

# Single Window Collaborative Project Management

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## UNNExT Masterclass 2013: Implementing Single Window and Paperless Trade

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Customs Border Control Training Center (CBCTC)  
Cheon-An, Republic of Korea

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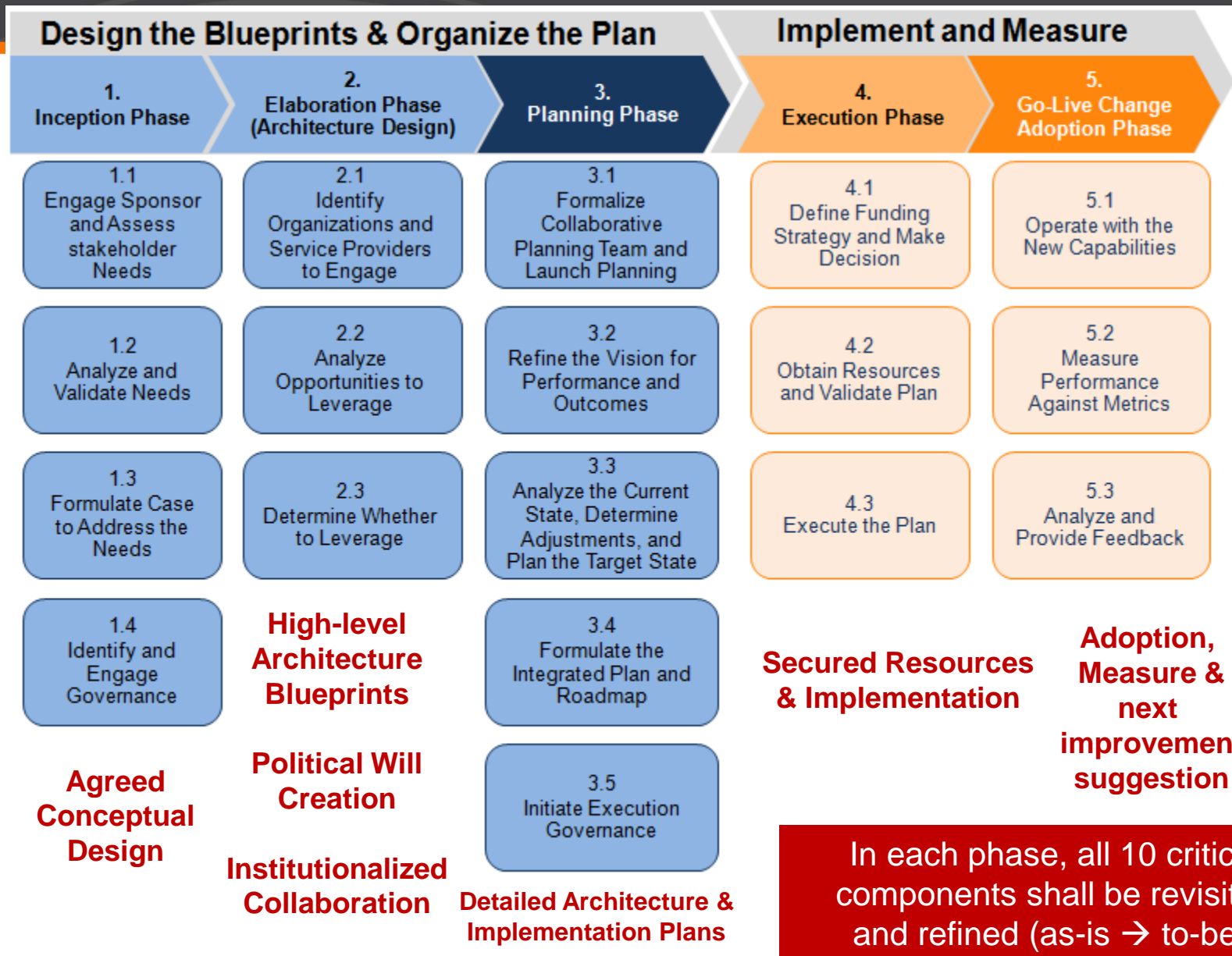
# The Objectives of this presentation

- ❑ To propose a **collaborative project management** approach with recommended **5 phases/activities** and **their deliverables** for policy formulation, feasibility study and architecture design, planning and overseeing the SW development projects.
- ❑ To highlight that within each of these five phases, **ten (10) critical components** will be revisited and refined iteratively.
- ❑ **Business & financial models** will also be briefly discussed.

# Collaborative SW Project Management in 5 Phases

1. **Inception Phase (Preliminary)** – Developing a concept paper for preliminary and initial discussion
2. **Elaboration Phase** – Conducting a detailed feasibility study and architecture design
3. **Planning Phase** – Formulating a high-level SW master plan & and detailed implementation plans
4. **Execution Phase** – Securing the funding, executing and overseeing the SW project implementation
5. **Change Adoption/Lessons-learned Phase**
  - Change Adoption, Impact Assessment, Collecting lessons learned and suggesting opportunities for further SW improvement in the next cycle.

# SW Project Management in 5 Phases



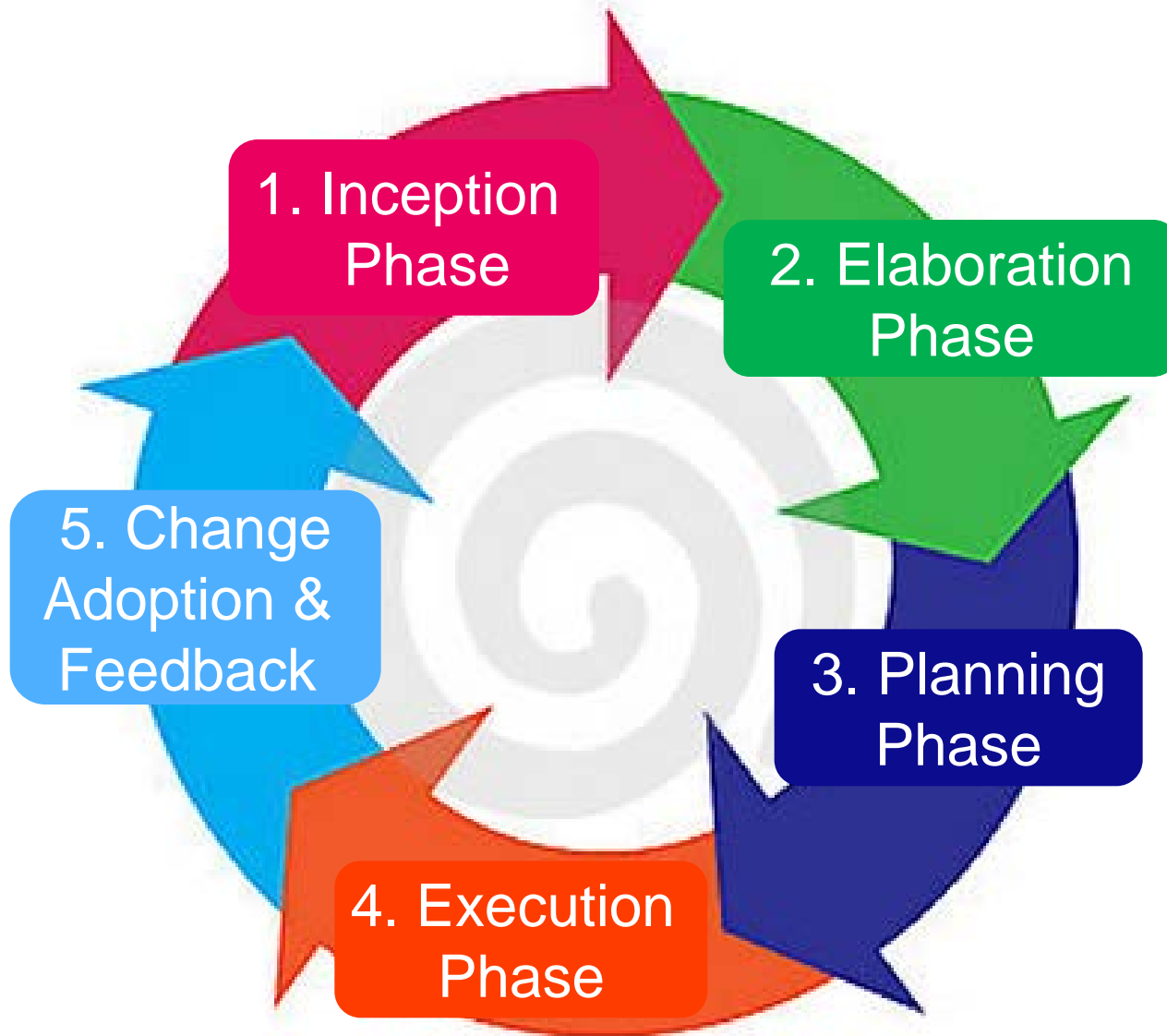
# Understand the “As-Is” and propose the “To-Be” of these 10 Key Components

1. Stakeholders' Requirements Identification & Management
2. SW Vision Articulation and Political Will Creation
3. Stakeholders Collaboration Platform Establishment
4. Business Process Analysis and Improvement
5. Data Harmonization and Document Simplification
6. Service Functions/Applications Architecture Design
7. Technical Standards and Interoperability Establishment
8. Legal Infrastructure Institution
9. Business, Finance & Governance Model Enforcement
10. IT Infrastructure & IT Solutions

\* These 10 components are slightly different in sequence from the previous presentation (but the same content).

# SW Project Management in 5 Phases

(this cycle may be repeated for each SW target and its sub-projects)



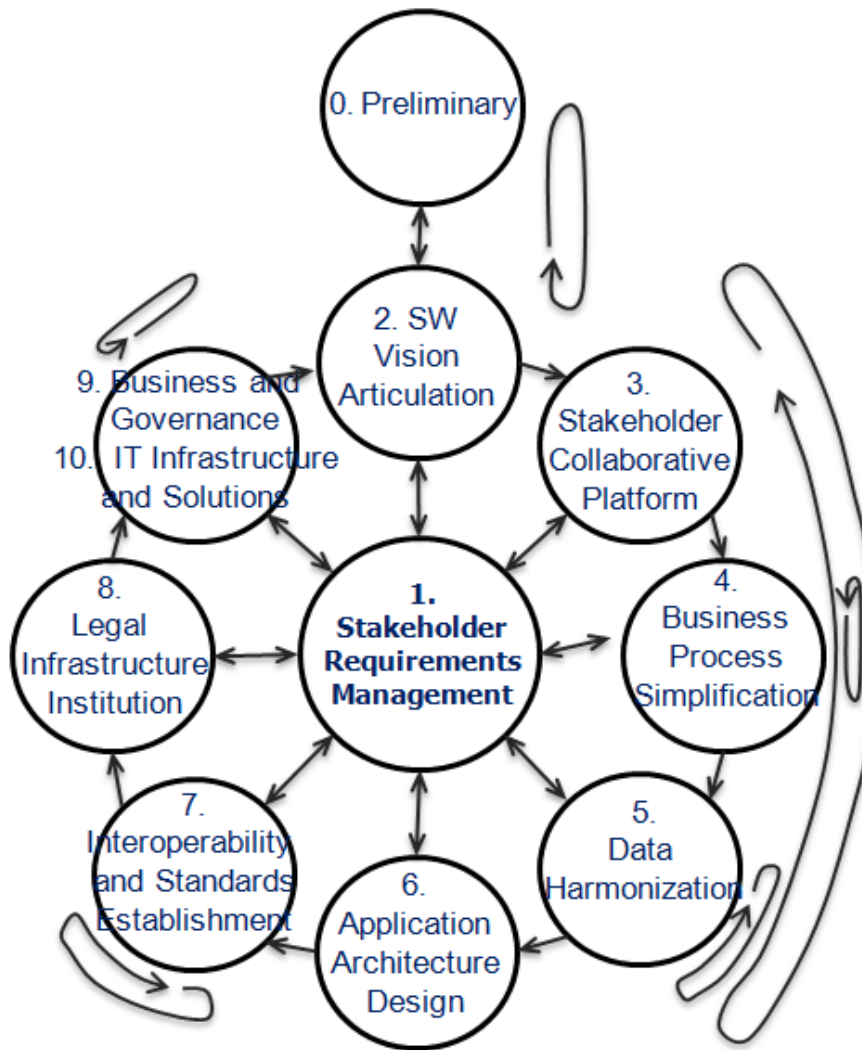
Each phase  
in this SW Project Management Process

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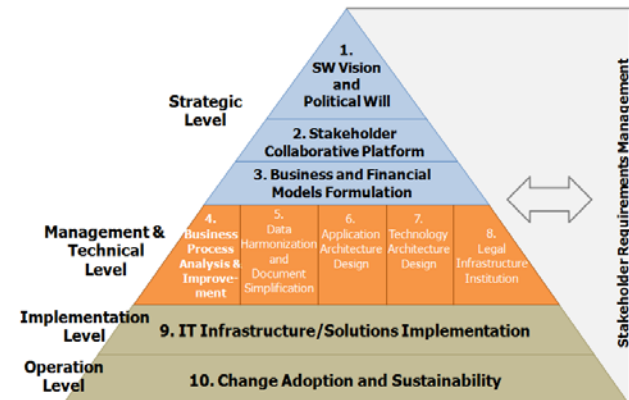
needs to consider  
the ten key critical components  
as suggested.

# Each project management phase needs to walk through these 10 critical components (in an iterative sytle)

The 10 components (in a Development Cycle as shown on the left) should be revisited during the inception and feasibility analysis phase,  
the planning phase,  
and again during the implementation phase,  
**but of course,**  
**with different levels of depths and perspectives.**



Ten critical components are shown in the SW Development Cycle.



Or, these same ten critical components can be illustrated in a management pyramid.



# Understand the “As-Is” and propose the “To-Be” of these 10 Key Components

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10. IT Infrastructure & IT Solutions Execution

# 1. Inception Phase

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To conduct an initial concept study

# When an initial concept study should be conducted?

- ❑ An inception phase should be conducted as an initial preparation at least for two occasions, i.e.
  1. When a country starts to think about the possible implementation of a Single Window, or
  2. When a country thinks about the possible extension of the existing Single Window.

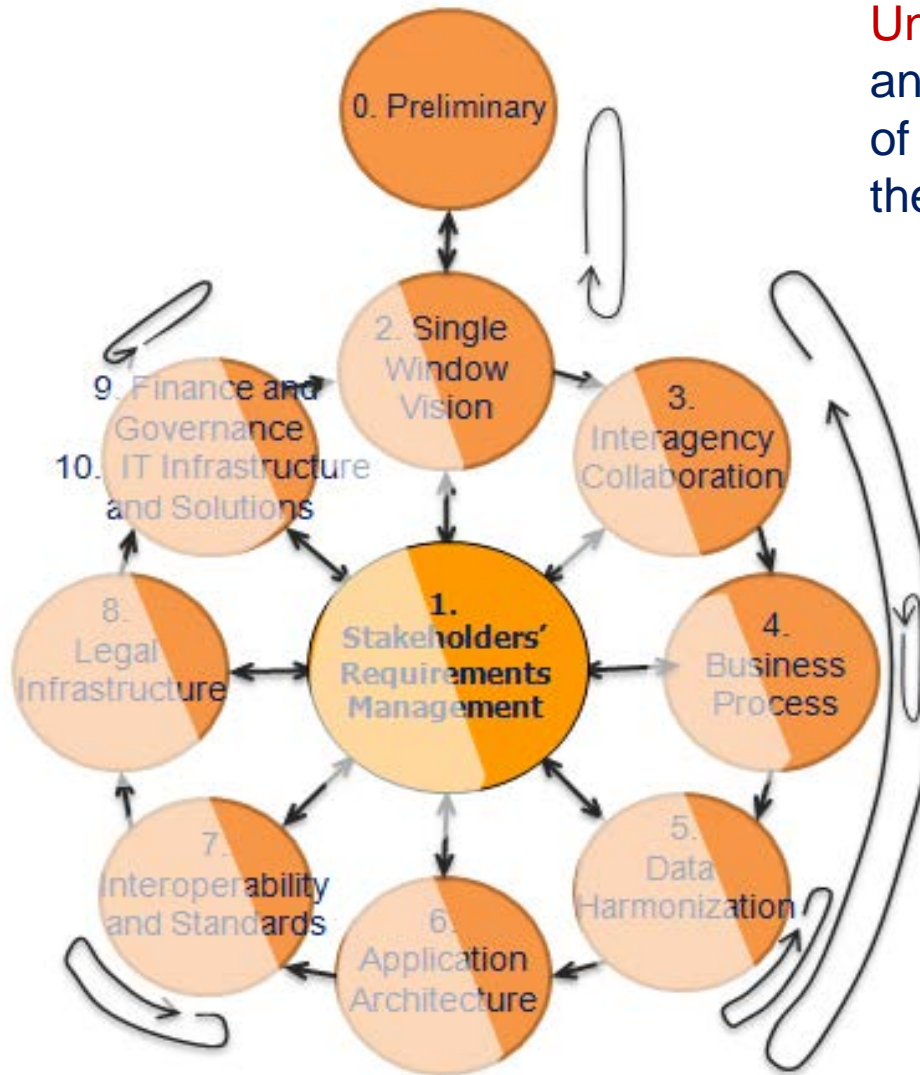
# Why an inception phase should be conducted? (the purpose of an initial concept study)

- ❑ The purpose of this inception phase is **to develop a concept paper aiming to facilitate initial discussion on the SW** and **then to obtain feedback and approval** to go forward for an in-depth study into the need for, approach to and feasibility of a Single Window.
- ❑ Normally, this initial concept paper is not intended to seek commitment or agreement for the implementation of a Single Window yet.

# What should we do with the concept paper (the deliverable of the inception phase)?

- ❑ With the concept paper, **a meeting** should be conducted, if possible, among high-level **key government representatives** and **relevant business representatives** to discuss the proposed Single Window concept.
- ❑ Upon the feedback from the meeting, and presuming that a positive decision is reached to proceed with a recommended next step, an **elaboration phase (a detailed feasibility analysis)**, the meeting should establish a **Project Management Group** made up of **senior representatives of the key agencies** who will be directly involved in implementing and utilizing the Single Window environment.

# How an inception phase be conducted?



Understand the “As-Is” conditions and propose the “To-Be” architectures of these 10 key components mainly at the conceptual feasibility and policy level, but some technical components should be roughly explored their feasibility, potential benefits, and risks.

1. Stakeholders’ requirements, and Related National Agenda
2. **SW Vision & Goals Articulation**
3. Possible SW Scope
4. **Business Process and Document Requirements for export-import of some strategic goods**
4. What are the existing ICT systems, What should be the “to-be” SW architecture (which SW levels in the Roadmap)
5. **Platform for stakeholder collaboration**  
.....etc.

## 2. Elaboration Phase

To conduct a detailed  
feasibility study &  
SW design

# The purpose of the elaboration phase

- The purpose of the feasibility study is **to provide decision-makers** with an **insight into the options** available and their **consequences** for each governmental authority and each involved business sector, e.g.
  - ❑ detailed analysis of “as-is” and “to-be” procedures and documentation,
  - ❑ possible service functions to be provided by the “to-be” applications architecture,
  - ❑ Technical standards and interoperability issues,
  - ❑ legal infrastructure
  - ❑ implementation options i.e. full or phased implementation) and the possible steps,
  - ❑ Financial and business concerns, e.g. free services or charge for services, options for investment (public, public-private, or private only), and other required resources
  - ❑ potential benefits and risks,
  - ❑ a time frame, and
  - ❑ implementation and management institutions and strategy.



# Who should conduct this detailed study? What should we do with the outcome?

- A **task force** (or a working group) comprising of all stakeholders' representatives should be identified and mandated to actively involve in this study, normally by the **assistance of a consulting team** who may do the detailed analysis, reporting, facilitating the discussion, consolidating the feedback and refinement of the final report and most (if not all) of the agreement.
- The outcome of this study should be presented, refined, then (hopefully) **finalized, and approved by the high-level Project Management Group**.
  - The **next step of formulating a (more detailed) SW master plan** can be mandated by the Project Management Group **as a way forward\***.

\* In many cases, the SW high-level master plan may be developed along with the feasibility study and then at the same time be approved by the Project Management Group.

# Suggested contents of the study

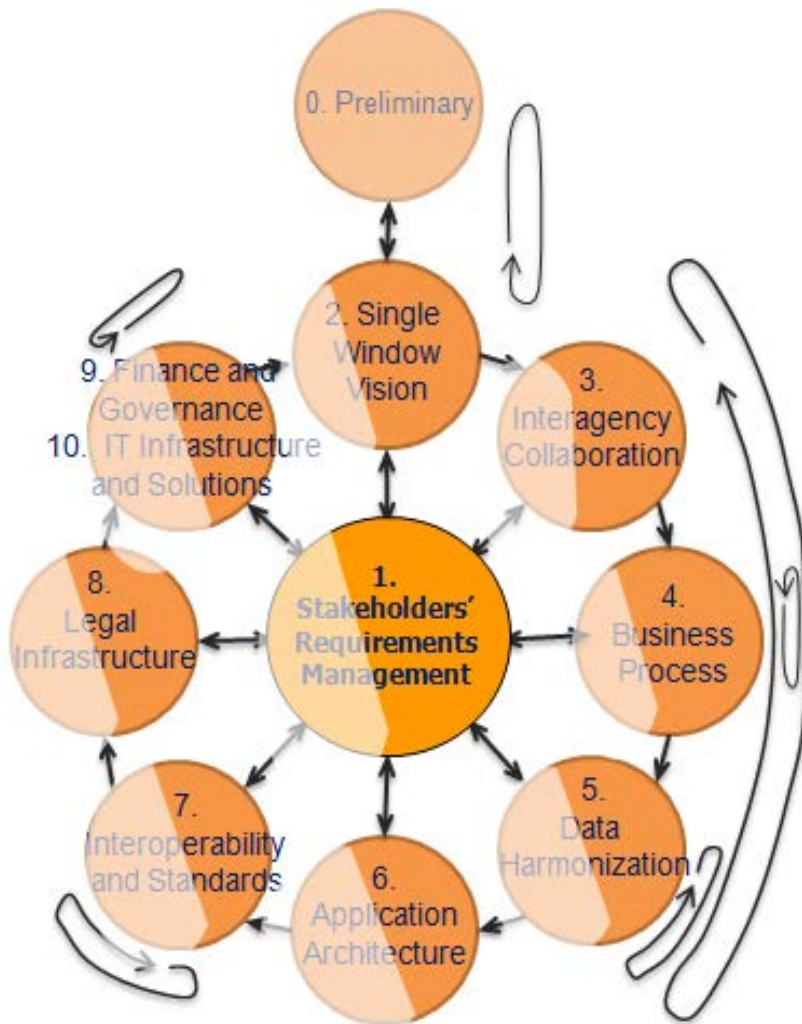
1. Project Needs and Potential Benefits of a Single Window
2. Organizational Aspects and Interagency Collaboration
3. Human Resources and Training
4. Legal Infrastructure
5. Procedures, Information and Documentation
6. Technical aspects of a Single Window
7. Impact assessment
8. Implementation Options
9. Financial Options and Business Models
10. Promotion and Communications

# How to conduct a detailed feasibility study?

## SW Development Cycle

During a detailed feasibility study, all components related to SW implementation will be analyzed again but with much more details than in the inception/preliminary study.

It is strongly recommended that this study be based on **direct face-to-face interviews with key players in both government and trade**, complemented by **relevant questionnaires to collect information from a wider circle of potential participants and users.**



# How to conduct a detailed feasibility study? (cont)

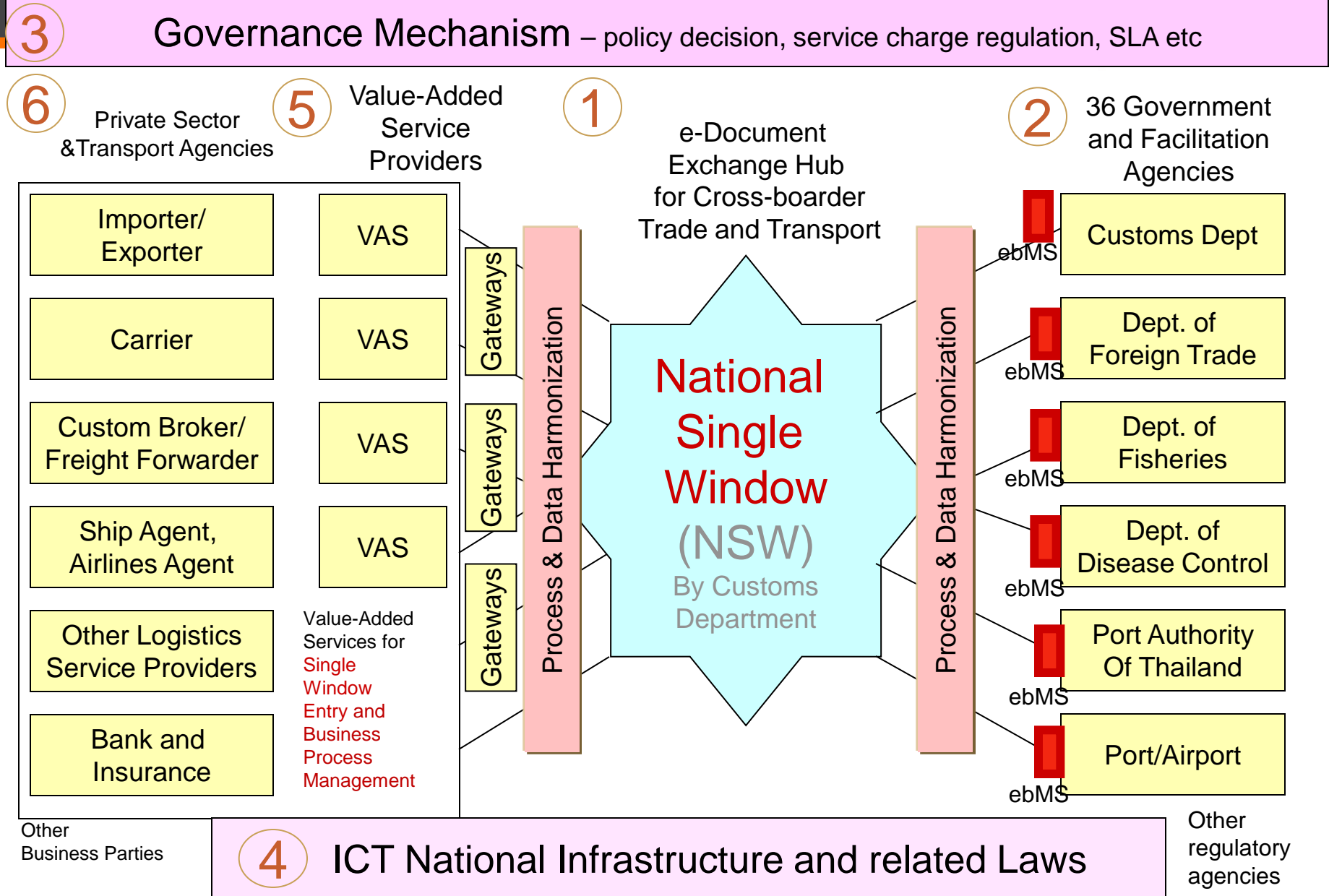
- ❑ Using the SW development cycle (as explained in the previous slides).
- ❑ Using the **architecture\* concept**, e.g. **picture concepts**, **pictures in mind**, and **pictures in writing** (that are clear and commonly agreed by relevant stakeholders)
- ❑ Developing **several architectures/pictures** and each picture suitable for a **different viewpoint** with
  1. Several **smaller components**
  2. **Inter-relationships (links)** between those components
  3. **Governing principles** for each component and/or each relationship, e.g. who is in charge of each component.

•As defined in ISO / IEC 42010:2007 Systems and software engineering,  
Architecture is the fundamental organization of a system comprising of  
a structure of components,  
their inter-relationships, and  
governing principles and/or guidelines for their design and evolution over time.

# A "To-Be" SW Architecture

A Case Example 2 (cont)

(referencing to the SW Roadmap - Stage2)



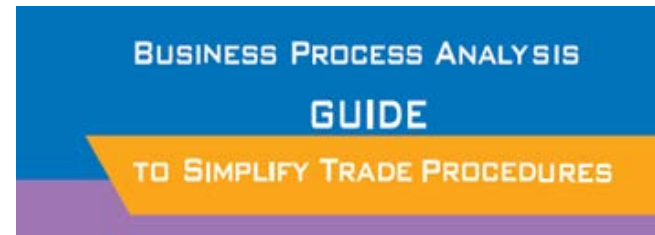
# How to conduct a detailed feasibility study? (cont)

Referring to the SW Development Cycle (Business Process)

- ❑ Conducting more detailed **Business Process Analysis (BPA)** to
  - ❑ **understand the “as-is”** procedures and documentation,
  - ❑ **identify bottlenecks** and improvement opportunities, and
  - ❑ **propose “to-be”** procedures and documentation enabled by reducing and simplifying some procedures/documents, applying e-document submission, e-document exchange, and electronic processing.

For a more detailed BPA guide and associated capacity building workshops request, please refer to UNESCAP/UNECE and

- “**Business Process Analysis Guide to Simplify Trade Procedures**”, UNESCAP publication, 2009 & 2012
- <http://www.unescap.org/unnexr>



# How to conduct a feasibility study? (cont)

Referring to the SW Development Cycle (**Data Harmonization**)

- ❑ Conducting feasibility and potential benefits through some document analysis and data harmonization to
  - ❑ **understand the “as-is” data elements and their structures** of relevant documents, and
  - ❑ **propose “to-be” flows and structures of documents and data elements** for better data exchange, and easier (e.g. non-duplicated data entry by the users) and more automatic handlings.

With this analysis, we could identify one important sub-project to be carried as part of the overall project implementation phase which is the Data Harmonization Project.





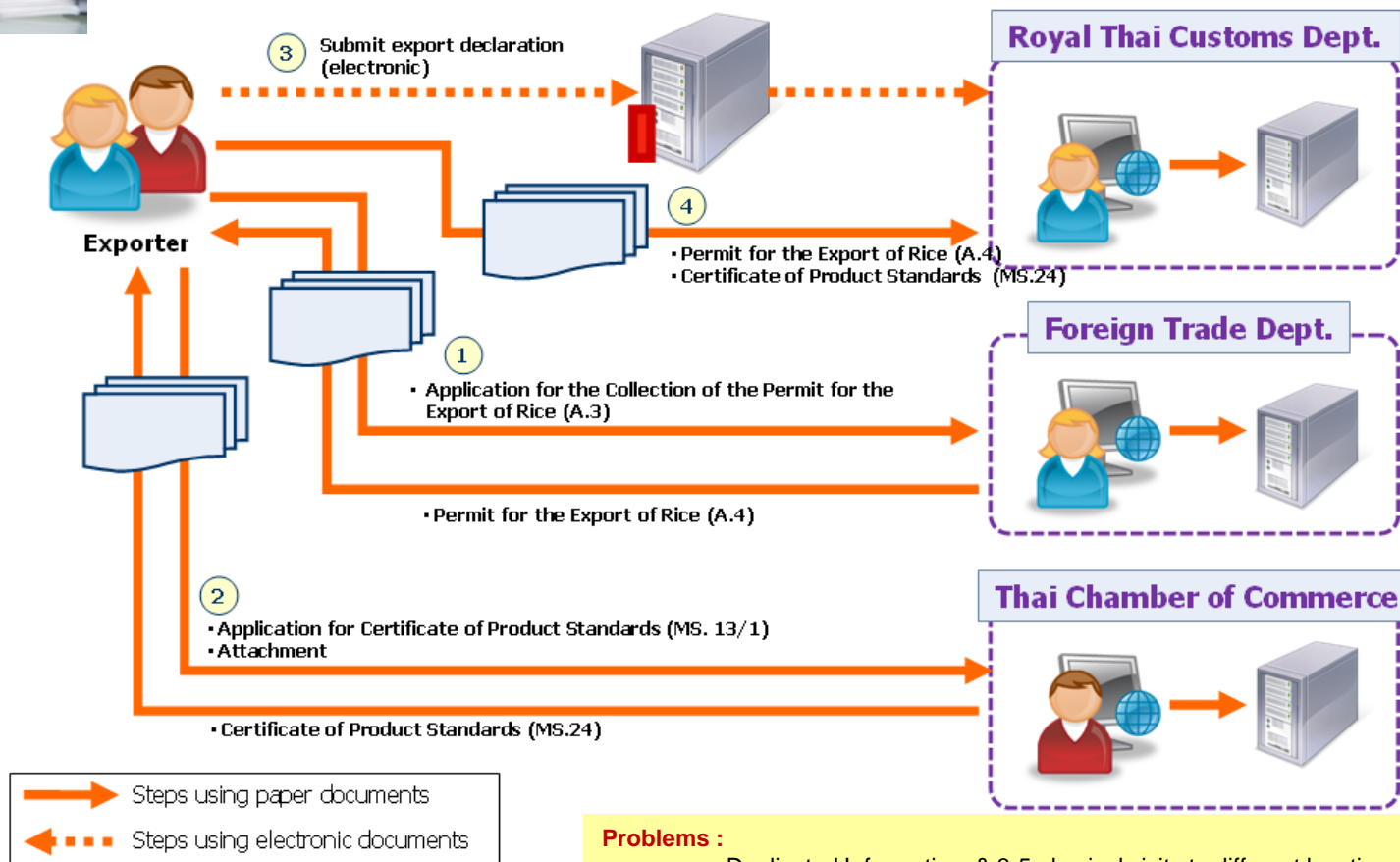
# How to conduct Data Harmonization?

- Evaluate and select **data model** based on comprehensiveness and compliance, e.g. WCO Data Model 3.0
- Confirm that the scope of **a data harmonization project** matches the scope of the business process analysis of the Business Process Phase
- Define each **data element in terms of definition**, data type, data format, and data constraints in actual operation
- **Analyze data elements across various documents** and organize them in a comparable manner
- Map the data elements to **selected standard data model**



# As-Is Business Process Analysis

## Example of Jasmine Rice Export Process (present)



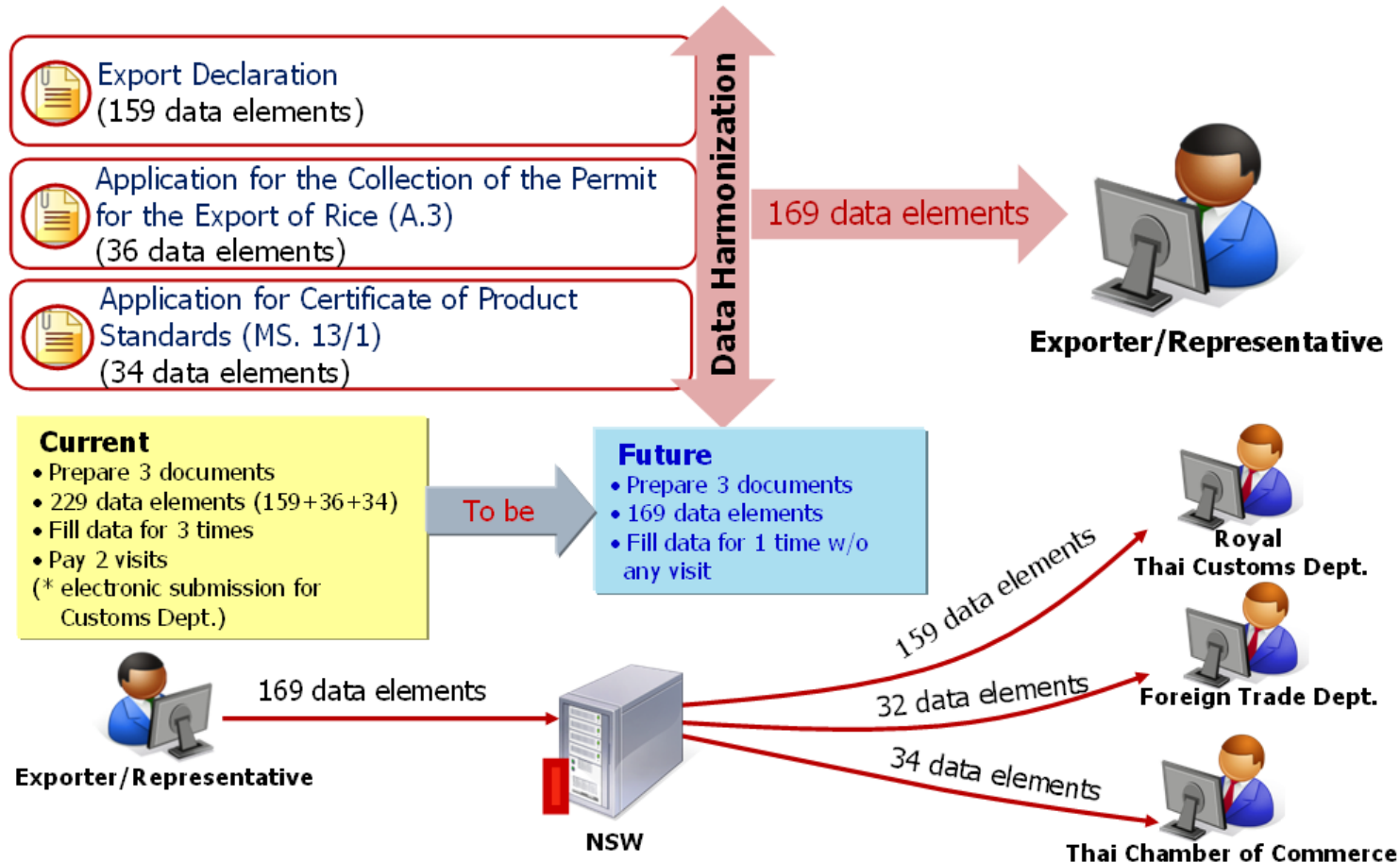
### Problems :

- Duplicated Information & 3-5 physical visits to different locations
- High Cost and Time for sending and receiving documents
- Possible Data Inconsistency

# Data Harmonization and "To-Be" Business Process

**A Case Example 2(cont)**  
(to enable single window data entry)

## Preparation of Electronic Documents for Jasmine Rice Exportation

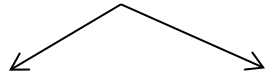


(to enable single window data entry)

# Permit for the export of rice by Department of Foreign Trade

# Example – Defining data element names and definitions for 2 documents by comparing with International Standards

2 documents required for exportation of rice



Permit for the export of rice	Rice Quality Certificate	Data Element Name	Definition
weight (kg.)	Net Weight (kg.)	Net Weight (item)	[TDED 6020] The measure of the net weight (mass) of this cross-border trade line item, excluding all packaging.
Unit Price	Price	Unit Price (item)	[TDED 5110] Price per unit of quantity on which an article item amount is calculated.
Name of transport	Ship's name	Name of Transport	[TDED 8212] Name of a specific means of transport such as the vessel name

# Financial Analysis and Business Model Study

Referring to the SW Development Cycle (Financial and Business Model Analysis)

- It is necessary to conduct a comprehensive **cost benefit analysis**, e.g. cost of designing, developing, and maintaining individual agency systems; its potential benefits; and who should finance the development and operations e.g.
  - a system totally **financed by government (e.g. with no service fee)** to an **entirely self-sustainable model (e.g. with some forms of revenue)**, or
  - possibilities **for public-private partnerships** with some service fees, or
  - Some parts **financially supported by private sectors** with fees.
- Clarity on the financial model can significantly influence decision-makers to support the implementation of the system.

# Funding models using for SW Development

- A survey of the various SW case studies in the UNECE repository showed that funding for SW development is **either self-financed** by the respective government, or via **public-private partnership (PPP)**.

Country	Name of SW	Funding Mode	Charging mode	Operator
Singapore	Singapore TradeNet / TradeXchange	Govt-funded for TradeNet PPP for TradeXchange	Transaction-based	Private Company
Sweden	Swedish Customs Information System / Single Window	Govt-fund	Free of charge	Customs
Hong Kong	TradeLink / DTTN	PPP	Transaction-based	Private Company
Malaysia	Malaysia National Single Window	Private-funded	Transaction-based	Private Company
South Korea	u-Trade Platform	Govt-funded	Transaction-based	Private Company
Indonesia	Indonesian National Single Window	Govt-funded	Free of charge	Private Company
Japan	Nippon Automated Cargo and Port Consolidated System (NACCS)	Govt-funded	Transaction-based	Private Company
Ghana	Ghana Community Netwoet	PPP	Transaction-based	Private Company
Mauritius	Mauritius TradeNet	PPP	Transaction-based	Private Company
Macedonia	EXIM	Aid agency & Govt	Free of charge, except for digital certificates & administrative fees for the respective licenses	Govt
Senegal	ORBUS	PPP	Transaction-based	Private Company
Colombia	VUCE	Govt funded	Transaction-based	Govt

# A Special Vehicle/Entity may be needed to develop and operate the SW platform

- Since the SW environment is an evolutionary and long-term platform for trade facilitation, a study about the sustainability of **the “entity”** that will be in charge of this platform is needed.
- Most of countries with successful SW environments have institutionalized **a special vehicle(s) or a special organization** to develop and provide operational services (and continuously improve) their SW environment (again several options could be considered), e.g.
  - Solely owned and invested by Governments (without service fees), or
  - Solely owned and invested by Governments, and **later transformed into a government corporate**, or
  - A business entity by **public-private partnership** (shared investment, and with some service fees).
  - A **Build-Operate-Transfer Model** (developed by a private company, operated with some service fees, and transfer the ownership to the government after an agreed duration, etc.



# 3. Planning Phase

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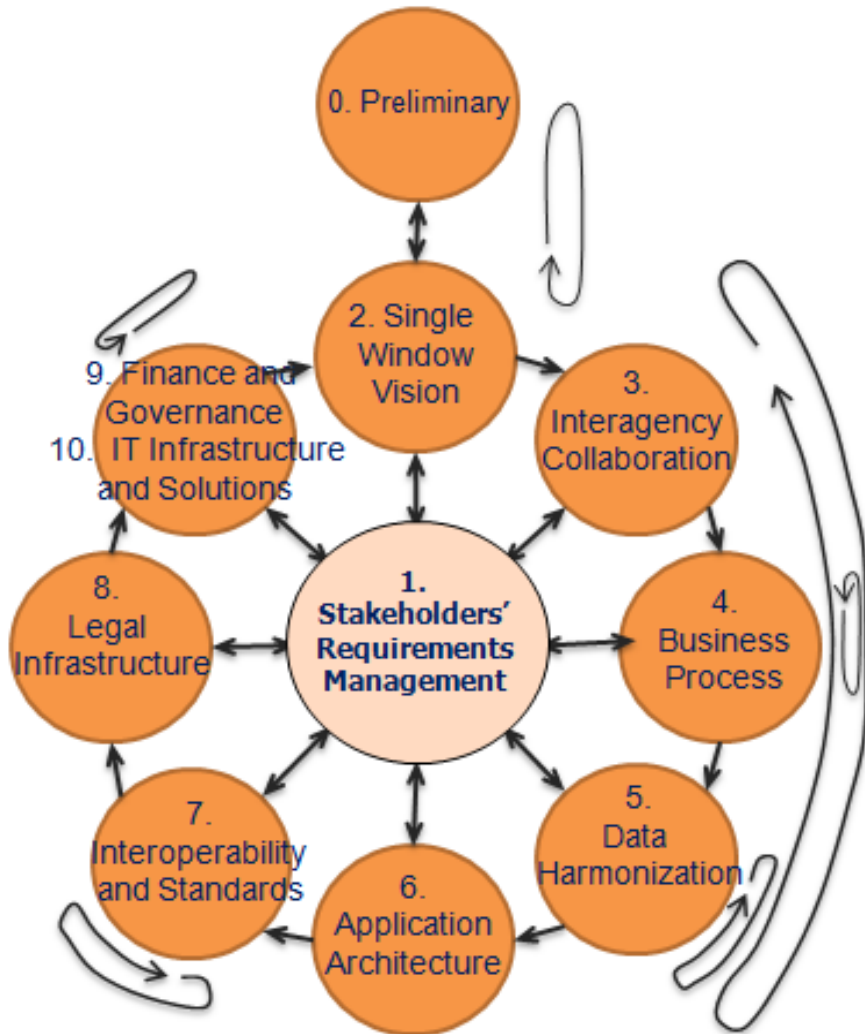
To formulate  
a high-level master plan



# An architecture-based planning approach

- After the inception and elaboration phases, the SW vision, objectives, and target “to-be” architectures and associated issues should be commonly clarified and agreed.
  - When the architecture analysis has been conducted, i.e. when we’ve already agreed upon the clear “to-be” architecture, we can now readily take those components into sub-projects with tasks (what to do) and schedule.

# An architecture-based planning approach



To formulate the SW project implementation plan, again we should revisit all SW key components, but with the perspectives of prioritizing these components into **sub projects** with associated **deliverables**, **tasks**, **schedules**, **budgets**, **management issues**, other **necessary resources**, etc.

# A Suggested Template for a SW Master Plan

1. Executive Summary
2. Overview of a National Single Window
  - 2.1 Scope and Objectives of NSW
  - 2.2 Expected Benefits
  - 2.3 Major Components of NSW
  - 2.4 Participating Agencies
3. Implementation Strategies
  - 3.1 Incremental Development
  - 3.2 Use of International Best Practices and Standards
  - 3.3 Business Process Improvement
  - 3.4 Harmonization of Data Requirements
  - 3.5 Provision of Legal Infrastructure
  - 3.6 Stakeholder Co-ordination
4. Stocktaking of NSW-related Development thus Far
  - 4.1 NSW Exchange Systems
  - 4.2 Business Process Analysis
  - 4.3 Business Model
  - 4.4 Harmonization of Data Requirements
5. Institutional Arrangement for Project Implementation, Management, and Governance
  - 5.1 Project Implementation
  - 5.2 Project Management
  - 5.3 Project Governance
6. Project Schedule and Budgets

# Key contents that should be included in a SW master plan.

- Clear project's scope, goals and objectives;
- Key deliverables, responsibility for delivery, time frame and milestones
- Defined roles and responsibilities of various participants, including a clear agreement on who is in charge of the project (the project manager) and the level of authority of this manager;
- Specification of the management and monitoring responsibilities of the project manager and the line of authority and communication between the project manager, Project Management Group and the Task Force;
- Clear communication strategy for communicating with project stakeholders and potential users on a regular basis throughout the implementation, including an agreement on what information needs to be communicated with what groups and in what manner and frequency;
- A clear and agreed project budget, including financial and human resources; it is essential that the necessary funds and personnel be allocated to the project from the outset;
- A clear statement of the project risks (such as a cutback in budget, delay in required legal reforms, etc.) and an agreed response plan (to the best extent possible) to manage these risks, including contingency plans for high-level risks;
- Agreement on the criteria for measuring the project success;
- An agreed project review and feedback mechanism to provide ongoing monitoring of the project process and to deal with any changes in the implementation that may be required.

# Who and What should we do with the draft plan?

- The **draft** project plan could be developed by a consulting team or a designated task force, but it should **be reviewed and** refined by relevant stakeholders through several rounds of communication and discussions.
- The final SW high-level master plan should be **commonly understood** by all relevant stakeholders, **and** then **agreed** by the senior-level Project Management group.
- The project should be **approved** and **funded** by the government authority or those high-level policy decision makers who have the resources and can grant the sponsorship for the project.

# Summary

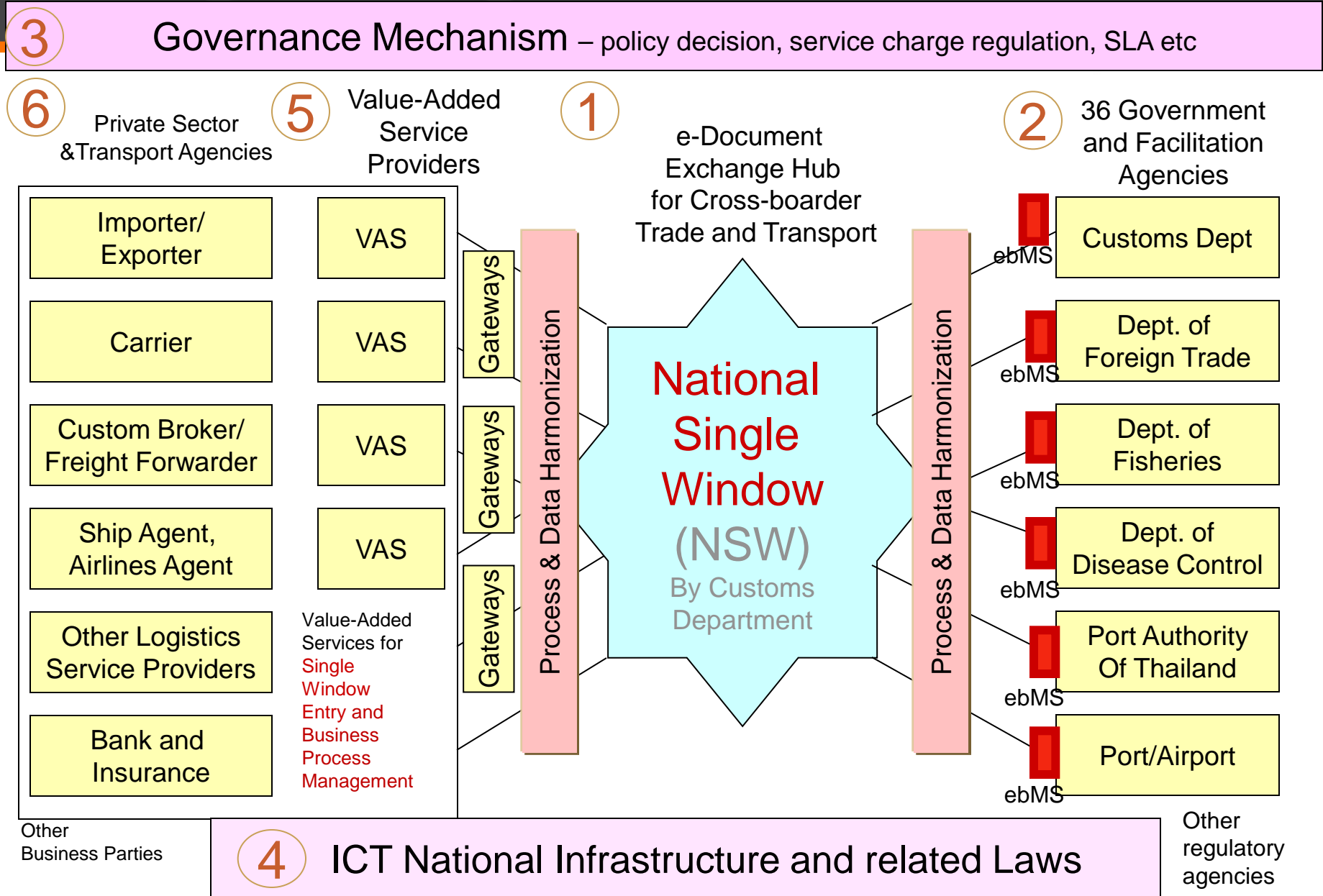
- A SW high-level master plan is to align SW objectives with the current As-Is context, and to define clear paths for development and deployment of the target To-Be Single Window.
- After a SW high-level master plan is initially established, approved and **financially funded**, it would become the reference for future solution implementation and deployment initiatives responding to SW requirements.
- Over the time, this master plan should be periodically refined with changes in environments or business objectives in order to stay as strategic and reference.

# Case Examples & Discussion on SW high-level master plans

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# A "To-Be" SW Architecture

**A Case Example 2 (cont)**  
(referencing to  
the SW Roadmap - Stage2)





# Case Example – SW High-Level Project Plan (with Sub-Projects)

**A Case Example 2 (cont)**  
(referencing to  
the SW Roadmap - Level 2  
and Level 3)

## 1. Preparation Projects

- ☐ Awareness Creation & Capacity Building Project (by Ministry of ICT)
- ☐ Business Process Re-design and Streamlining Rules & Regulation Project to support e-transaction via NSW (by Customs Department)
- ☐ Data Harmonization Project (by Customs Department)
- ☐ Interoperability Framework Project (to establish a national development standard for enabling interoperability across agencies and across different IT platforms) (by Ministry of ICT)

## 2. System Implementation Projects

- ☐ NSW-phase-1 (pilot) project for exchanging e-permits between 3 other government agencies with Customs department. (by Customs Department)
- ☐ Backend-IT system implementation projects for 20 regulatory agencies (by each own department)
- ☐ NSW-phase-2 project for interconnecting 36 government agencies (by Customs Department)
- ☐ E-Port Development Project (by Port Authority)
- ☐ Cross-border data exchange pilot project (by Customs Department)

## 3. Deployment and Change Management Project

- ☐ Awareness Creation, Training & Promotion Project (by Customs Department)

## 4. Other Supporting Projects

- ☐ Upgrading high-speed G2G infrastructure Project (by Ministry of ICT)
- ☐ Root CA (Certificate Authority) Development Project (by Ministry of ICT)

# 4. Overseeing the SW Implementation Phase

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# Establishing Several Levels of Project Management Offices (PMO)

- After the SW high-level master plan has been officially approved and funded, **several levels of Project Management Offices (PMOs)** must be established and mandated to coordinate, manage and/or implementation the different levels of the SW program and (sub)projects to ensure long-term institutional support and operation (with offices and staffs), i.e. at least in **3 major levels**
  1. PMO at **the political level**
  2. PMO at **the strategic level**
  3. PMO at **the implementation and operation level**

# Establishing 3 Levels of Project Management Offices (PMOs)

1. **At the Political Level** – the National Economic and Social Development Board, or an organization in charge of overall national development planning and coordination, normally acts as the PMO or the secretariat office for the political level by collaboratively planning and overseeing the progress of the overall SW program implementation
  - ❑ Monitor the deliverables, provide quality checks, and feedbacks etc.
2. **At the Strategic Level** – suppose Customs Dept is mandated to be the NSW focal point at the strategic level, then Customs Dept should establish a PMO team to manage and coordinate the SW projects with other government agencies and business sectors.
  - ❑ The SW high-level master plan needs to be further refined into several detailed plans, so that each relevant government/agency will procure, implement and deploy its system along with associated reforms.
3. **At the Operational Level** – Each agency in charge of any specific (sub)projects needs to have its own PMO to manage its own projects including detailed planning, implementation, deployment and operations of those projects.
  - ❑ For example, some projects may be procured, implemented and deployed by Customs, some projects by MICT, some projects by Port Authority, but all projects may be coordinated strategically by Customs Dept.

# But with the complexity of SW Implementation, At least 3 Levels of Interplay are normally needed.

**A Case Example 2**  
(referencing to  
the SW Roadmap  
- Level 2)

Levels/ Drivers	Platform	Interplay
Political will	<ul style="list-style-type: none"> <li>National Committee chaired by Head of State</li> <li>Cabinet decree</li> <li>National Committee and NSW Sub Committee</li> </ul>	<ul style="list-style-type: none"> <li>Source of legitimacy and budget</li> <li>Source of authority for the Political-level PMO</li> </ul>
Strategic	<ul style="list-style-type: none"> <li>Sub committee on NSW</li> <li>Flagship status under Logistics and Trade Facilitation issues</li> <li>Designating Lead Agencies (MICT, NESDB, Customs Dpt.)</li> </ul>	<ul style="list-style-type: none"> <li>Regular meetings drive progress</li> <li>Informal meeting and dialogue create mutual trust and understanding</li> <li>Lead consultant helped draw out over all architecture and model</li> </ul>
Operational	<ul style="list-style-type: none"> <li>MICT Task Force allocating budget to 12 Dpt.</li> <li>Customs' two Sub working groups on streamlining BP + aligning data required and technical communication protocol</li> </ul>	<ul style="list-style-type: none"> <li>MICT enforced Cooperation via budgeting and procurement process</li> <li>Customs procedure reform implemented by Customs Dpt. forced some OGAs to come along</li> </ul>

Ref: Suriyon, NESDB

NESDB=National Economic and Social Development Board  
NLC = National Logistics Committee

# What and How to monitor and control a project?

## [At least 3 key things you should do]

- A **project's documented plan** is the basis for
  1. monitoring activities & their deliverables
  2. communicating status, and
  3. taking corrective actions
- Progress is primarily determined by **comparing “actual”** work product, task, cost and schedule **with the “planned”** at prescribed milestones within the project schedule or within the work breakdown structure (WBS), e.g.
  - Comparing the “actual” finished-date with the “planned” finished date of Milestones
  - Comparing the “actual” deliverable with the “planned” (expected) deliverable (work product)
- Appropriate visibility enables **timely corrective action** to be taken when **performance deviates significantly from the plan.**
  - A deviate is significant if, when left unsolved, it precludes the project from meeting its objective.

# What are the options for corrective actions?

When actual progress's status of the project deviates significantly from the expected values, corrective actions should be taken appropriately.

- These actions may require “**re-planning**,” which may include revising the original plan, establishing new agreements, or including mitigation activities within the current plan.
- In general, we should manage corrective actions to closure including (this is called “**Issue Management**”).
  1. **Collect and analyze the issues** and determine the corrective actions necessary to address the issues
  2. **Take corrective action** on identified issues
  3. **Manage corrective actions** to closure

## 5. Change Adoption, Measurement/Lessons-learned Collection & Feedback Phase

- Since establishing a **SW environment** is a **long-term** and complicated **development program** (e.g. referring to the SW Roadmap), the concept of continuous improvement should be adopted since we could learn and continuously gain more experiences as we go.
- Note that the SW project implementation include not just the technological components, e.g. **hardware/network, software development**, but also **human-related operations** and **life-style environment changes**.
  - It is very important to **collecting lessons learned** and **suggest improvement opportunities** of the above aspects a feedback for the next iteration of **SW project management process**.





# Summary

- ❑ **Step-wise SW project management in 5 phases** include the inception phase, the detailed feasibility study phase, planning phase, implementation and oversight phase, and change adoption/lessons-learned/feedback phase
- ❑ In each phase, the **ten key components and associated activities/deliverables** in the recommended SW development cycles should be revisited and refined iteratively, for example, until the **“to-be” architectures** of those key components are commonly agreed and committed (for analysis and planning), or for monitoring the progress (during the implementation and oversight phase), or for change adoption/collecting lessons learned (during the change adoption/lessons-learned phase).

# Q & A

## Thank you.

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