


# High-level Planning using a framework called SWIF [Single Window Implementation Framework]

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Paperless Trade and Single Window**  
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# Objectives of this presentation

- To propose **a systematic framework** to guide us in transforming the **SW vision** into **reality**  
(emphasizing here only on how to develop a SW high-level master plan)

# The Vision & Goals

- **Vision:** Increasing national trade competitiveness by improving import/export/transit procedures and document transactions with **SW platform** as **an enabling tool**
- **Quantitative Goals:**
  - 25% better, faster, and cheaper in trading across borders\* within 5 years\*\*

\*\* The quantitative numbers here are given just an example, which happens to be the vision among **21 APEC member economies for 2011-2015**.  
(APEC = Asia and Pacific Economic Cooperation)

\* Referring to World Bank's Index ([www.doingbusiness.org](http://www.doingbusiness.org))

“better” means better control, e.g. less fraud, less confusion, less number of steps, and better risk management.

“faster” means less numbers of days/hours for procedures and document handling,  
and “cheaper” means less cost (both direct and indirect cost).

# Why a systematic framework is needed? (for implementing or transforming the SW Vision into Reality)

**Because there are so many complicated challenges to be managed such that the SW Vision could be transformed into reality.**

## Vision

e.g.  
SW and  
Trade  
Facilitation  
Vision

**25% better  
faster,  
cheaper  
trading  
across  
border\*  
within  
5 years  
(2011-2015)**



## Reality

**achieving  
trade transaction  
cost and time  
reduction  
goals**

\* Referring to World Bank's Index ([www.doingbusiness.org](http://www.doingbusiness.org))

APEC = Asia Pacific Economic Cooperation

# What is SWIF?

- SWIF\* is an **architecture-based framework** for guiding the SW Planning and Implementation.
- SWIF adapts the concept of **enterprise architecture\*\*** and **development methodology\*\*** to describe an approach on how to
  - systematically derive the **SW strategic architecture**,
  - formulate its **master plan**, and
  - **Manage** the SW projects.

\* Authored by Eveline van Stijn, Thayanan Phuaphanthong, Somnuk Keretho, Markus Pikart, Wout Hofman, and Yao-Hua Tan, **"Single Window Implementation Framework (SWIF),"** Free University Amsterdam, Kasetsart University Bangkok, UNECE and published as an EU-supported ITAIDE D5.0:4b deliverable.

\*\* Adapted from The Open Group Enterprise Architecture Framework, called TOGAF-9, including its development methodology called ADM (Architecture Development Method).

# Key Concepts and Guidelines within SWIF

(UNNExT Managerial Guide for SW Planning and Implementation – to be published)

1. **Visions & Goals Alignment** – how to formulate SW visions and goals, where possible with quantitative indicators, by aligning also with national and/or regional policy directions.
2. **An Evolutionary SW Roadmap in 5 Development Levels** recommended as a long-term SW development roadmap and as a reference model for
  - ❑ assessing the current or “as-is” condition of the country, and then
  - ❑ prioritizing for the next target or “to-be” SW environment (where the country may consider for the next phase of implementation).
3. **Decomposition** – how to systematically decompose & structure the SW implementation challenges into smaller and more manageable components (10 critical components are proposed).

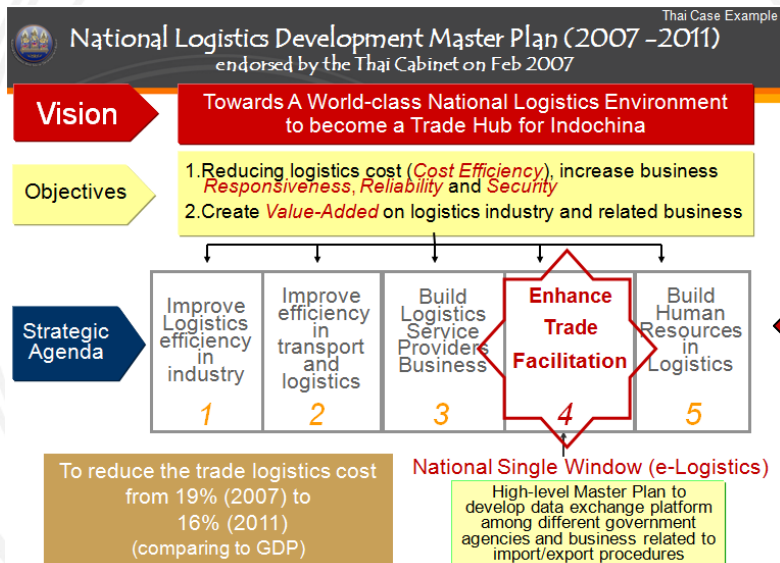
# Key Concepts and Guidelines within SWIF (cont)

4. **SW Development Cycle** – how to analyze the “as-is” or current conditions of those 10 components, and then how the “to-be” or future architectures (again of those 10 components) can be proposed and agreed.
5. **Viewpoints** – how to clearly visualize the concerned issues based on the interest of the target audiences (normally with diagrams and associated descriptions).
6. **Project Management Process in 5 practical phases** for preliminary and detailed analysis, planning and overseeing the SW projects.

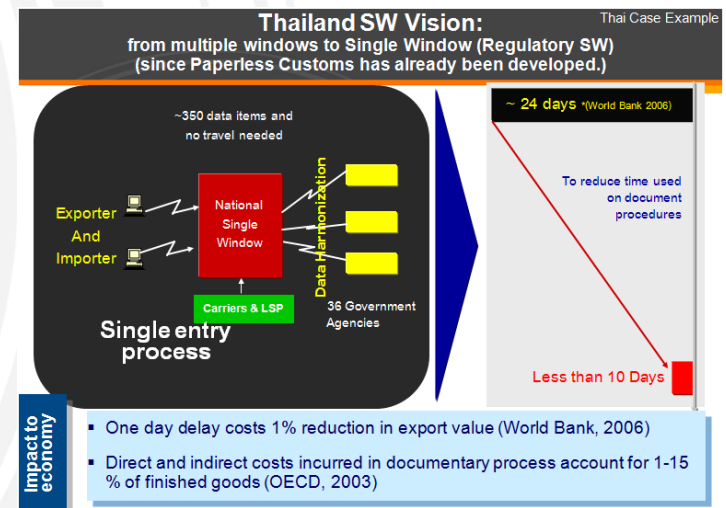
# 1. SW Vision & Goals Alignment

## National SW Vision, Goals and its Planning should be aligned and integrated as a part of the related national/regional development agenda

### Thailand Case – Trade Facilitation & SW agenda is holistically integrated within the National Logistics Development Plan



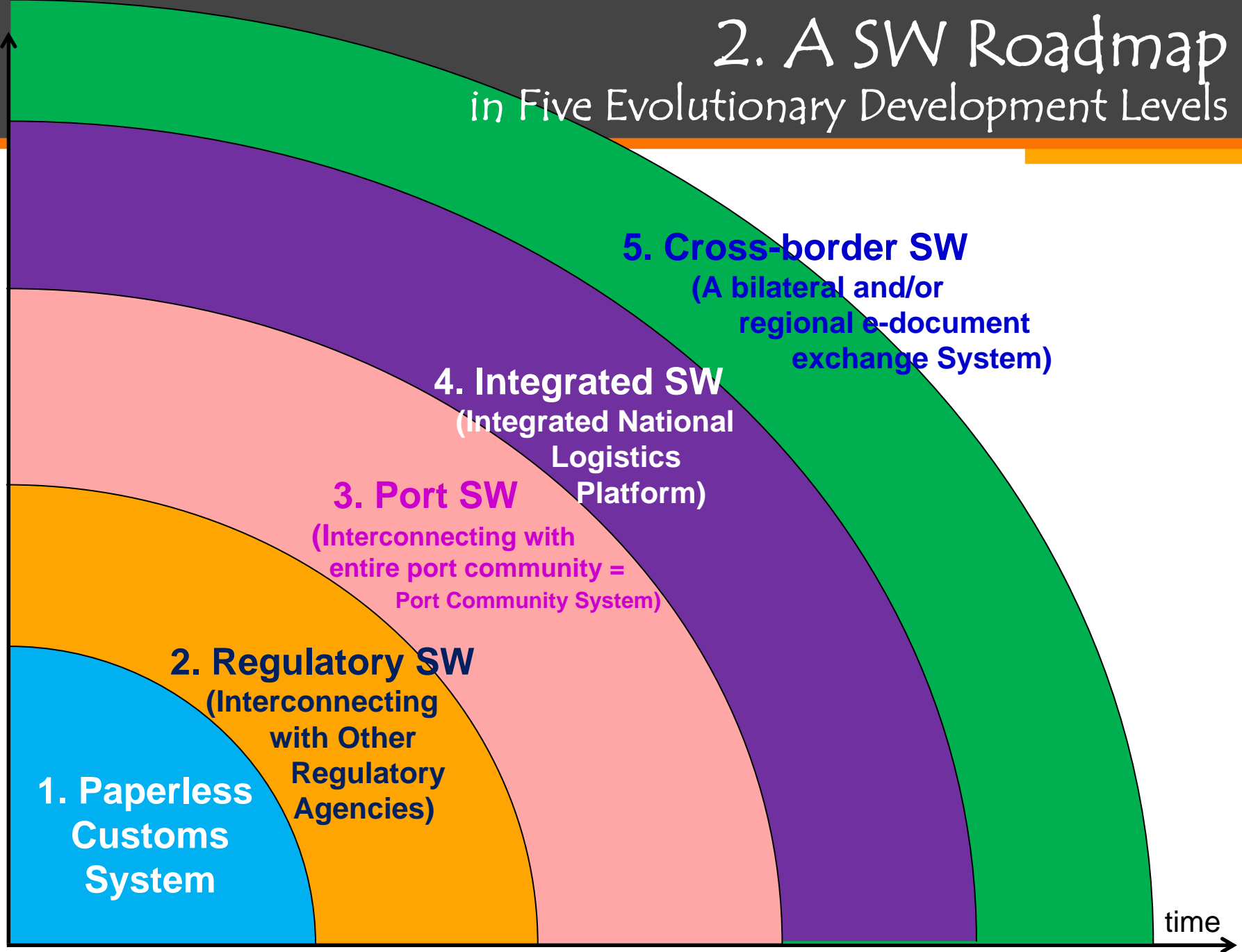
Vision & Goals Alignment with National and Regional Agenda





## 2. A SW Roadmap in Five Evolutionary Development Levels

Potential benefits



Note that in many countries, Port SW or PCS (Maturity Level 3) was fully developed before Regulatory SW (Maturity Level 2). Here, we do not necessarily recommend every country to develop Levels 4 & 5 if it does not really justify the cost and benefits.

# Single Window Roadmap

## in Five Evolutionary Development Levels and their Key Capabilities

### **Level 1: Paperless Customs Declaration System (Paperless Customs)**

Submission of paperless Customs declaration, e-payment with banks for Customs duty, e-Container loading list (to associate between Customs declaration and physical containers of those declared goods), and risk-based inspections.

### **Level 2: Integration with other Regulatory Bodies (Regulatory SW)**

Extending the paperless Customs system by interconnecting with other governments' IT systems for exchanging import/export e-permits and e-certificates with Customs Department for more accurate and faster Customs clearance, single window data entry for electronic submissions of application forms, and status e-tracking.

### **Level 3: Port Community Systems (PCS) in major sea/air ports (Port SW)**

Interconnection and e-document exchange for efficient port operations among all related stakeholders, e.g. customs brokers, freight forwarders, transporters, terminal operators, Customs department, warehouses, port authority, and other control agencies.

### **Level 4: An Integrated National Logistics Platform (Integrated SW)**

Extension the interconnection with importers/exporters, logistics-service providers, insurance companies, banks for online payment of services and goods,

### **Level 5: A Regional Information-Exchange System (Cross-border SW)**

Cross-border e-document exchange between two or more economies.

EDI = Electronic Data Interchange

Note that in some cases, PCSs in major ports (as in Level 3) within a country were being fully developed before Level 2.

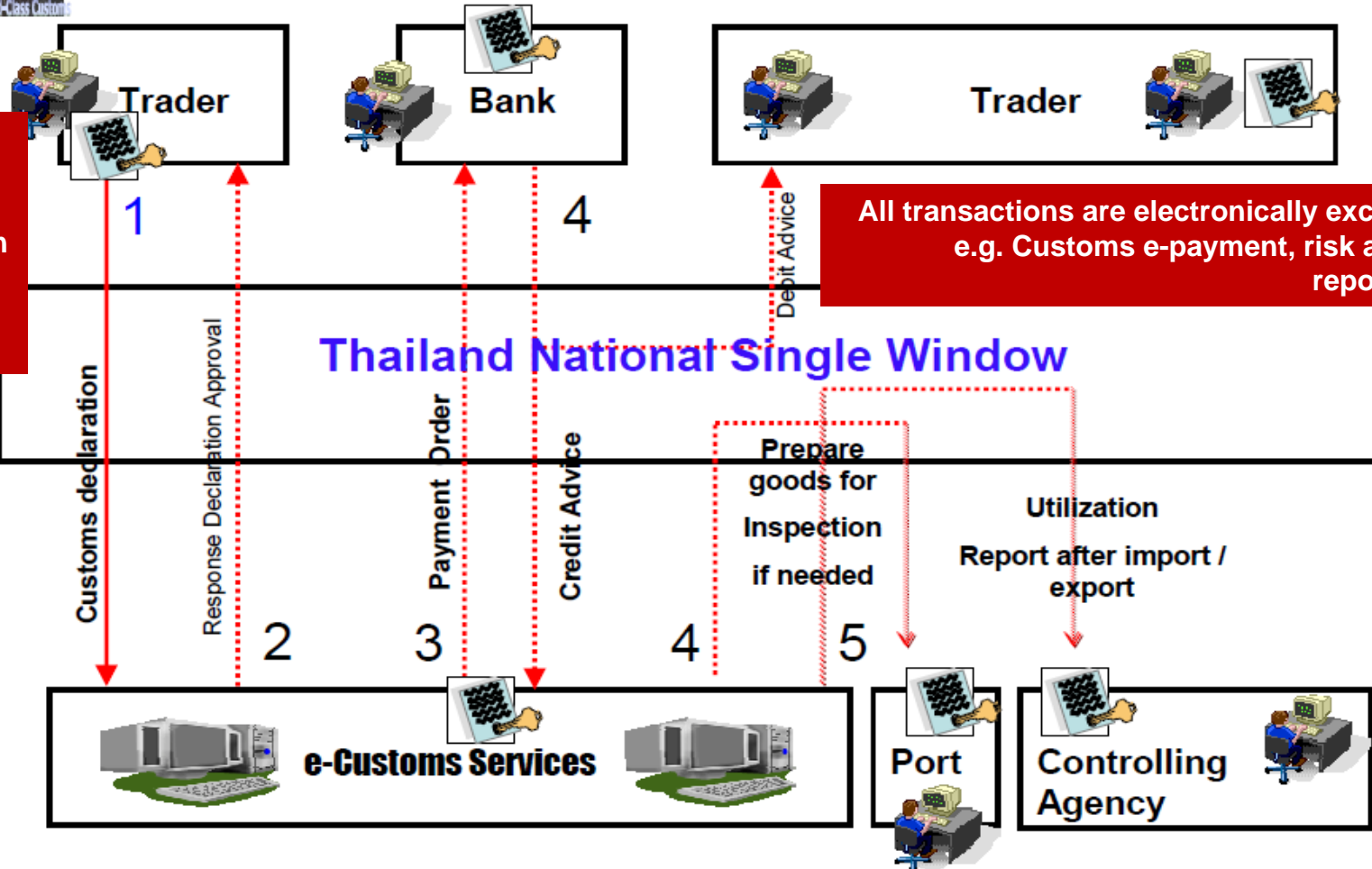
And some countries start exchanging e-document across the countries (as in Level 5) even though they haven't fully completed Level 3 or 4.

# "To-Be" Paperless Customs Procedures

**A Case Example 1**  
(referencing to  
the SW Roadmap  
Level 1)

(an initial concept study in 2005, proposed for the development from the "As-Is (then)" paper-based documents and partial electronic procedures)

## A Single Submission of Electronic Customs Declaration

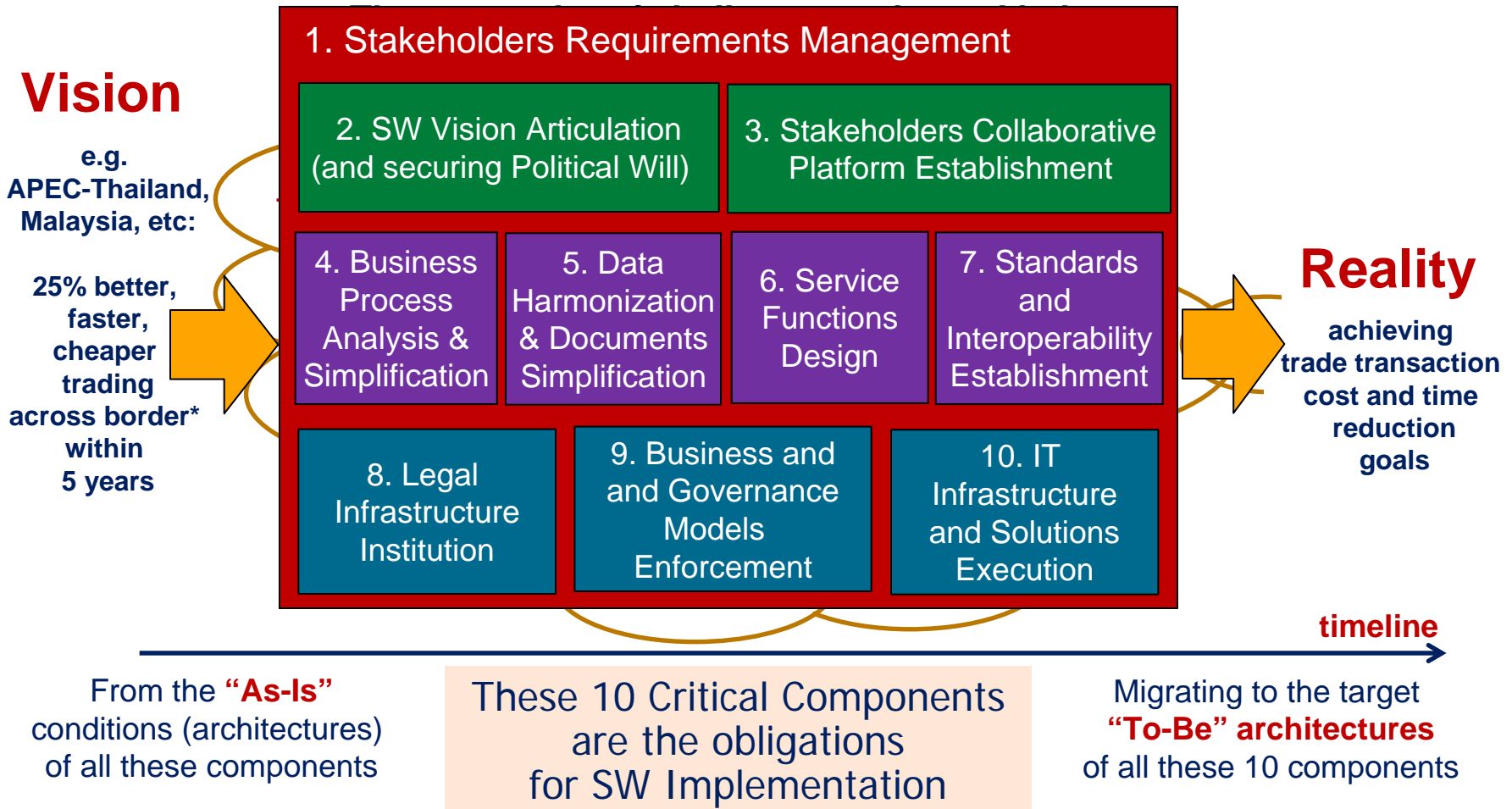


All transactions are electronically exchanged, e.g. Customs e-payment, risk analysis, reporting, ...

Referring to – 'Thailand NSW' presentation by  
Mr. SINMAHAT Kiatjanon, Thai Customs Department - February 2010., Nepal.

# 3. Decomposition

Complexity of Single Window can be handled by decomposing its challenges into smaller and more manageable sub-components.



# 4. SW Development Cycle

Key Components that need to be analyzed, planned, coordinated and implemented.



The **“as-is”** or current **conditions** of these 10 components must be analyzed, and then the target or **“to-be” architectures** (again of these 10 components) need to be developed and agreed.

Normally **many iterations** of the above activities are needed before we can **politically, organizationally and financially** agree on the “to-be” architectures before we make any commitments to implement.

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

1. Stakeholders' Requirements Identification & Management
2. SW Vision Articulation (+ secured Political Will)
3. Stakeholders Collaborative Platform Establishment
4. Business Process Analysis and Simplification
5. Data Harmonization and Document Simplification
6. Service Functions (Application Architecture) Design
7. Technical Standards and Interoperability Establishment
8. Legal Infrastructure Institution
9. Business & Governance Models Enforcement
10. IT Infrastructure & Solutions Execution

# 5. Viewpoints

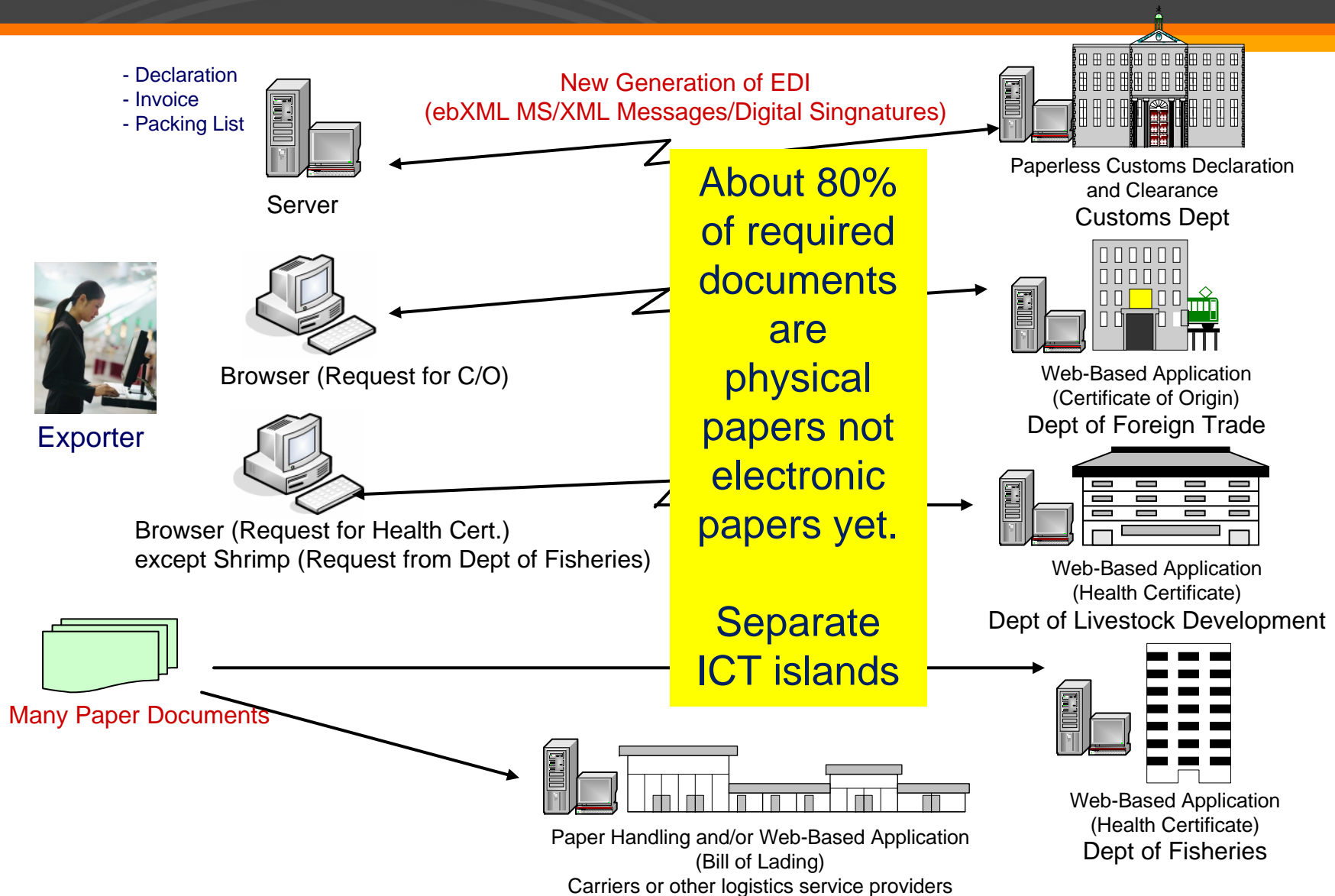
Viewpoints are diagrams (sometimes called blueprints) along with verbal/written descriptions for explaining the same topic but with different levels of details based on the interest of the target audience

An architect uses several diagrams to explain about the same building, e.g.  
one diagram showing the interior design to communicate with normal users,  
one diagram showing concrete structures to be used by civil engineers,  
one diagram showing wiring for electrical technicians, etc.

Likewise, several detailed levels of diagrams and descriptions should be used to communicate about SW components but each suitable for different target audiences (e.g. viewpoints/diagrams suitable for high-level policy makers, policy managers, business operators, and technical IT staffs)



# "As-Is" Application Architecture in 2007





# A Conceptual Architecture\* of the "To-Be" National Single Window

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

Technical interoperability protocols are needed, and common definitions of data elements, and semantic data structures (common data models) among different documents required by different organizations are required also.



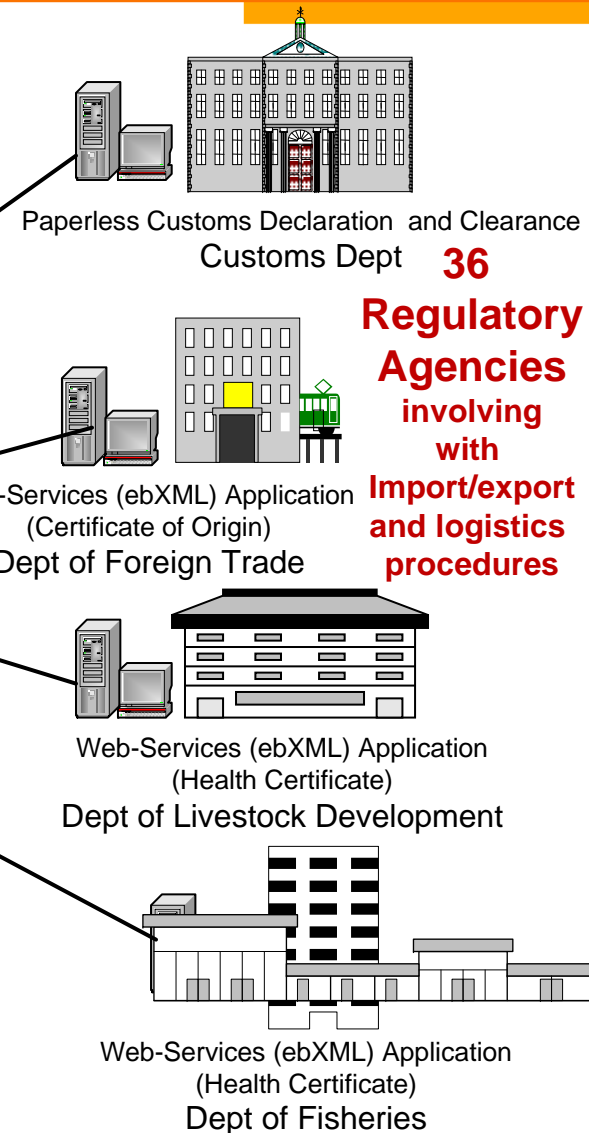
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## 1. National Single Window [Goal 1] e-Documents Exchange Hub

2. [Goal 2] – **Electronic Single Window Entry**  
One time submission for each data element  
but multiple usage for different purposes on  
different ICT platforms

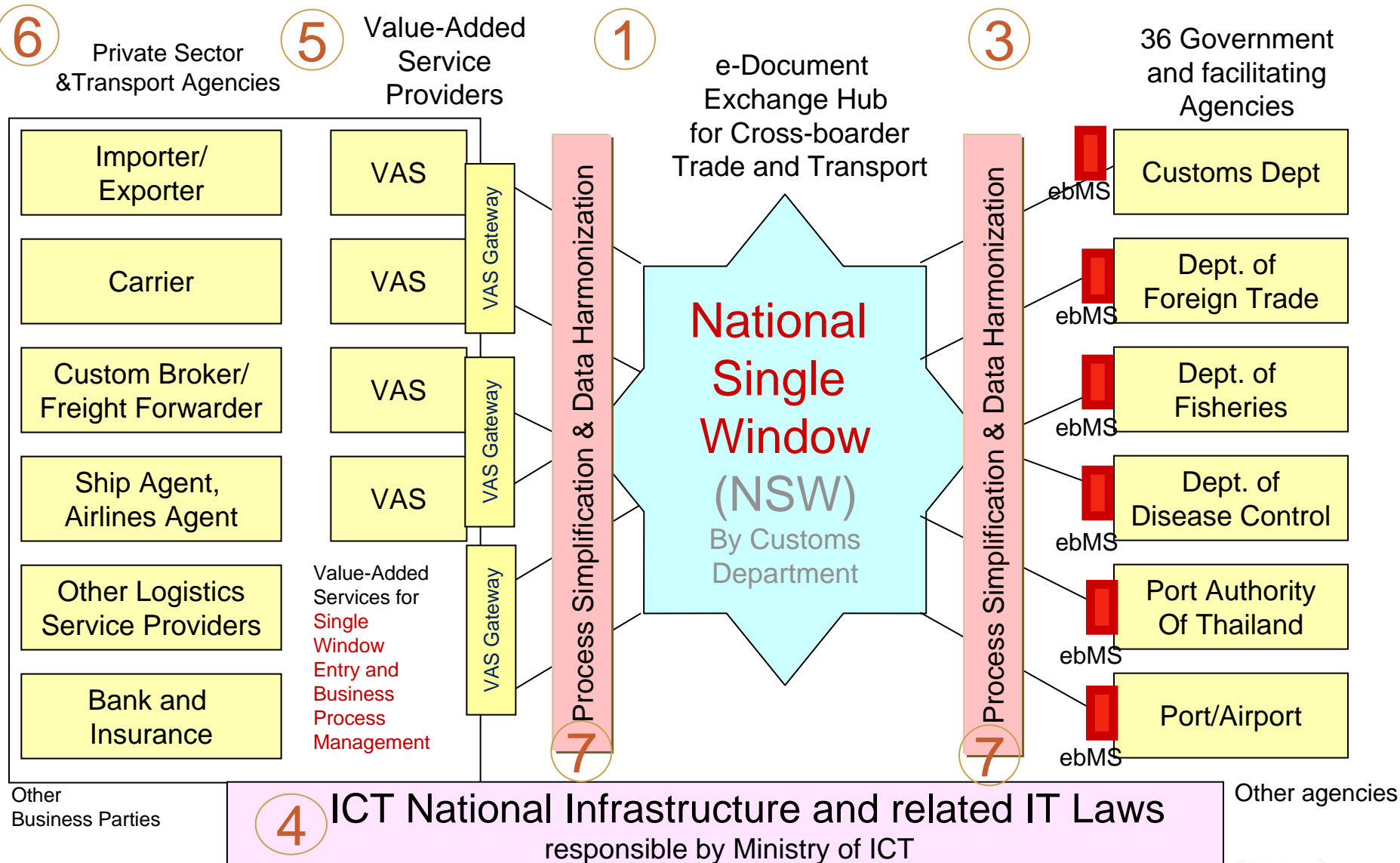
\* as initially proposed for  
discussion and feedback  
with key stakeholders in 2007.



# "To-Be" Thailand SW Architecture

A Case Example

## 2 Governance Mechanism – policy decision, service charge regulation, service level agreement etc.



## 6. SW Project Management – 5 Stepwise Activities/Phases

How to analyze, plan and oversee the SW projects (i.e. by revisiting and refining those 10 SW critical components iteratively in each phase).



from the perspective of policy managers

1. **Preliminary/Inception Phase** – Developing a concept paper for preliminary discussion
2. **Elaboration Phase** – Conducting detailed feasibility study
3. **Planning Phase** – Formulating a High-level SW master plan
4. **Execution Phase** – Executing and overseeing the project plan
5. **Lessons-learned/Feedback Phase** – Collecting lessons learned

# SW Project Management Process in 5 Phases

1. **Inception Phase (Preliminary)** – Developing a concept paper for preliminary and initial discussion
2. **Elaboration Phase** – Conducting detailed feasibility study
3. **Planning Phase** – Formulating a SW high-level master plan
4. **Execution Phase (Implementation & Oversight)**
  - SW Project Implementation and
  - Monitoring and Controlling the project's progress
5. **Feedback & Lessons-learned Phase** – Collecting lessons learned and suggesting opportunities for SW improvement and extensions.

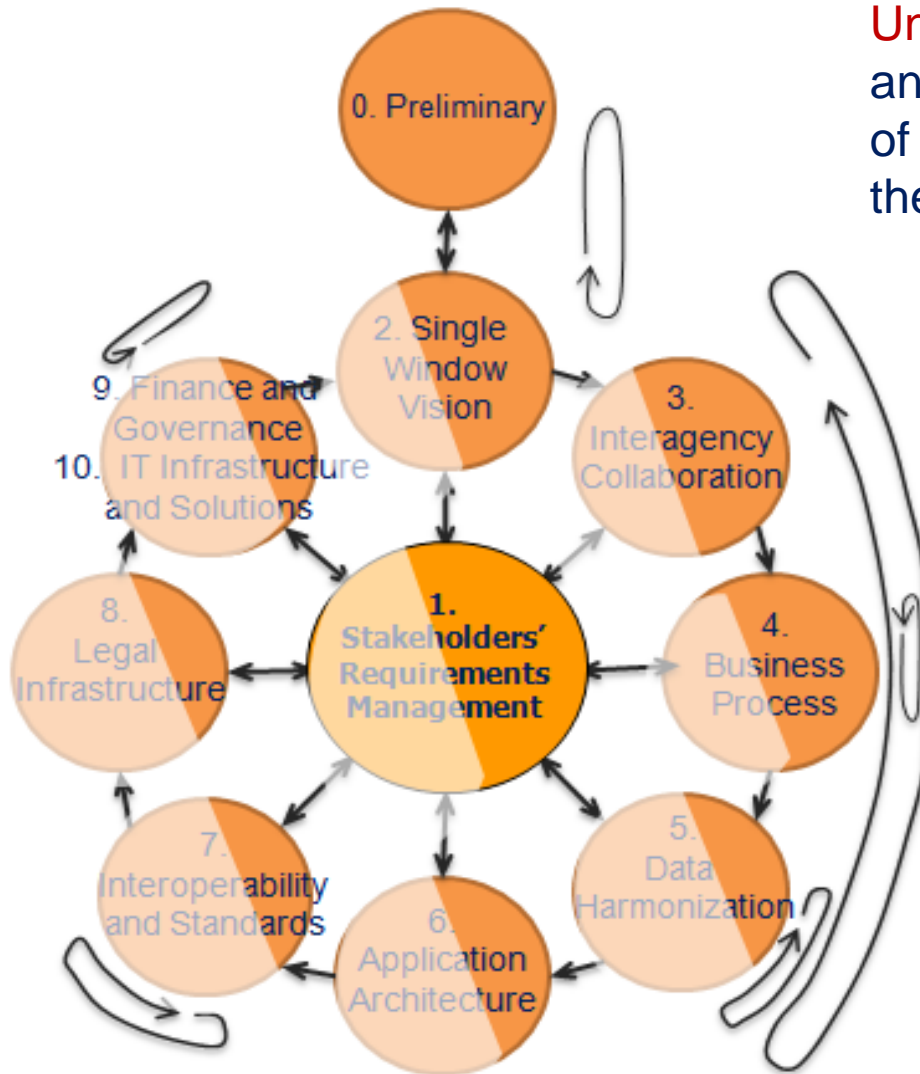
# Why an inception phase should be conducted (the purpose of an initial concept study)?

- ❑ 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(as possible) **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 sponsoring and overseeing the Single Window initiative.

# 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
  3. Possible SW Scope
  4. Business Process and Document Requirements for export-import of some strategic goods and/or strategic ports,...
  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.



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

1. Stakeholders' Needs and Requirements
2. SW Vision and Political Will
3. Stakeholders Collaboration Platform
4. Business Process Analysis and Improvement
5. Data Harmonization and Document Architecture
6. Service Functions/Applications Architecture
7. Technical Standards and Interoperability
8. Legal Infrastructure
9. Business Models, Financial Issues & Governance
10. IT Infrastructure & Technical Architecture

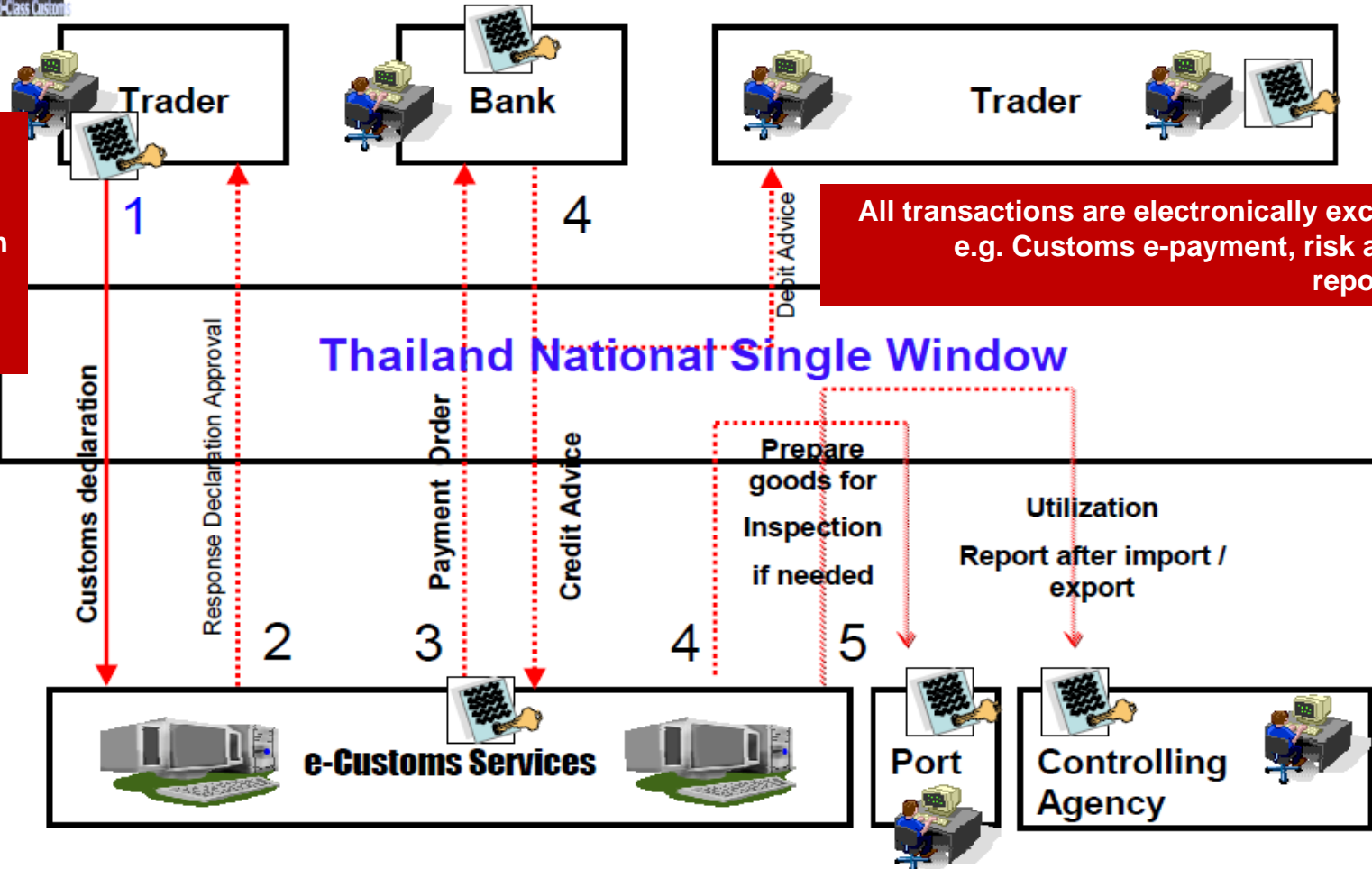


# "To-Be" Paperless Customs Procedures

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(referencing to  
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(an initial concept study in 2005, proposed for the development from the "As-Is (then)" paper-based documents and partial electronic procedures)

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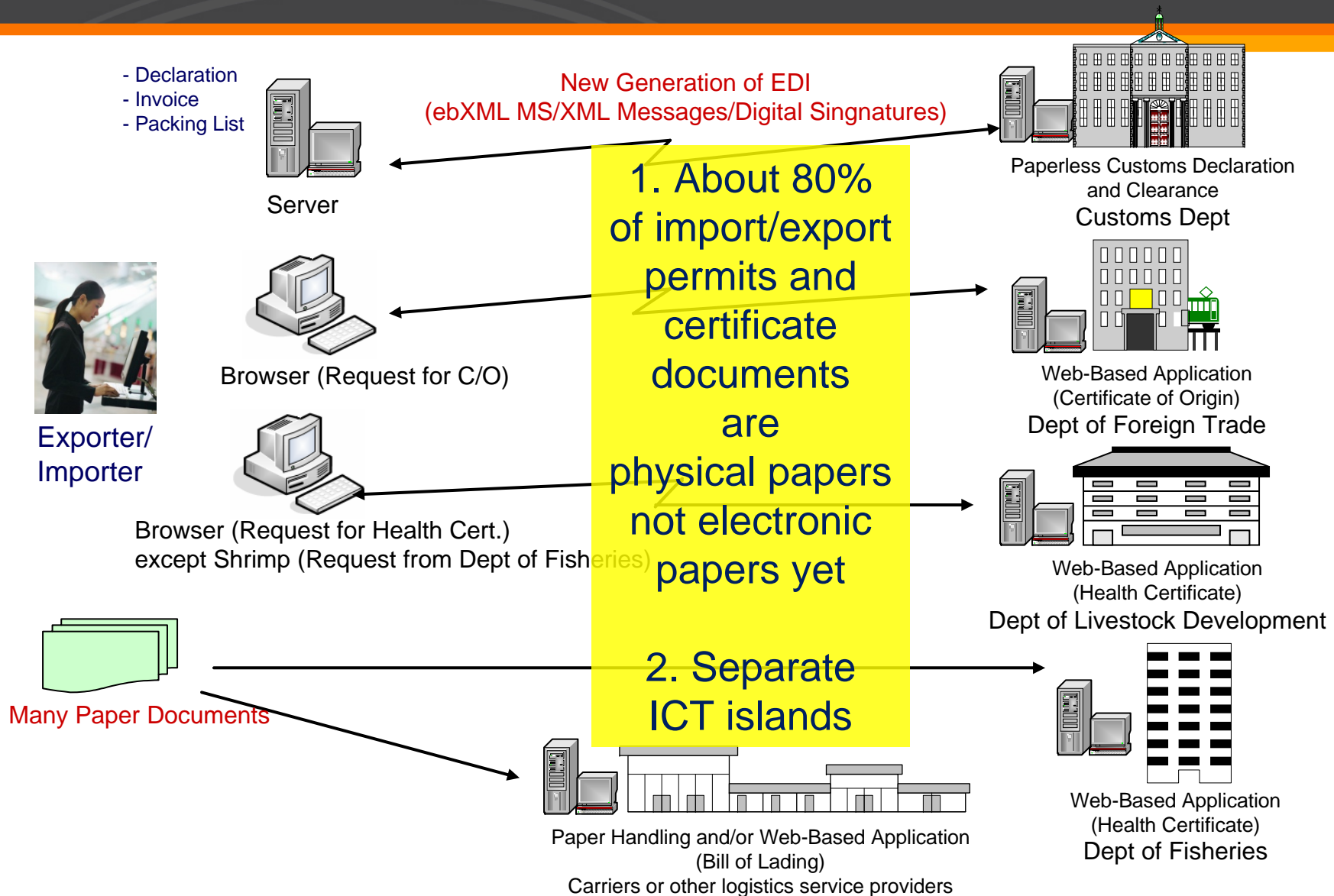


Electronic  
Customs  
Declaration  
Submission  
with  
Digital  
Signature

All transactions are electronically exchanged,  
e.g. Customs e-payment, risk analysis,  
reporting, ...

Referring to – 'Thailand NSW' presentation by  
Mr. SINMAHAT Kiatjanon, Thai Customs Department - February 2010., Nepal.

# "As-Is" Application Architecture in 2007



# A Conceptual Architecture\* of the "To-Be" National Single Window

**A Case Example 2 (cont)**  
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Technical interoperability protocols are needed, and common definitions of data elements, and semantic data structures (common data models) among different documents required by different organizations are required also.



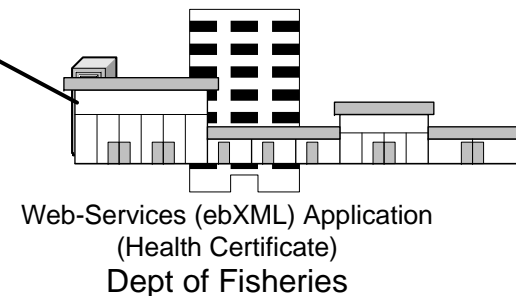
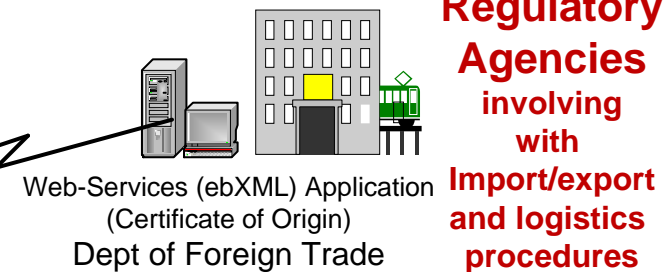
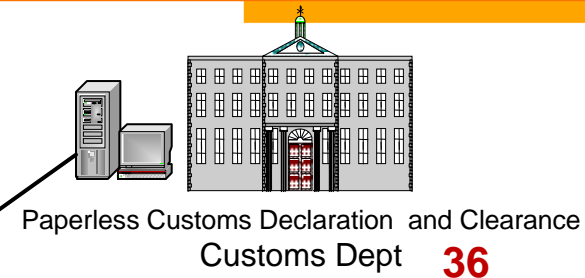
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## 1. National Single Window [Goal 1] e-Documents Exchange Hub

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One time submission for each data element  
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different ICT platforms

\* as initially proposed for  
discussion and feedback  
with key stakeholders in 2007.



# SW Project Management Process in 5 Phases

1. **Inception Phase (Preliminary)** – Developing a concept paper for preliminary and initial discussion
2. **Elaboration Phase** – Conducting detailed feasibility study
3. **Planning Phase** – Formulating a SW high-level master plan
4. **Execution Phase (Implementation & Oversight)**
  - SW Project Implementation and
  - Monitoring and Controlling the project's progress
5. **Feedback & Lessons-learned Phase** – Collecting lessons learned and suggesting opportunities for SW improvement and extensions.

# 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 involved 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 and interoperability issues,
  - ❑ legal infrastructure
  - ❑ implementation options i.e. full or phased implementation) and the possible steps,
  - ❑ financial and business models, e.g. options for investment (by public, public-private, or private only), and other required resources, free services or fee charge for services, how to sustain the operational cost, etc.
  - ❑ 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 called, 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 some 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.

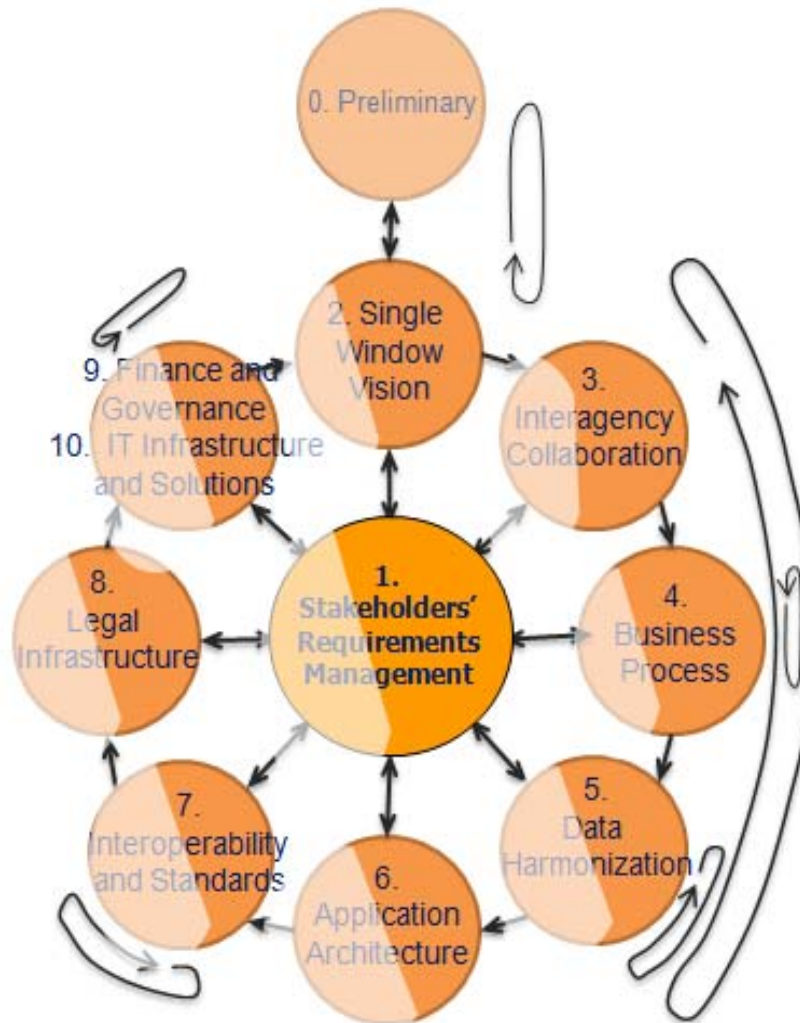
# Suggested Contents of the study

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 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**.

**Several meetings** among key stakeholders and focus groups for presentation of findings, obtaining feedbacks and refinement should be conducted.



# SW Project Management Process in 5 Phases

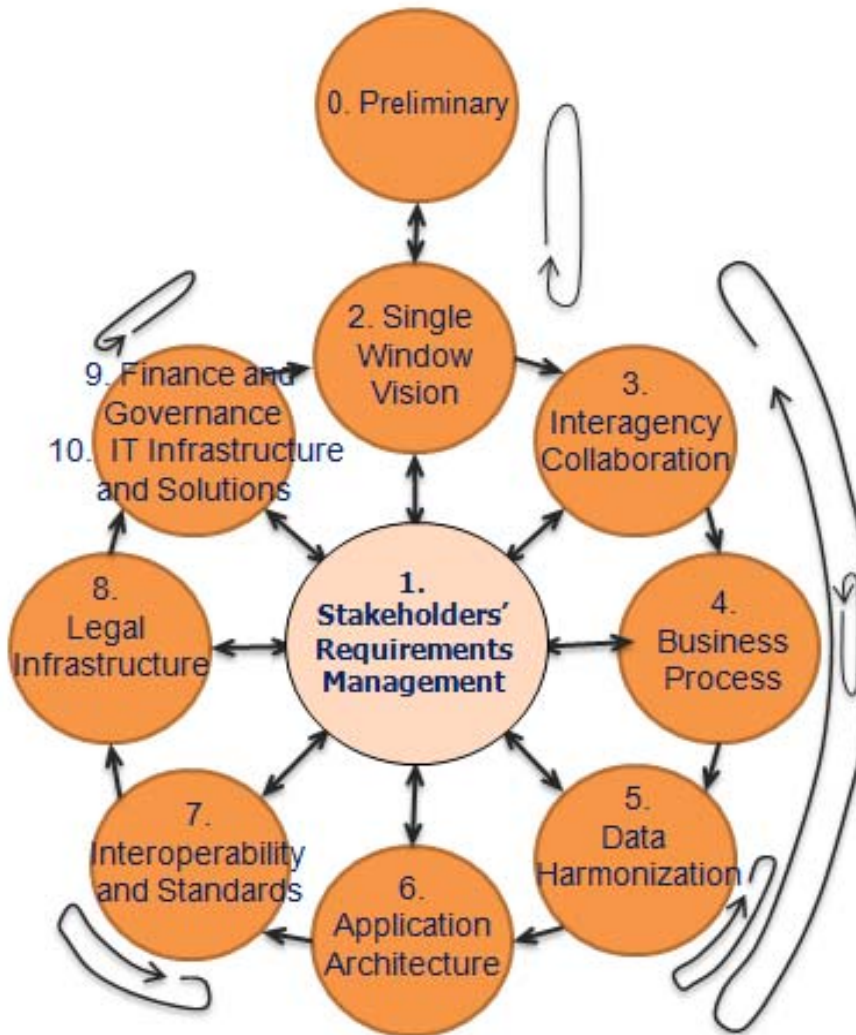
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# An architecture-based planning approach

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

# An architecture-based planning approach

## SW Development Cycle



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**, **project risks**, other **necessary resources**, etc.

# An Example 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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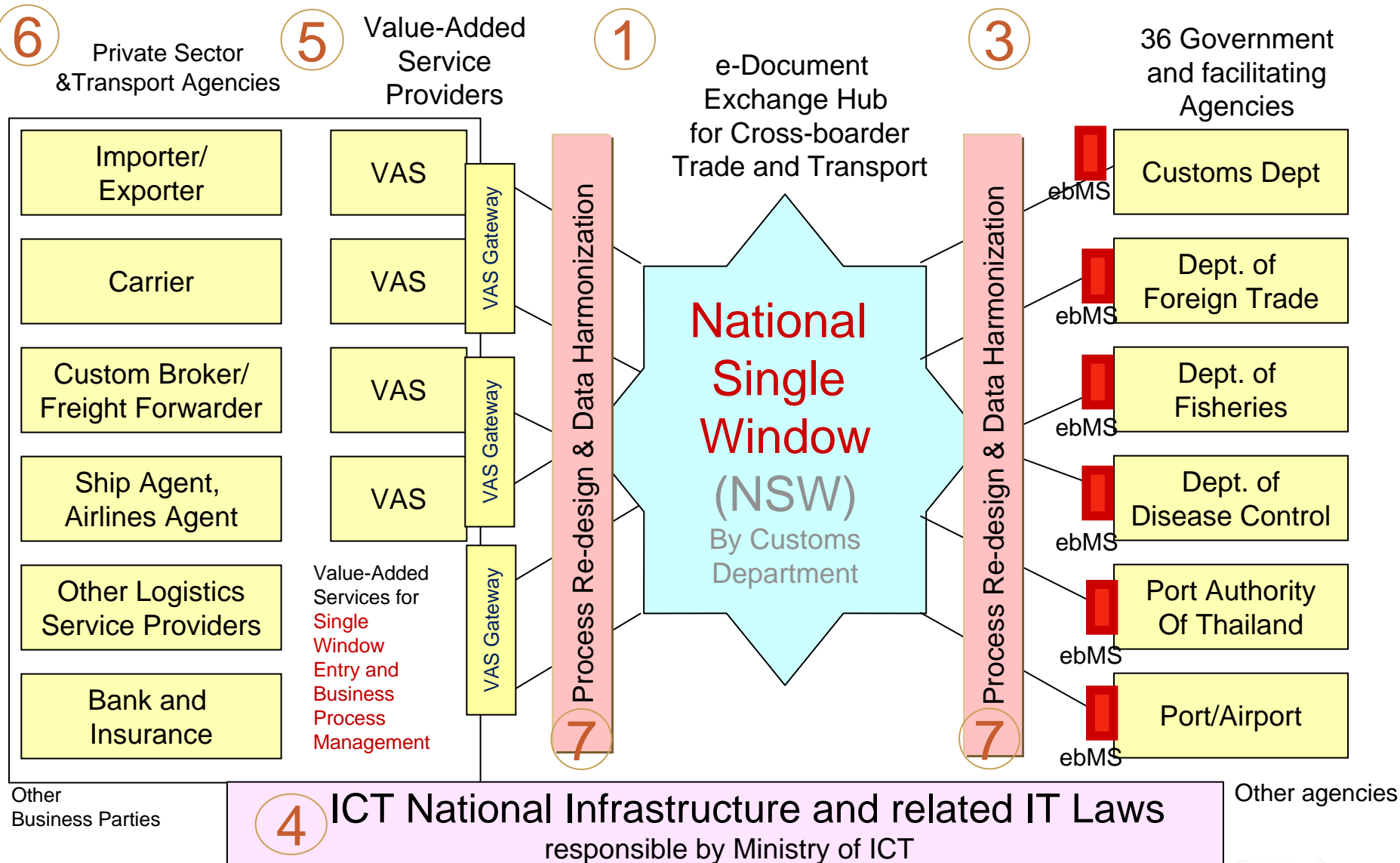


# "To-Be" Thailand SW Architecture

## A Case Example 2 (cont)

(referencing to  
the SW Roadmap - Level 2)

### 2 Governance Mechanism – policy decision, service charge regulation, service level agreement etc.



# Case Example – SW High-Level Project Plan version 2.0 (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 (Sea Port Community System) (by the Port Authority)
- ☐ Cross-border data exchange pilot project (by Customs Department and Ministry of Science)

## 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)

# Measurement of Impacts (on time, cost, and complexity reduction)

because of NSW in Thailand (2009) - through reform, and applying IT in Paperless Customs and NSW

Trading Across Borders data	Doing Business 2007	Doing Business 2008	Doing Business 2009
Rank		51	10
Documents for export (number)	9	7	4
Time for export (days)	24	17	14
Cost to export (US\$ per container)	848	615	625
Documents for import (number)	12	9	3
Time for import (days)	22	14	13
Cost to import (US\$ per container)	1042	786	795

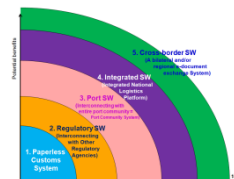
Transaction Cost reduction from 848 to 625 (~220 USD) per container  
 (x 3.5 million TEU per year) = **770 Million USD** transaction cost reduction per year

# Recommendation

- ❑ An UNNExT Managerial Guide for SW Planning and Implementation, based on the SW Implementation Framework (SWIF) is recommended as a holistic and systematic framework and as a guide for policy managers and relevant stakeholders in planning, managing and implementing SW projects, including
- The understanding of how the improvement of trade procedures and documentation can increase trade competitiveness of a nation.
  - The evolutionary development and roadmap of SW projects
  - A holistic SW Implementation Framework (SWIF) & Development Cycle
  - How to systematically prepare the SW architecture of the country, including key project components and deliverables
  - How to conduct the initial SW concept and the feasibility analysis
  - How to develop a High Level SW Master Plan
  - How to secure sustained support of key policy makers
  - How to put in place the effective inter-agency collaboration mechanisms
  - **Step-wise SW project management phases** include inception phase, detailed feasibility phase, planning phase, implementation oversight phase, and feedback phase.

# Recommendation

- This SWIF is recommended to be used as a guideline for feasibility analysis, policy formulation, planning and overseeing the SW project in Nigeria including
  - 5 stepwise project management phases can assist policy managers to conduct analysis & policy formulation, planning and overseeing the SW development project
  - Guidelines for each phase are provided specifically for analyzing the 10 critical components of SW challenges.
  - The SW roadmap with 5 development levels can be used as a best practice model for the long-term national SW development.....



For more information, please check out the website

# The UNNExT Capacity Building Workshop on SW Planning and Implementation

[14–15 December 2011, Geneva]

<http://www.unece.org/tradewelcome/capacity-building-for-trade-facilitation/global-trade-facilitation-conference/capacity-building-workshop.html>





# References

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A Chinese Proverb

"If you don't know where you are going,  
any road will do."

A Watts Humphrey's Proverb

"But if you don't know where you are,  
a map won't help."

Deciding about the goal (where we want to go),  
then having a guiding map will be quite useful,  
but only if we can assess where we are now referencing to the map.

# Thank You for Your Kind Attention

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