customs, inspection, transport, storage and port arrival/departure
2	Analyze current system	·Analyze existing information systems ·Analyze their functions and interests	·Analyze current information system by entities and points ·Understand issues and requirements ·Define information improvement tasks
3	Analyze Single Window model	·Analyze Single Window model ·Analyze best practice cases	·Set application scope based on country's environment (business, law, informatization, etc.)
4	Define requirements	·Collect requirements: stakeholder interview ·Derive system requirements	·Survey government agencies and users ·Define by dividing business areas
5	Derive improvement measures	·Derive issues and improvement points for current processes ·Derive major issues through the analysis of requirements ·Derive improvement measures and tasks	·Target model is a Single Window system ·Analyze gap with target model ·Identify measures to minimize the Gap

Source : IMO FAL Single Window Guideline

Design

#	Phase	Task	Remark
1	Define services	·Define business processes as services ·Design services to be implemented	·There exist such business services as port arrival/departure, cargo report, etc. ·There exist such application services as document relay, document conversion and document retrieval for business services
2	Define architecture	·Design software architecture ·Select base framework ·Design overall system architecture, components, modules and database	·Measure to encapsulate components ·Measure to reuse components ·Selection of programming language
3	Design component	·Design components by independent functions ·Define relevant component specification ·Define in detail up to class level	
4	Design interface	·Define parameters exchanged between components ·Define and design interchange interface	·Need to define interface among internal modules or with external organizations
5	Design UI	·Define and design user interface ·Design a WEB-based environment	·The goal is to maximize user convenience and accessibility ·Guarantee scalability by applying advanced Web technologies

Source : IMO FAL Single Window Guideline

Implementation

#	Phase	Task	Remark
1	Establish development environment	·Select development environment and tools ·Configure database, and WEB environment ·Define development methodology for shared work	·Development methodology: Define program Naming, parameter Naming, annotation, and processing method
2	Implement component	· Implement component by unit function ·Implement WEB in a way to interoperate with server component	·Correct syntactic errors on source codes and compile errors ·Runtime errors are corrected at the time of unit test.
3	Implement interface	·Implement according to interface design specification ·Interconnect relevant components	·
4	Implement User Interface	·Design screen and interconnect with components after implementation	·
5	Implement service	·Assemble business components and data modules ·Service assembly and implementation according to business requirements	·The goal is to maximize user convenience and accessibility ·Guarantee scalability by applying advanced Web technologies

Source : IMO FAL Single Window Guideline

Test & Operation

#	Phase	Task	Remark
1	Test	·Establish test plan ·Conduct unit test ·Conduct combined test	·Correct unit module errors through unit test ·Measure requirements fulfilment and performance through combined test
2	Training	·Develop a guide for system user and operator ·Train users and operators	
3	Operation	·Install in a running system	

Source : IMO FAL Single Window Guideline

Deliverables by Methodology

Deliverables

#	Phase	Activity	Task	Deliverables
1	Plan	Understand system environment	• Identify relevant systems	• Analysis of existing systems
		Establish development plan	• Team formation, division of labor and development schedule	• Development plan
2	Analysis	Analyze business and Business Process	• Analyze current businesses • Business modeling	• Business analysis report • Definition of business
		Analyze current system	• System analysis	• System analysis report
		Analyze Target service model	• Analysis of Target service model • Analysis of best practice cases	• Report on the analysis of Target service model • Report on benchmarking cases
		Define requirements	• Stakeholder survey • Stakeholder interview • Requirements specification	• Survey result • Analysis report on interview • Requirements specification
		Derive improvement measures	• Define future model	• Definition of future model

Source : IMO FAL Single Window Guideline

Deliverables

#	Phase	Activity	Task	Deliverables
3	Design	Define services	• Service specification • Service design	• Service specification • Service design
		Define architecture	• architecture specification • architecture design • database design	• architecture specification • architecture design • database design
		Design component	• component specification • component design	• component specification • component design
		Design interface	• Interface specification • Interface design	• Interface specification • Interface design
		Design User Interface	• UI design • UI design	• UI design • UI design

Source : IMO FAL Single Window Guideline

Deliverables

#	Phase	Activity	Task	Deliverables
4	Implement ation	Establish development environment	• Define development environment	• Definition of development environment
		Implement component	• Implement components	• components codes
		Implement interface	• Implement interface	• interface codes
		Implement User Interface	• Implement UI	• UI codes
		Implement services	• Implement services	• services implementation codes
5	Test & Operation	Test	• Prepare test cases • Conduct unit test • Design combined test • Conduct combined test	• Test cases • Result of unit test • Combined test specification • Result of combined test
		Training	• Prepare user manual • Prepare operator manual • Train users • Train operators	• User manual • operator manual • Report on user training • Report on operator training
		Operation	• Takeover test • System release	• Result of takeover test • Report on system release

Source : IMO FAL Single Window Guideline

3: System Computerization

Aims of Architecture

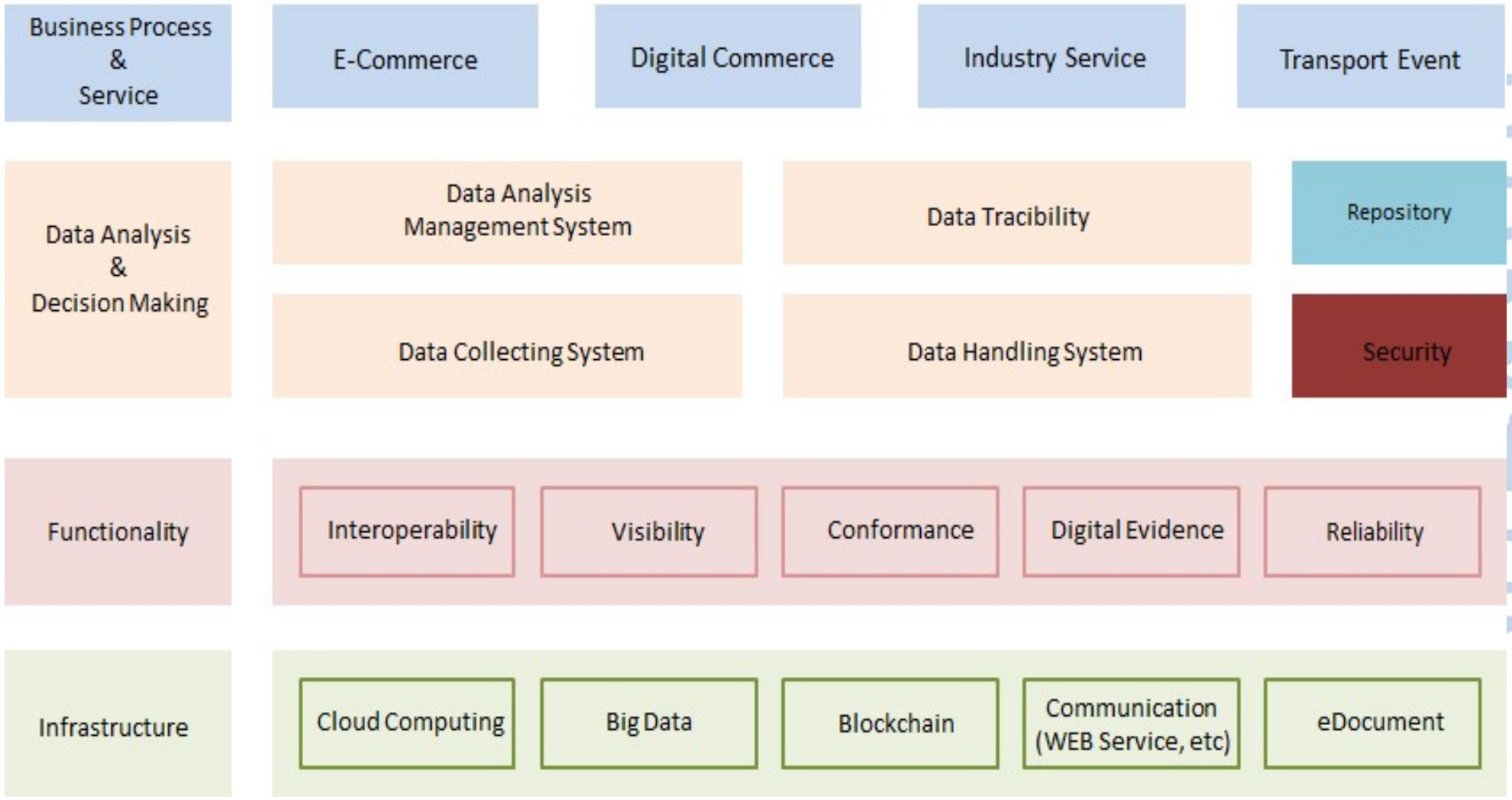
- This architecture aims to support flexibility and easy integration of the advanced technology for efficient Myanmar maritime transportation
- This architecture is based on the general concept of Enterprise Architecture (EA); EA has been introduced to efficiently manage the complex IT resource, and to design systems suitable for the concept of strategic enterprise management (SEM).
- With EA, it is possible to minimize trial and error at decision-making stage through the information strategy planning, and to think about standardization and interoperability with information resource sharing. Additionally, it can prevent repetitive development of information system

Reference : ISO/IEC JTC1, ISO/IEC/IEEE 42010

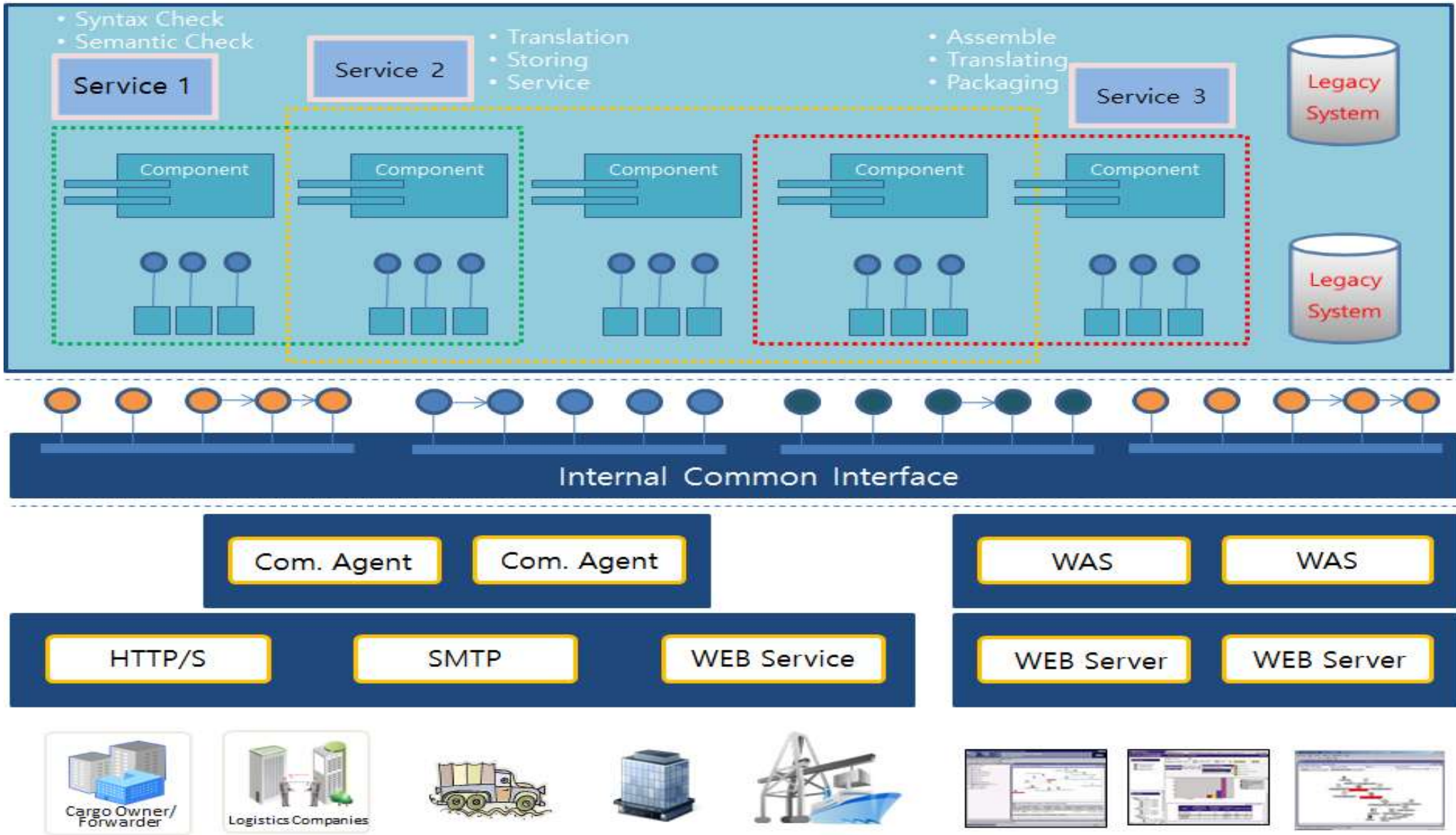
Methodology of Architecture

- Model-driven development methodology
  - developing a software system is an abstraction of complicated business;
  - process of making abstract business implementable;
  - use of Unified Modelling Language (UML) as a modelling language.
- Service-oriented development methodology
  - "Service orientation" is based on the "separation of concerns" in software engineering theory. In other words, it is based on the concept of dividing and classifying a big problem into individual areas of interest;
  - services are platform independent and accessed by applications in a standardized way;
  - services are reusable and loosely-coupled;

Example of Architecture - 1

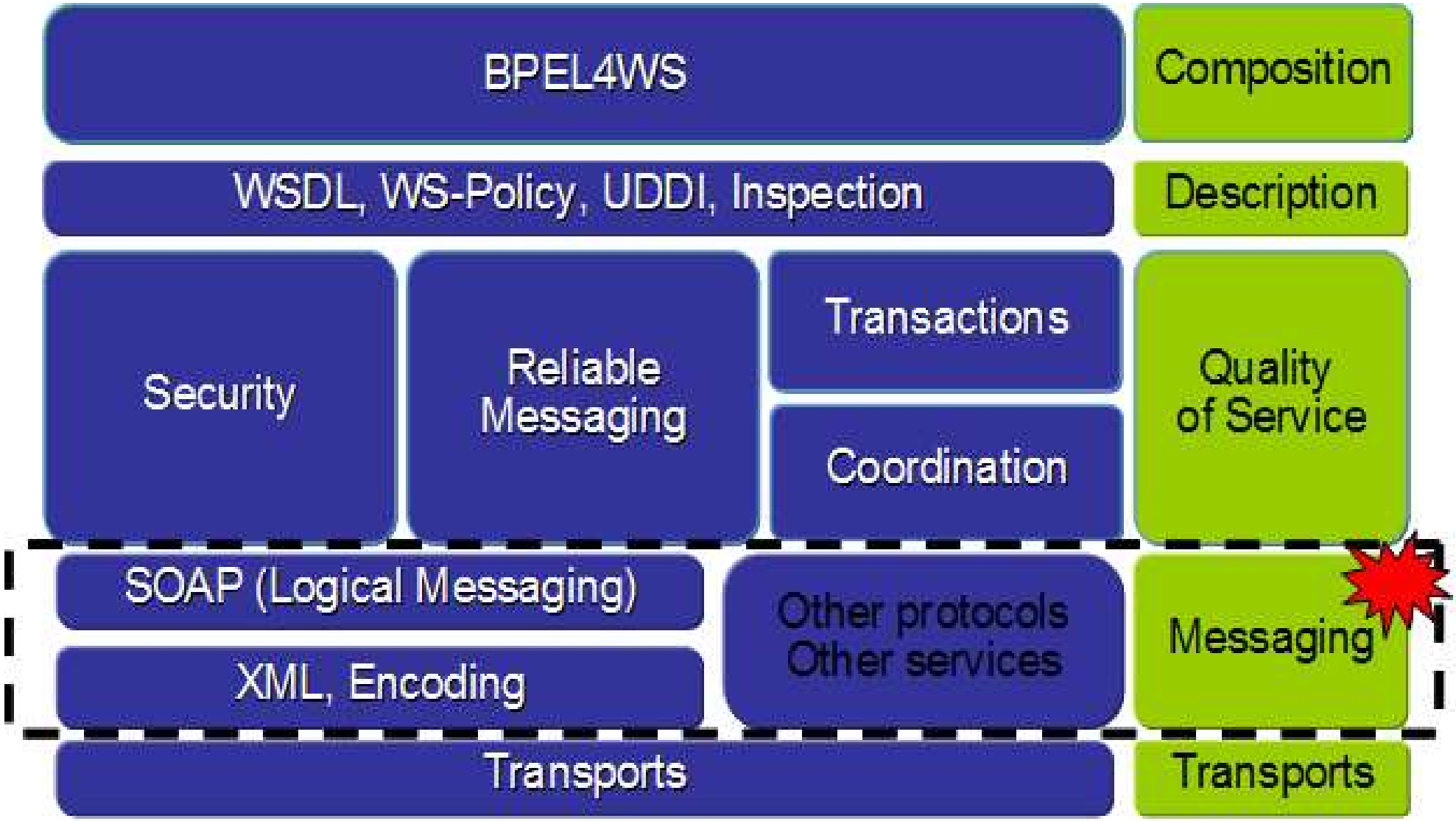


Example of Architecture - 2



Source : IMO FAL Single Window Guideline

Interface



Source : IMO FAL Single Window Guideline

Q&A

감사합니다.

Thank you