



الأكاديمية العربية للعلوم والتكنولوجيا والنقل البحري
Arab Academy for Science, Technology & Maritime Transport

MRCC



**International Maritime Transport and logistics Conference
Toward Smart Ports**

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KEY FACTORS IN BUILDING AND IMPLEMENTING A SUCCESSFUL SINGLE WINDOW ENVIRONMENT

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Agenda



- **SINGLE WINDOW CONCEPT**



- **BENEFITS OF SINGLE WINDOW**



- **SINGLE WINDOW IMPLEMENTATION CHALLENGES**



- **SINGLE WINDOW IMPLEMENTATION FRAMEWORK (SWIF)**

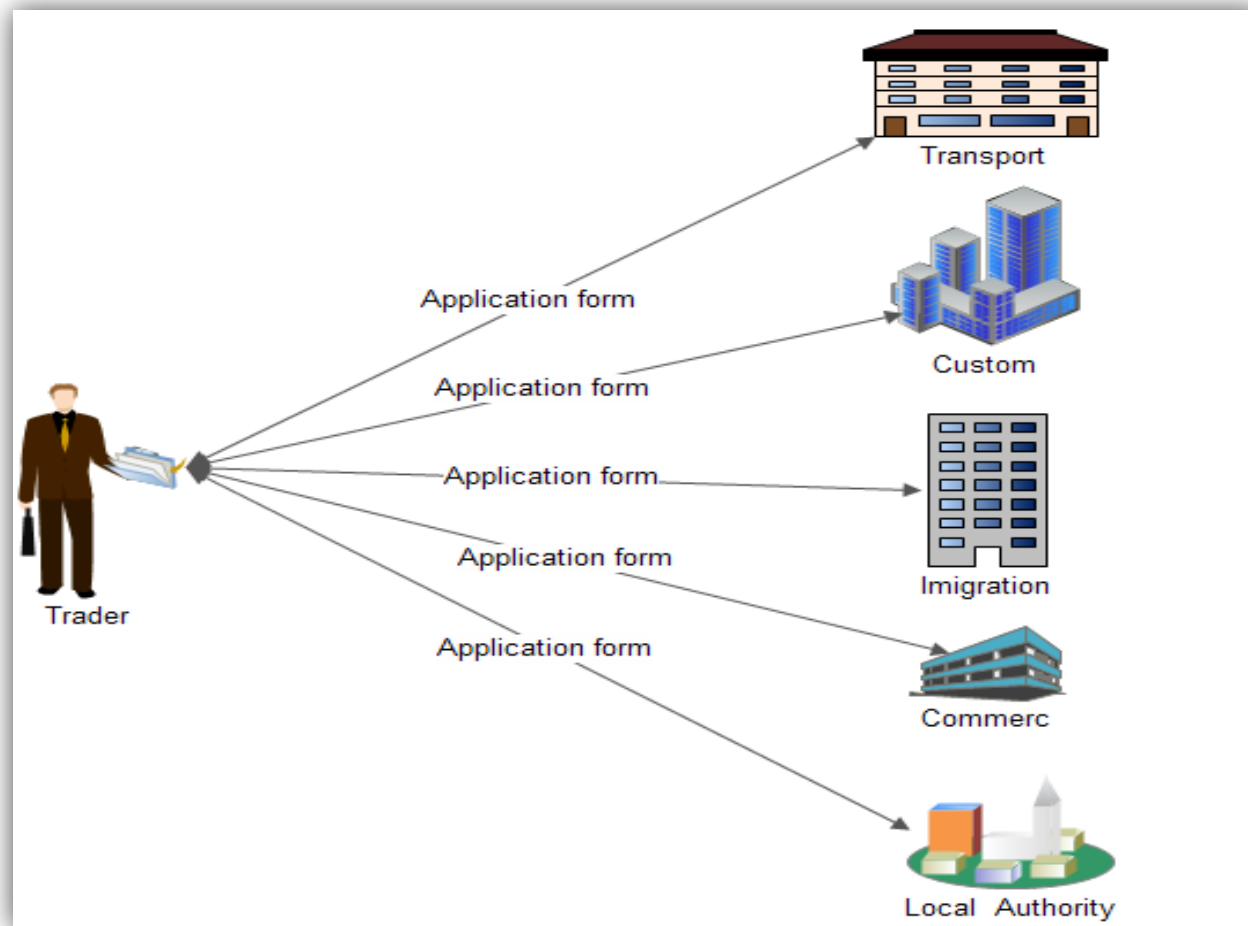


- **READINESS FACTORS FOR IMPLEMENTING A SINGLE WINDOW SYSTEM**



- **CONCLUSIONS**

Before using SW system




Single Window Concept

A **Single Window** is a facility that allows parties involved in trade and transport to lodge standardized information and documents with a single entry point to fulfill all import, export, and transit-related regulatory requirements. If information is electronic, then individual data elements should only be submitted once

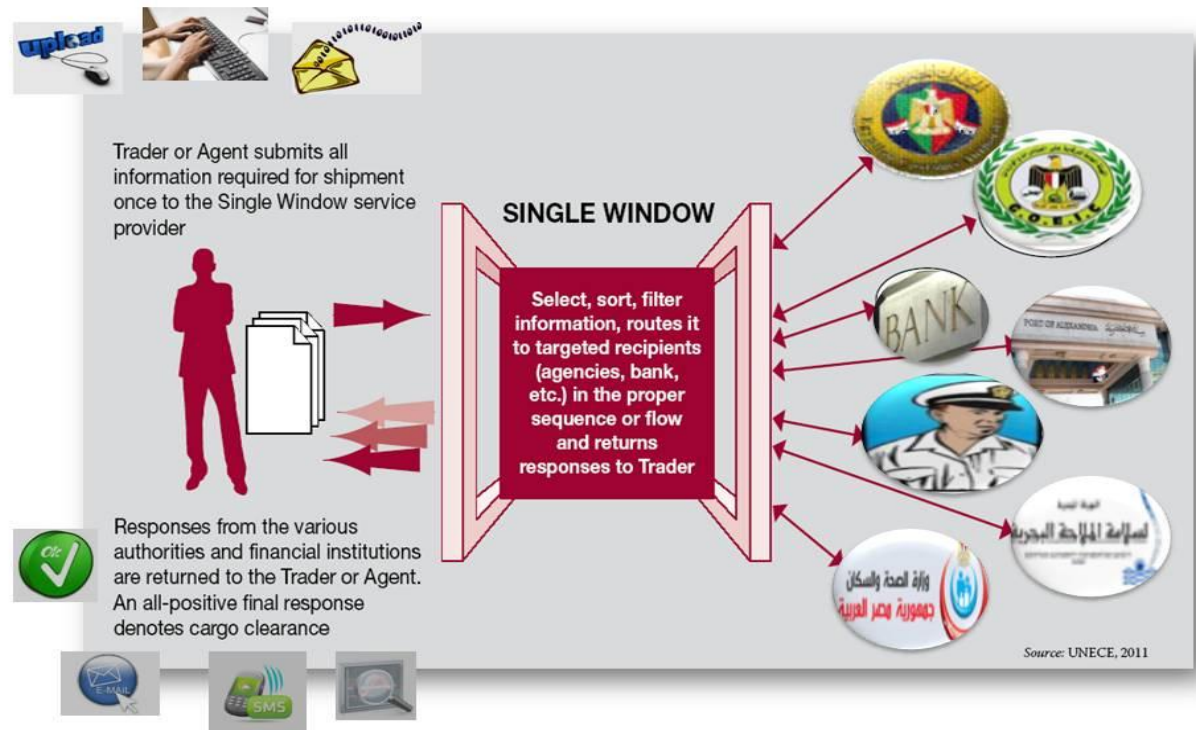
ECONOMIC COMMISSION FOR EUROPE
United Nations Centre for Trade Facilitation and Electronic Business (UNCEFACT)

Recommendation and Guidelines on establishing a Single Window
to enhance the efficient exchange of information between trade and government

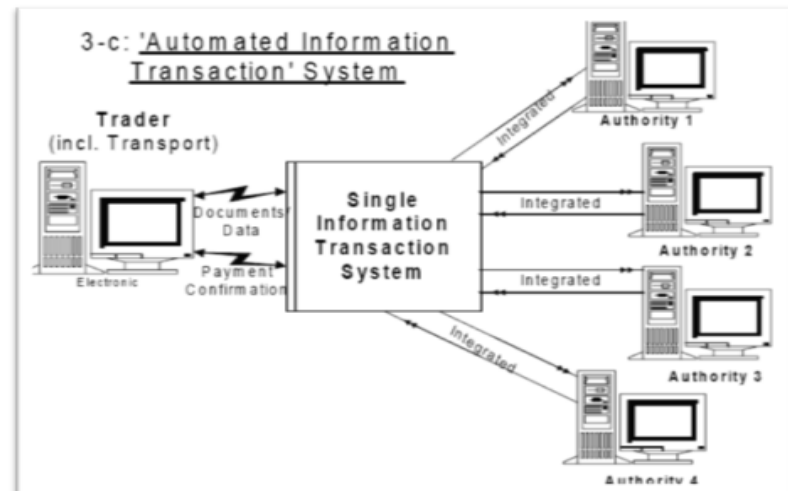
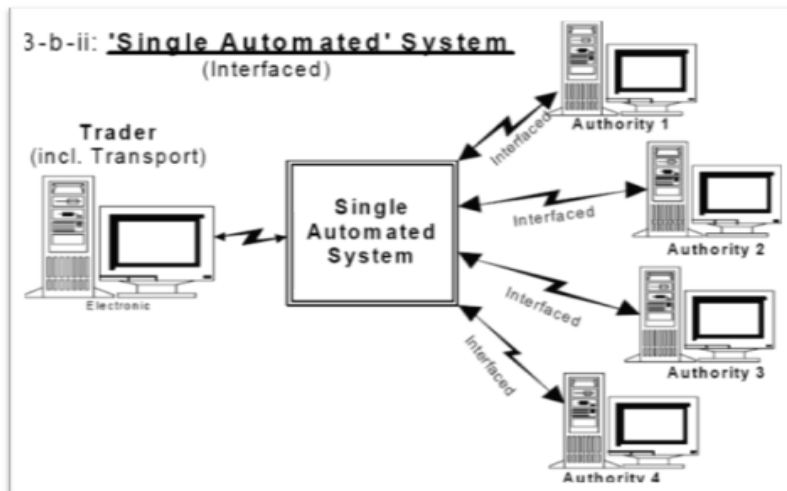
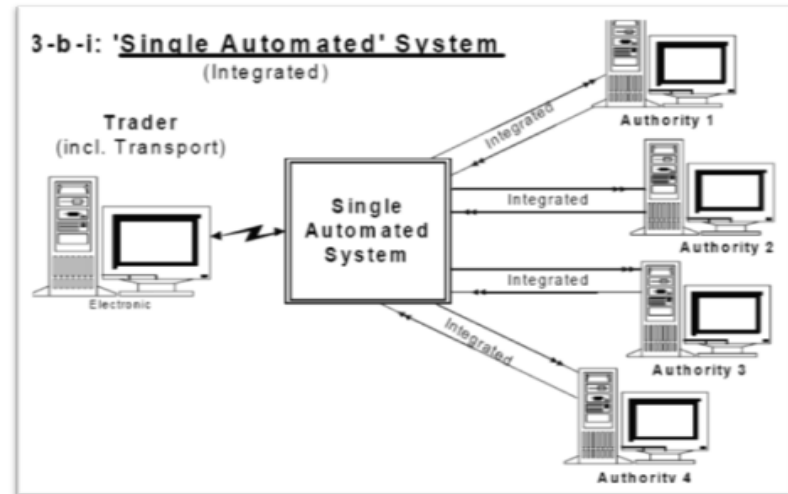
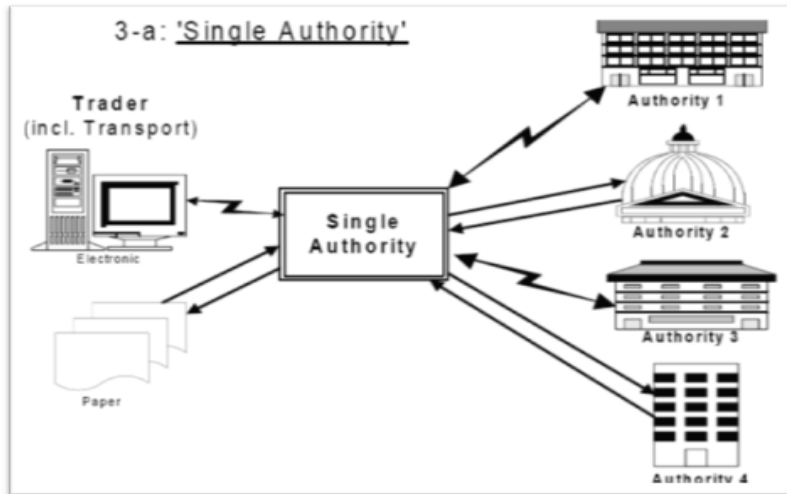
Recommendation No. 33



UNITED NATIONS
New York and Geneva, 2005



Single Window models



UN/CEFACT SW Recommendations

ECONOMIC COMMISSION FOR EUROPE
United Nations Centre for Trade Facilitation
and Electronic Business (UN/CEFACT)

33

Recommendation and Guidelines on establishing a Single Window

*to enhance the efficient exchange of information
between trade and government*

Recommendation No. 33



UNITED NATIONS
New York and Geneva, 2005

UN CEFACT Recommendation 34 Data Simplification and Standardization for International Trade

34

RESTRICTED
CEFACT/2010/IT008
10 March 2010

United Nations
Centre for Trade Facilitation and Electronic Business
(UN/CEFACT)

INTERNATIONAL TRADE PROCEDURES WORKING GROUP (ITPWG) - IBG15

Draft Recommendation 34
Data Simplification and Standardization for International Trade

SOURCE: The Chair
ACTION: Review before further iteration of Open Development Process Step 5 – Public Review
STATUS: Proposed Publication Draft



UN/CEFACT

SIMPLE, TRANSPARENT AND EFFECTIVE PROCESSES
FOR GLOBAL BUSINESS



UNITED NATIONS
ECONOMIC COMMISSION FOR EUROPE

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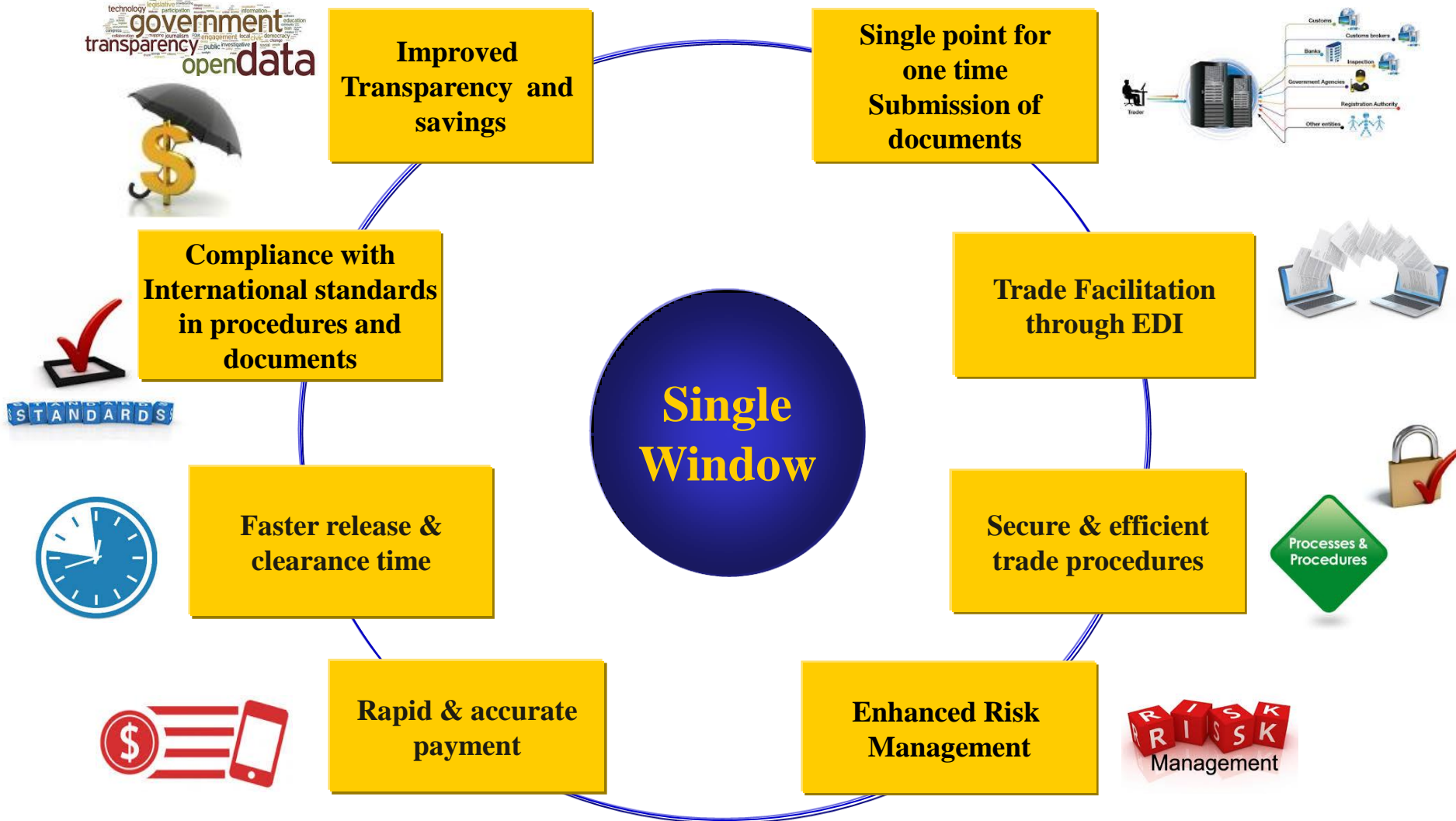
ESTABLISHING A LEGAL FRAMEWORK FOR
INTERNATIONAL TRADE SINGLE WINDOW

RECOMMENDATION No. 35, *FIRST* edition, adopted by the
United Nations Centre for Trade Facilitation and Electronic Business

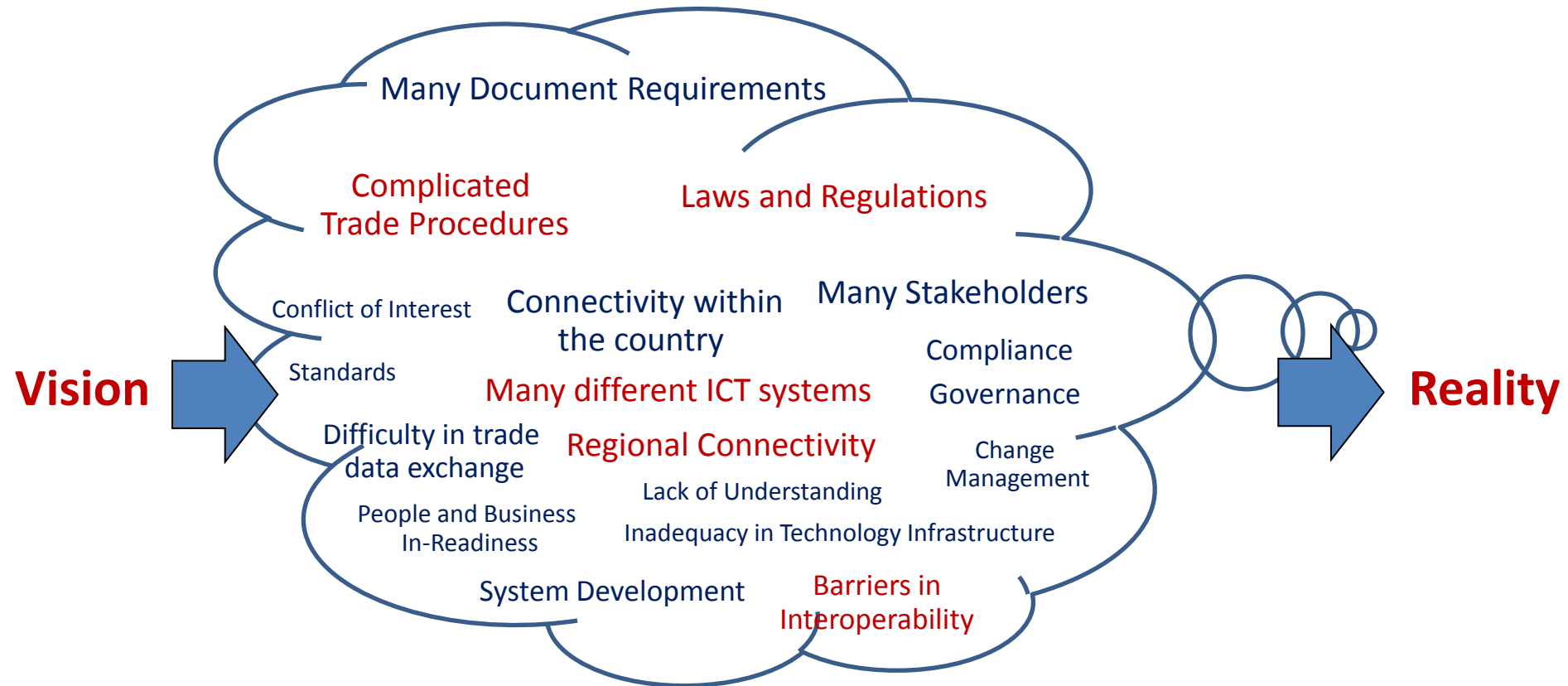
Geneva, December 2010

ECE/TRADE/401

Benefits of Single Window system



SW Implementation Challenges



What is SW Implementation Framework (SWIF)?

- SWIF is a **systematic architecture-based framework** for guiding the Single Window Planning and Implementation into reality.
- SWIF adapts the concept of **enterprise architecture** and **development methodology*** to describe steps how to systematically derive the single window **strategic architecture** and **the master plan** for SW implementation.

* Adopted from An Enterprise Architecture Framework, called TOGAF-9.

Key Critical Components for SW Implementation

1-Stakeholders Requirements Identification and Management

2- Single Window Vision
Articulation

3- Stakeholder Collaborative
Platform Establishment

4- Business
process Analysis
& Simplification

5-Data
Harmonization
& Documents
Simplification

6- Service
Functions
Design

7- Standards and
Interoperability
Establishment

8- Legal Infrastructure
Institution

9- Business and
Governance Models
Enforcement

10- IT Infrastructure &
Solutions Execution

Key Critical Components for SW Implementation

1-Stakeholders Requirements Identification and Management

2- Single Window Vision

Articulation

3- Stakeholder Collaborative

Platform Establishment

All stakeholders' needs and requirements

must be explicitly **identified, negotiated, agreed,** and **fed** into all development

phases of the SW system.

4- Business process Analysis & Simplification

5- Data Harmonization & Documents Simplification

6- Service Functions Design

7- Standards and Interoperability Establishment

8- Legal Infrastructure Institution

9- Business and Governance Models Enforcement

10- IT Infrastructure & Solutions Execution

Key Critical Components for SW Implementation

1-Stakeholders Requirements Identification and M

2- Single Window Vision
Articulation

3- Stakeholder
Platform E



- The SW **vision** must be proposed, agreed, and articulated by high-level policy managers.

- Continuity of **strong political will** of government

and business community is one of the most critical factors for success of the project.

4- Business
process Analysis
& Simplification

5- Data
Harmonization
& Documents
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6- Service
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Solutions Execution

Key Critical Components for SW Implementation

Requirements Identification and Management



Vision

3- Stakeholder Collaborative Platform Establishment

- Establishment of a lead, strong, resourceful, and empowered organization.
- Has the appropriate political support, legal authority, human and financial resources, and links with other relevant government agencies and the business communities.

4- Business process Analysis & Simplification

5- Data Harmonization and Processes Simplification

6- Service Functions Design

7- Standards and Interoperability Establishment

8- Legal Infrastructure Institution

9- Business and Governance Model Enforcement

10- IT Infrastructure & Solutions Execution

Key Critical Components for SW Implementation

- Business Process Analysis (BPA) is the first step towards automating processes and documents.
- Current business processes are analyzed and target/proposed business processes for easier and more compliance trading across borders are proposed, agreed upon and implemented.
- The proposed future procedures should be well documented, simplified, faster, and more secure



Key Critical Components for SW Implementation

- Analysis, simplification, and standardization of trade documents and trade data, development of data models, and electronic documents and messages
- It reduces time and costs of international transactions.
- Document alignment is the standardization of the information in the trade documents to international terms and descriptions, the use of international code lists such as country and currency codes for the information.

4- Business process Analysis & Simplification

5-Data Harmonization & Documents Simplification

6- Service Functions Design



- Data harmonization is the analysis of information in a set of trade documents to identify those information objects which are shared between government agencies.
- It leads to the use of common definitions

Key Critical Components for SW Implementation

1-Stakeholders Requirements Identification and Management

2- Single W
Article



3- Stakeholder Collaborative
Platform Establishment



5-Data
Harmonization
& Documents
Simplification

6- Service
Functions
Design

7- Standards and
Interoperability
Establishment

Application Architecture Design

- Design, agree and develop services and functions provided by software applications.
- It provides a blueprint for describing services and functions of the SW software systems.

9- Business and
Governance Models
Enforcement

10- Software applicat
Solutions Establi

Key Critical Components for SW Implementation

- Open and internationally recognized technical standards, interoperability and communication protocols must be adopted.
- The success of a SW greatly depends on the ability of its components to exchange information with each other electronically.
- Agreements on standards for communication protocols, security, authentication and electronic information structures such as semantic standards, data models, and message structures.

1- Standards Development, Identification and Management

2- Single Window Vision Articulation

3- Stakeholder Collaborative Platform Establishment

4- Business process Analysis & Simplification

5- Data Harmonization & Documents

6- Service Functions Design

7- Standards and Interoperability Establishment

8- Legal Infrastructure Institution



9- Business and Process Models Standards Enforcement

10- IT Infrastructure & Solutions Execution

Key Critical Components for SW Implementation

- Enabling electronic transaction **laws** and related regulations to ensure the legitimacy, trust and confidence in electronic transactions.
1- Stakeholders Requirements Identification and Management
- Resolve **Restrictions** concerning the **sharing of information** among authorities and agencies.
2- Single Window Vision Articulation **3- Stakeholder Collaborative Platform Establishment**
- The legalization of electronic documents and data exchange needs to be established.
4- Business process Analysis & Implementation **5- Data Harmonization & Documents Simplification** **6- Service Functions** **7- Standards and Interoperability Implementation**
- **Electronic Transaction Law, Digital Signature Law, Computer Crime Law, and Data Privacy Law.**

8- Legal Infrastructure Institution



Key Critical Components for SW Implementation

- The financial and business model must support sustained operation of the SW at the required service level.

1- Stakeholder Requirements Identification and Management

 - ✓ Proper mode of investment

2- Single Window Vision Articulation

 - ✓ Funding models and investors (public/private/PPP/International org.)
 - ✓ Fees of services

3- Stakeholder Collaborative Platform Establishment
- A mechanism for monitoring the implementation, deployment, and operation of the SW and its subcomponents to ensure the successful establishment and conformance with the agreed requirements, policies, and plans

4- Business process Analysis & Simplification

5- Data Harmonization & Documents Simplification

6- Service Functions Design

7- Standards and Interoperability Establishment

8- Business Model Execution

9- Business and Governance Models Enforcement

10- IT S Execution

F E E S



Key Critical Components for SW Implementation

- Technology infrastructure, system and hardware development, software development, deployment and security are designed, implemented, and executed.
- Technology architecture describes the software and hardware development and deployment for the systems described in the Application Architecture.
- Includes a detailed and technical description of business processes, electronic data and documents, and application services of the future SW platform.
- Needs highly specialized IT solution providers.

1- Stakeholders Requirements Identification and Management

2- System and Hardware Articulation

3- Software and Hardware Platform Establishment

4- Business

5- Data Harmonization & Documents Simplification

6- Service Application Design

7- Standards and Interoperability Establishment

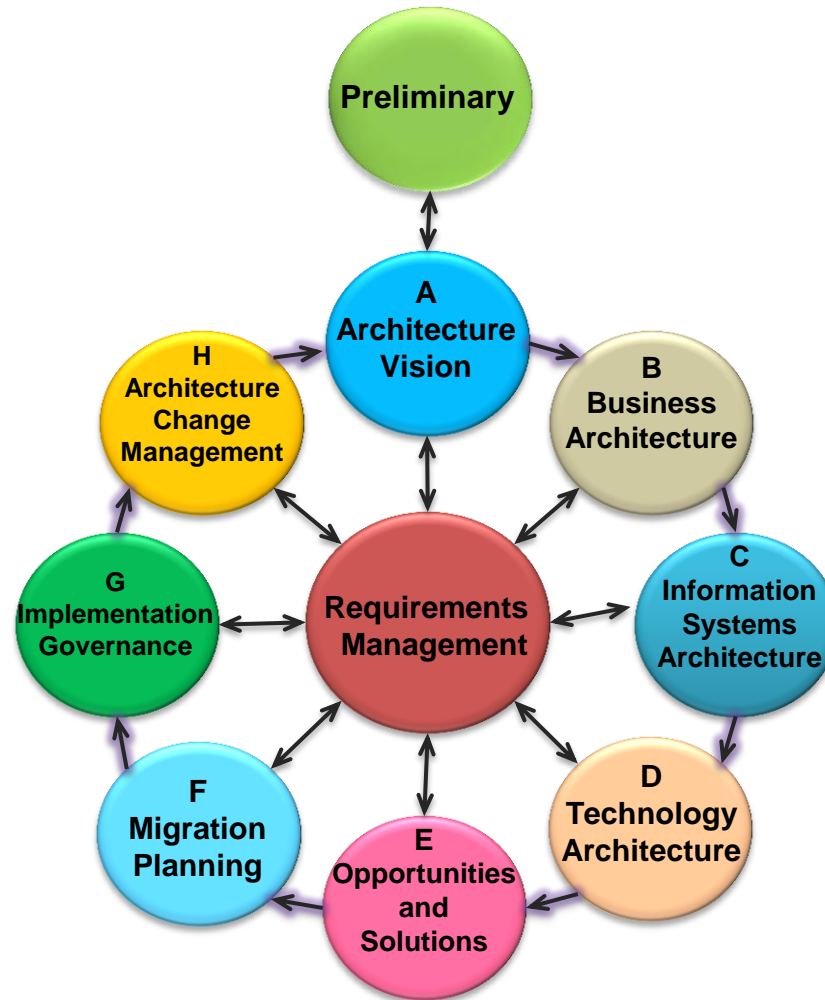
8- Legal Infrastructure



9- Business and Finance Models Enforcement

10- IT Infrastructure & Solutions Execution

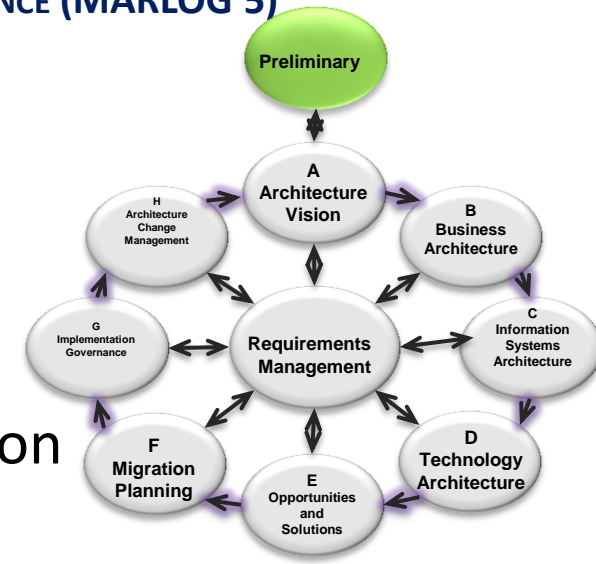
SWIF Phases



1- Preliminary

Objectives

- Identify the rationale for the SW implementation
- Justify the implementation



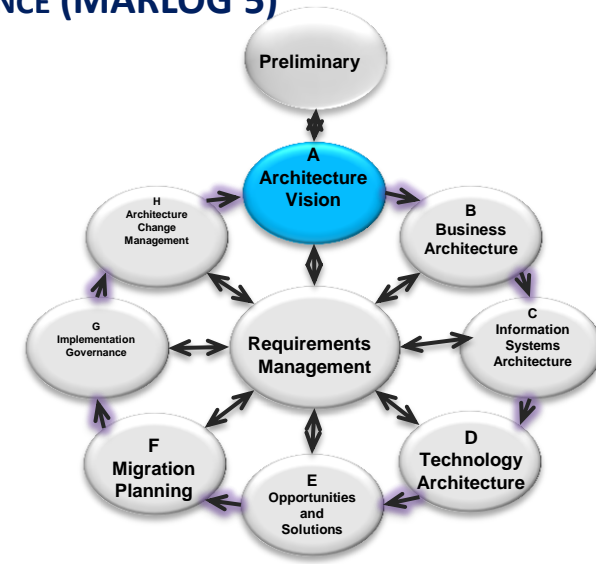
Results/Outputs

- Top level mandate to develop a SW System, for example a formal decision of President or PM
- Lead agency appointed
- Identification of key benefits of SW
- Top level performance indicators for SW

A- Architecture Vision

Objectives

- Create joint vision, strategy, objectives, goals
- Establish necessary environment for stakeholders' coordination and collaboration throughout SW project lifecycle
- Develop a SW Master Plan



Results/Outputs

- A High Level Project Management Group with key stakeholders established
- A High Level Master Plan that defines project phases, activities and deliverables-approved
- Key performance indicators
- Initial funding secured

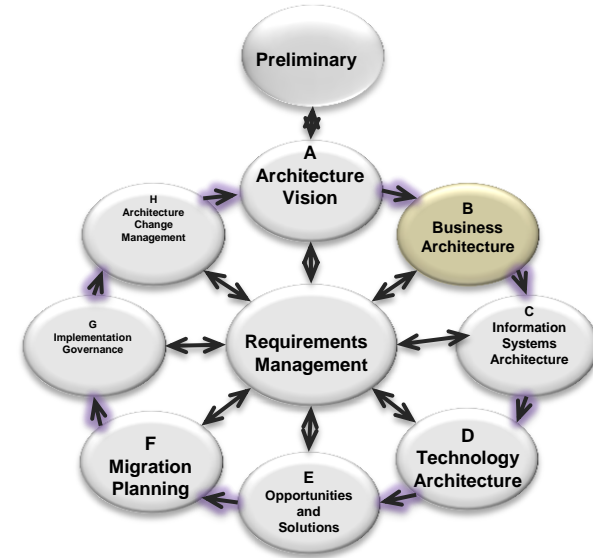
B- Business Architecture

Objectives

- Analyze existing business processes
- Identify bottlenecks
- Redesign and simplify business processes

Results/Outputs

- Analysis of Business Processes and documents used by the Government agencies and private sector
- Agreements on simplification/automation of processes and data



C- Information Systems Architecture (Data & application Architecture)

Objectives

- **Data Architecture**

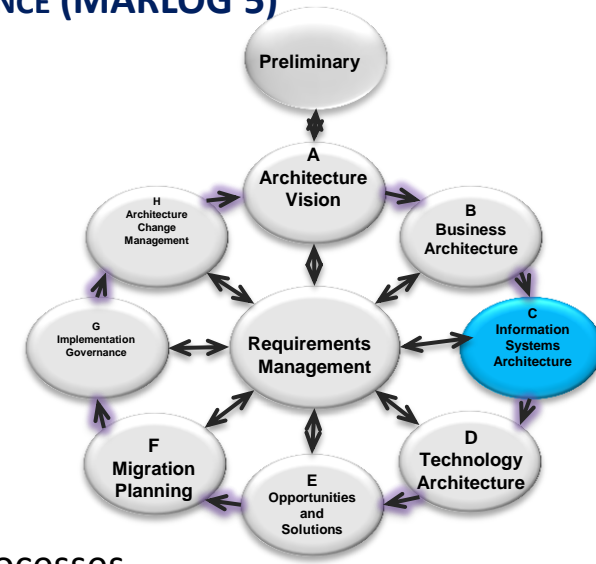
- ✓ Simplify, harmonize and standardize data used in the business processes
- ✓ Develop a data model
- ✓ Develop the structures for electronic messages

- **Application Architecture**

- ✓ Define the major application system necessary to process the data and support business processes
- ✓ Formulate a basis for estimating resources needed for implementing, deploying, and operating the Single Window

- **Legislative Architecture**

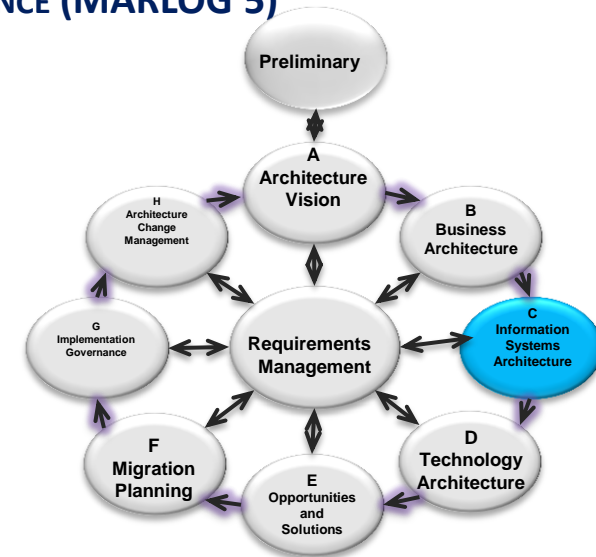
- ✓ Create the required legal environment for the operation of a Single Window



C- Information Systems Architecture (Data & application Architecture)

Results/Outputs

- Agreements on standards, tools and techniques to develop, publish and maintain data and application architectures.
- Published national Data Model and message structures for electronic data interchange with SW
- Definition of standards for SW applications
- Documentation of the existing application architecture
- Gap analysis of legal environment and legislative initiatives



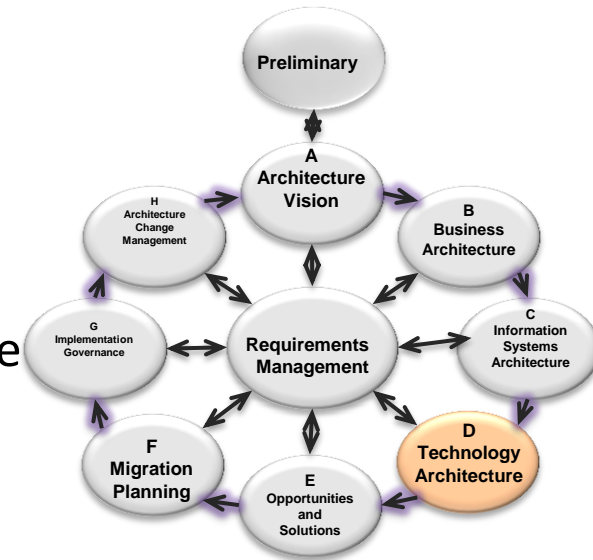
D- Technology Architecture

Objectives

- To design a hardware and software architecture of the SW which will be the basis for implementation

Results/Outputs

- Blueprint of future Single Window application architecture



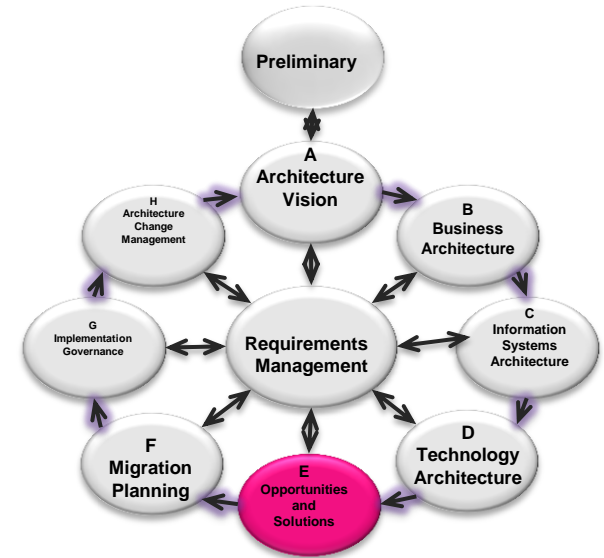
E- Opportunities and Solutions

Objectives

- Resource plan for implementing, deploying, and operating the SW

Results/Outputs

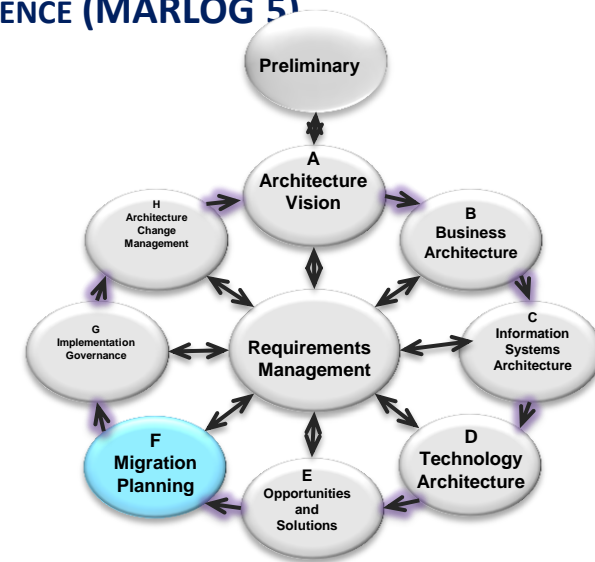
- Detailed implementation plan



F- Migration Planning

Objectives

- Prepare the implementation and ensure that the management and implementation of individual SW sub-systems will be coordinated with the high-level master plan



Results/Outputs

- Detailed implementation plan

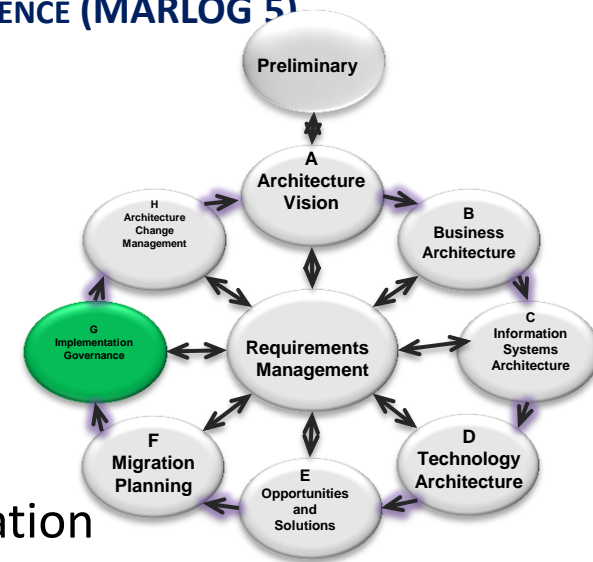
G- Implementation Governance

Objectives

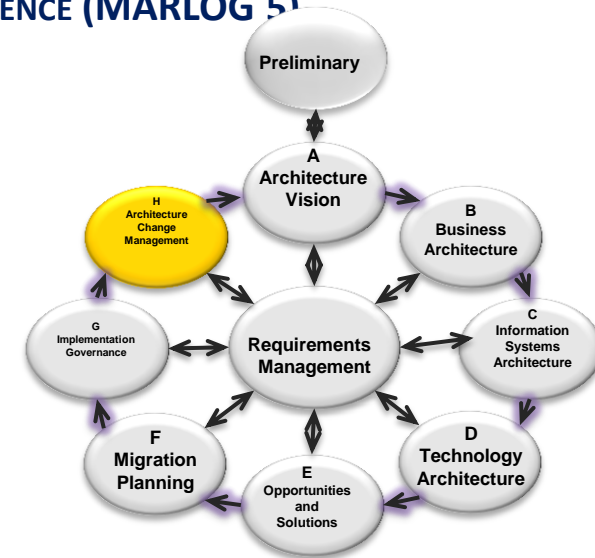
- Establish a framework for monitoring the implementation , deployment, and operation of SW and the SW sub-systems so that their conformance with the defined specifications, plan, policies, and recommendations can be ensured

Results/Outputs

- Project implementation oversight



H- Architecture Change Management



Objectives

- Identify areas where changes should be introduced to ensure :
 - ✓ The maximization of business value from SW implementation
 - ✓ The alignment of implementation approach with relevant emerging technologies and business requirements

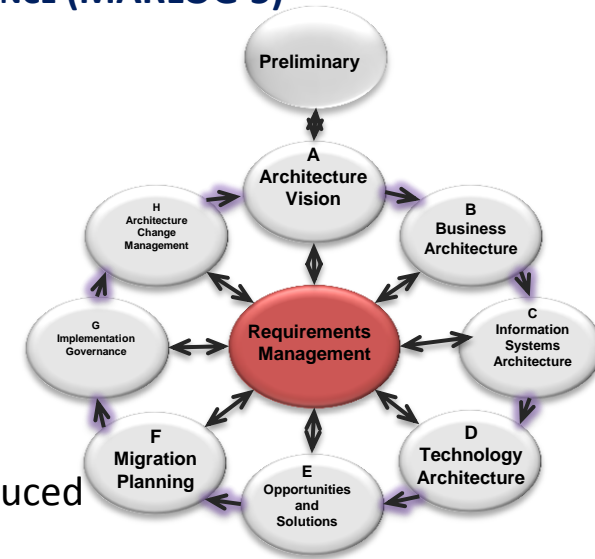
Results/Outputs

- Review of implementation results and impact on the High Level Implementation Plan

Requirements Management

Objectives

- Ensure that :
 - ✓ Stakeholders' requirements are addressed across artifacts produced in different phases of the implementation lifecycle
 - ✓ the incorporation of new requirements is facilitated and controlled



Activities

- Identify baseline stakeholders' requirements
- Manage stakeholders' and other requirements change requests and assess their impact
- Determine whether to implement change or defer it to the later SWIF cycle
- Ensure consistencies of related work products, developed architectures and components with the requirements and objectives of the SW

READINESS FACTORS FOR IMPLEMENTING A SW

Readiness Factor	Description
Vision	<ul style="list-style-type: none"> Objectives of the Single Window and its components to be achieved and the benefits that it will bring are clearly identified. There is a clear link between the vision of Single Window's components and the overall Single Window vision.
Desire and Willingness	<ul style="list-style-type: none"> Concerned parties understand the need for the targeted SW. There is a presence of desire to achieve the "vision" and the willingness to accept the impact of doing the work.
Strategic Planning	<ul style="list-style-type: none"> There is an established channel for coordinating strategic decision making between the sub-projects (relating to specific activities in the SW implementation) and the program (Single Window implementation initiative as a whole).
Sponsorship and Leadership	<ul style="list-style-type: none"> The executive and the senior management support the implementation of the targeted information system. They are able to engage all concerned parties in the project and keep them on board throughout.
Governance	<ul style="list-style-type: none"> Roles and responsibilities of concerned parties in the project are clearly identified.
Funding	<ul style="list-style-type: none"> There is an indication that sufficient financial resources have been or will be allocated to the development of targeted information system.
IT Capacity to Execute	<ul style="list-style-type: none"> There exists the ability to perform all the IT tasks required by the project, including the skills, tools, processes, and management capability. There is a recognition of the need for knowledge and skill-building and corresponding arrangements which may include training or hiring of competent consultants.
Organization's Existing Information Systems	<ul style="list-style-type: none"> The organization's existing systems effectively enable the business processes. They are compliant with standards outlined in the technical guidelines for developing Single Window (interoperability framework).
Ability to Implement and Operate	<ul style="list-style-type: none"> There exists the ability to deal with organizational change resulting from the introduction of new information system, and thus new way of doing things.

Key Factors for a successful SW

- Political will
- Strong lead agency
- Partnership between government and trade and between key participating government agencies
- Clear and measurable objectives
- Phased approach
- Use of international standards
- Legally enabling environment
- User friendliness, accessibility and training
- Sound financial model
- Promotion and communications



Conclusions

1. There is no unique model for a Single Window, as operators adopt their systems to specific national/regional conditions and requirements.
2. SWIF was introduced to decompose and structure the challenges that accompany a SW implementation. SWIF is a systematic architecture-based framework for guiding the Single Window planning and implementation into reality.
3. Faced challenges relate not only to the technical aspects of SW systems, but also to the organizational and inter-organizational, managerial, financial, political, legal, and national and international settings.

Conclusions

4. Dealing with these challenges requires Strong political will, long-term commitment and support from top management, a reliable institutional platform for collaboration, effective management of stakeholders' expectations and perceptions, workable business and architectural models, and necessary business and regulatory reforms
5. Readiness factors for implementing a single window should be considered first to evaluate and determine the stakeholders' readiness.
6. SWIF should be considered and used while implementing Single Window systems in Egypt as it has been developed and implemented in several countries.
7. Additional work on the SWIF should be made to further evaluate, adapt and tailor the SWIF for different cases in different countries.

THE INTERNATIONAL MARITIME TRANSPORT & LOGISTICS CONFERENCE (MARLOG 5)

TOWARD SMART PORTS

13- 15 MARCH 2016

