

Business Process Analysis for Trade Facilitation Improvement

Introduction to Business Process Analysis

Conducted by
Yann Duval, Chief,
Trade Facilitation Section, UNESCAP

UNNExT Masterclass 2013: Implementing Single Window and Paperless Trade

7 – 18 October 2013
Customs Border Control Training Center (CBCTC)
Cheon-An, Republic of Korea

Organized by



With the
support of



Agenda

1. Business Process Analysis for Trade Facilitation
2. Introduction into Unified Modeling Language (UML)
3. The three Phases of a Business Process Analysis Project
4. Example: BPA of national transport logistics

What is..

☐ ..a Business Process?

A Business Process is a collection of related, structured activities or tasks that produce a specific service or product

☐ Example

- Ordering a product
- Issuing a Certificate of Origin
- Customs clearance at the port of Mombasa

What is..

☐ ..a Business Process Analysis?

An analysis and modelling of business processes for improvement and automation

☐ Example

- Documenting existing practice in an administration/company
- Describing a “Standard Procedure”
- Providing a basis to measure time/costs at different steps
- Providing a specification for automation of the process

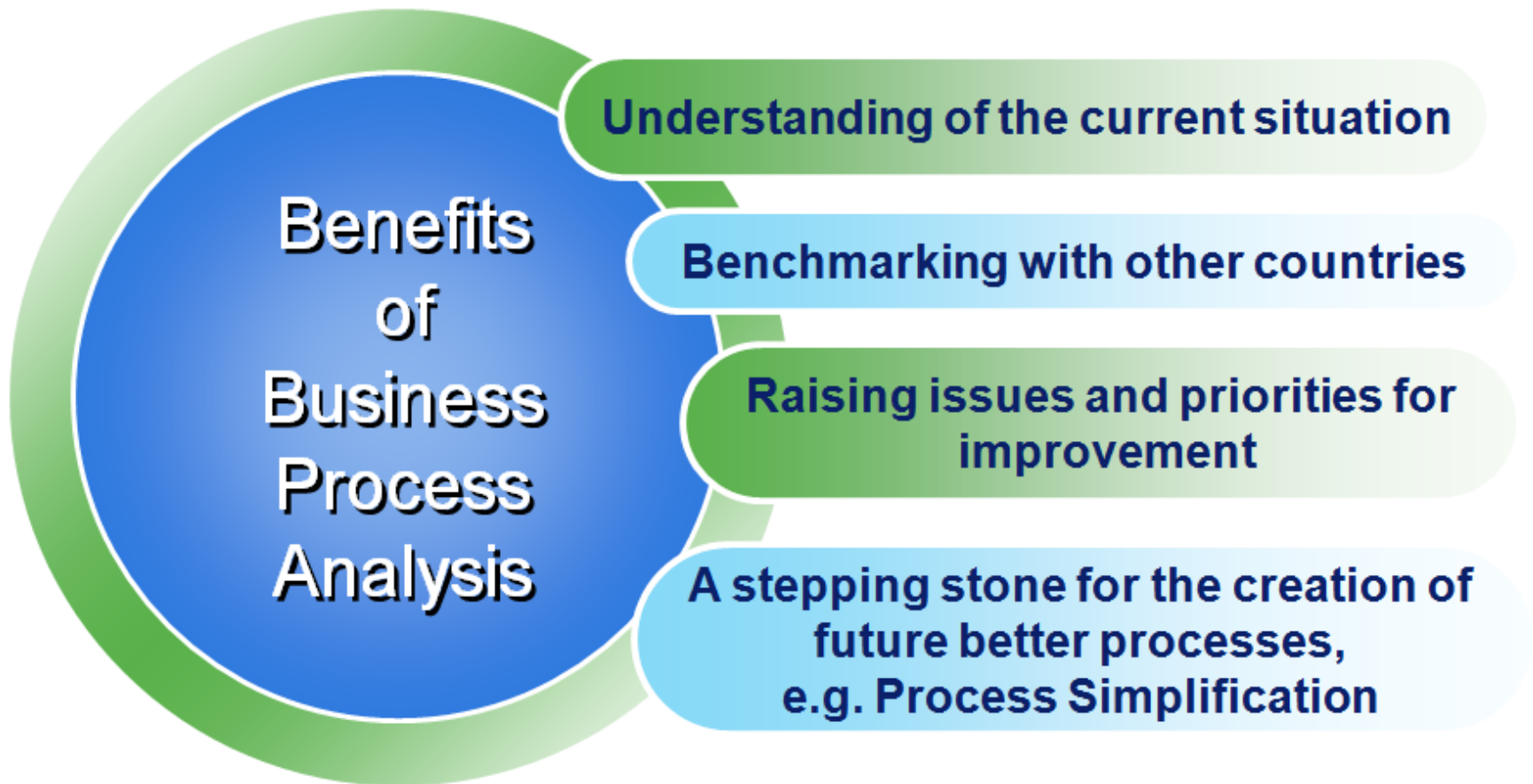
Why conduct a Business Process Analysis?

Business Process Analysis is a practical study

- to understand attributes of business processes, and their relationships



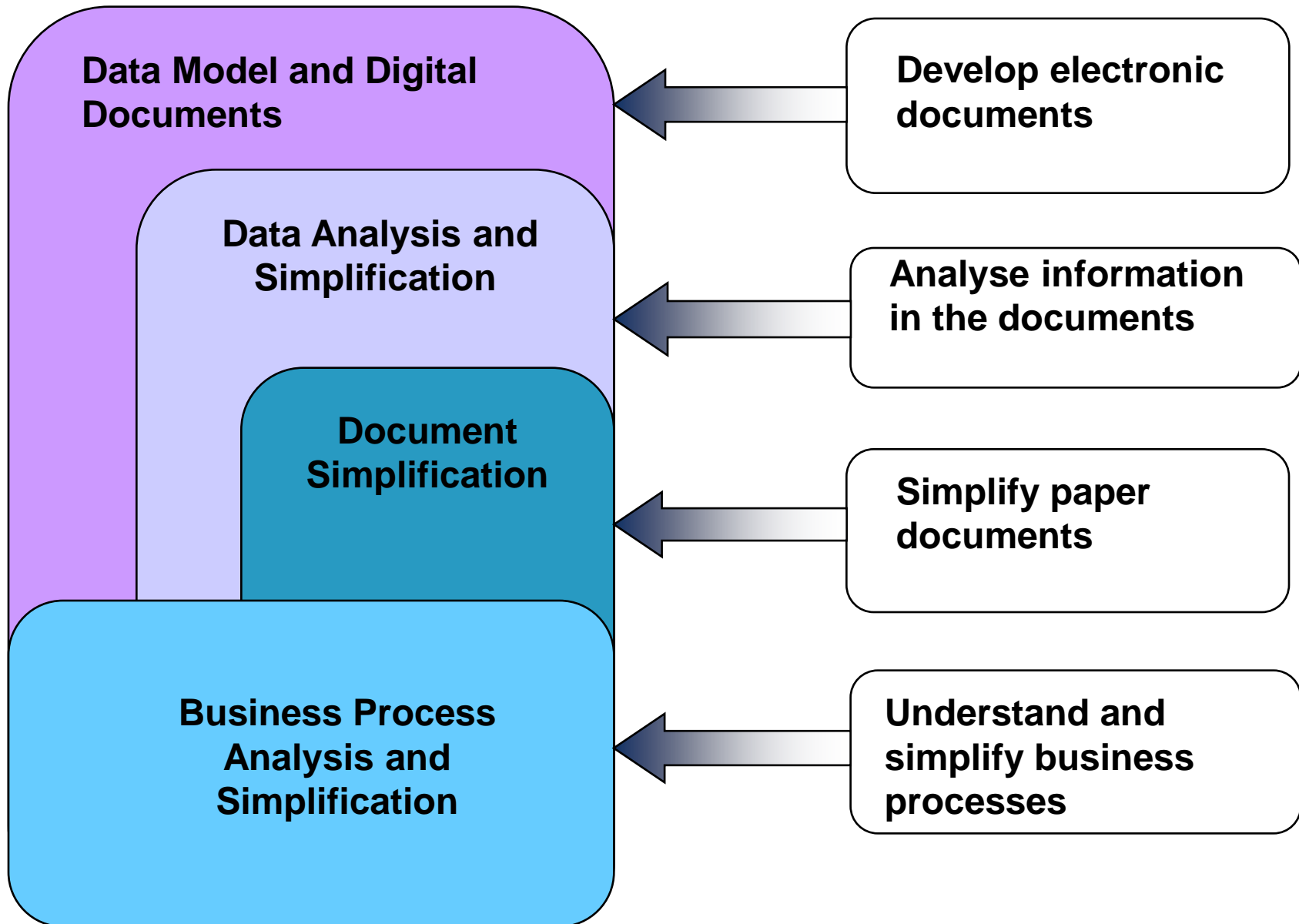
What are benefits of Business Process Analysis?



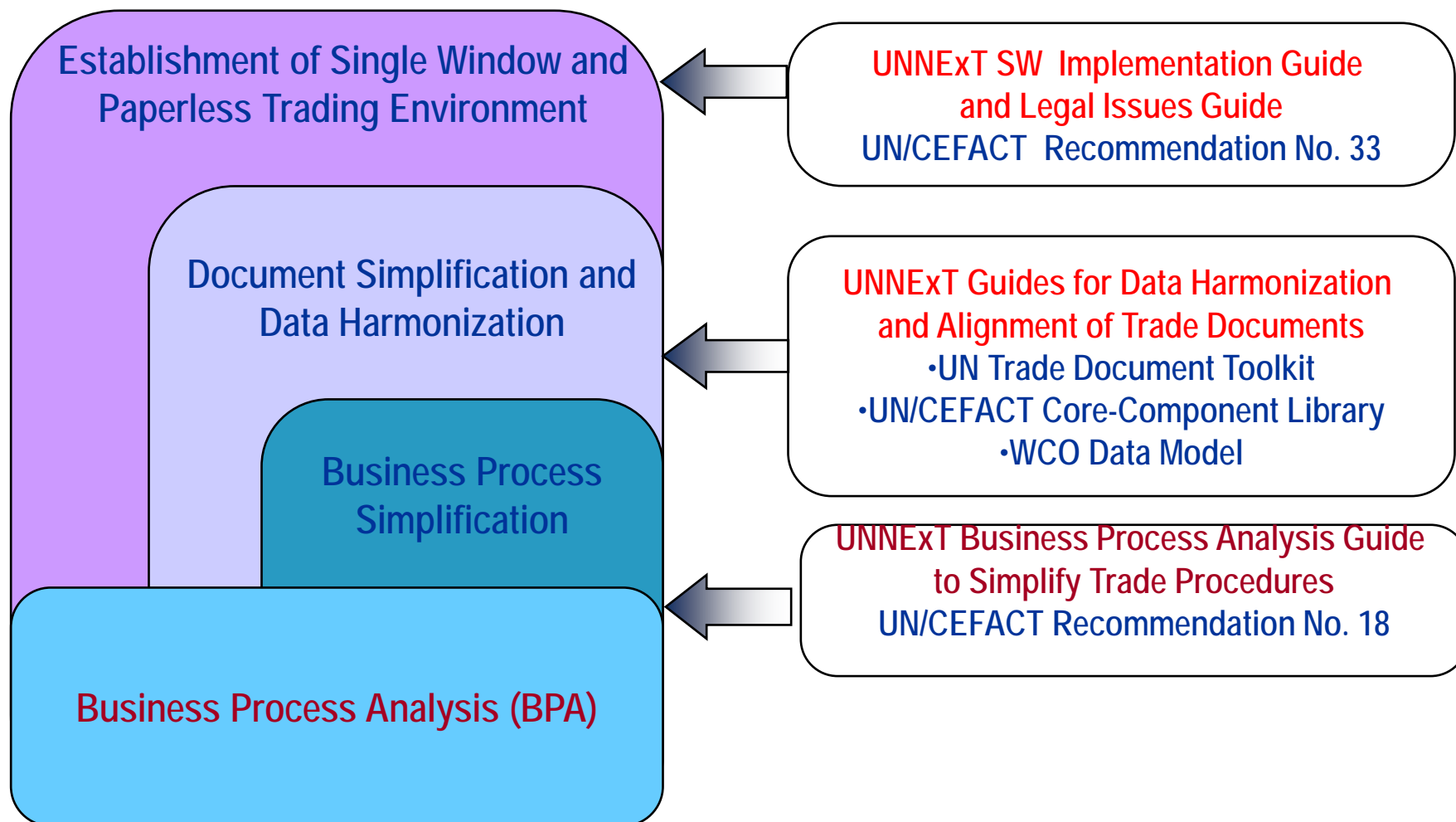
BPA to implement Paperless Trade and Single Window

- ❑ BPA is the first technical step in preparing for paperless trade and SW
- ❑ It provides
 - Inventory of processes, documents, data, parties, rules & regulations..
 - Description of the processes
 - Specifications for harmonizing data and development of electronic documents
 - Specifications to develop software for the automation of procedures
 - Business Models for operation of SW
 - A basis for maintenance and improvement

From Paper to Paperless Trade: A Stepwise Approach



BPA and Paperless Trading Environment



Agenda

1. Business Process Analysis for Trade Facilitation
2. Introduction into Unified Modeling Language (UML)
3. The three Phases of a Business Process Analysis Project
4. Example: BPA of national transport logistics

Business Process Modeling

What

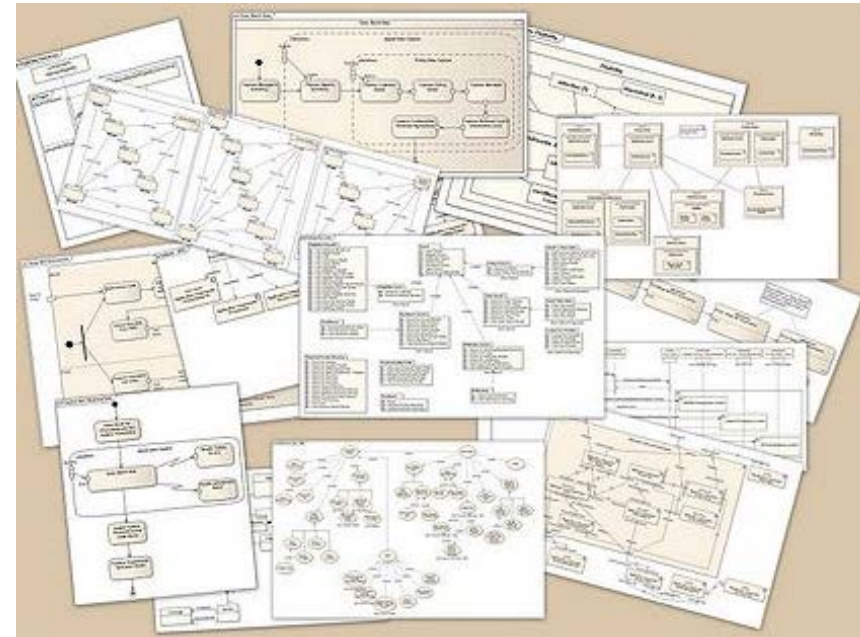
- A technique for documenting a business process and its attributes
 - Activities that come in a specific order and decision points
 - Actors who perform those activities
 - Defined inputs and outputs of each activity
 - Criteria for entering and exiting the business process
 - Relationships among actors
 - Information flow
 - Associated rules and regulations
 - Quantitative indicators such as number of steps as well as time and cost required to complete a particular business process

Why

- To establish a common understanding about a business process that is shared by all relevant parties
- To communicate better all aspects of a business process

Unified Modeling Language (UML)

- A set of standard graphical notations for documenting a business process and business requirements
- Is widely recognized and used among practitioners in business community as well as those in IT and software industry
- Allows business domain experts to communicate procedural and documentary requirements with IT implementation or software development team



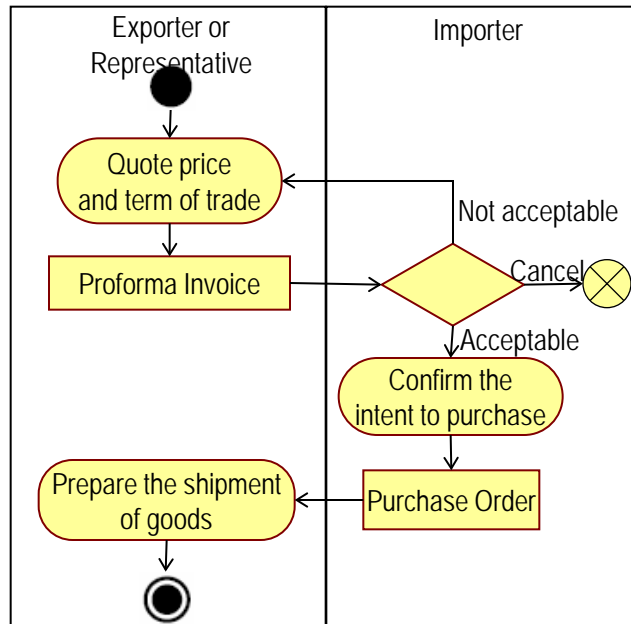
http://en.wikipedia.org/wiki/Unified_Modeling_Language

UML Diagrams for BPA



Use Case Diagram

- A frame of reference illustrating a high level business process and its associated actors



Activity Diagram

- A detailed elaboration of a use case diagram
- A graphical representation of a business process and its attributes
 - Activities that come in a specific order and decision points
 - Actors who perform those activities
 - Defined inputs and outputs of each activity
 - Criteria for entering and exiting the business process
 - Relationships among actors
 - Information flow

Agenda

1. Business Process Analysis for Trade Facilitation
2. Introduction into Unified Modeling Language (UML)
3. The three Phases of a Business Process Analysis Project
4. Example: BPA of national transport logistics

BPA Activities in a Nutshell

- I. **Scope setting** – Specify a scope of processes to be analyzed
 - e.g. import and/or export processes of a specified product, through a certain mode of transportation (trucks, trains, ships or airplanes)
 - II. **Data collection and process documentation** – Define and document a sequence of steps in actual practices and their attributes
 - Who involved (stakeholders/actors)
 - Procedures and documents required (input to/output from)
 - Related rules and regulation
 - III. **Process analysis** – Locate bottlenecks, examine what causes them, and develop measurable and quantitative process indicators (e.g. the number of steps, time and costs required to fulfill those processes)
- Recommendation development** – Determine how to eliminate each bottleneck and prioritize improvement actions

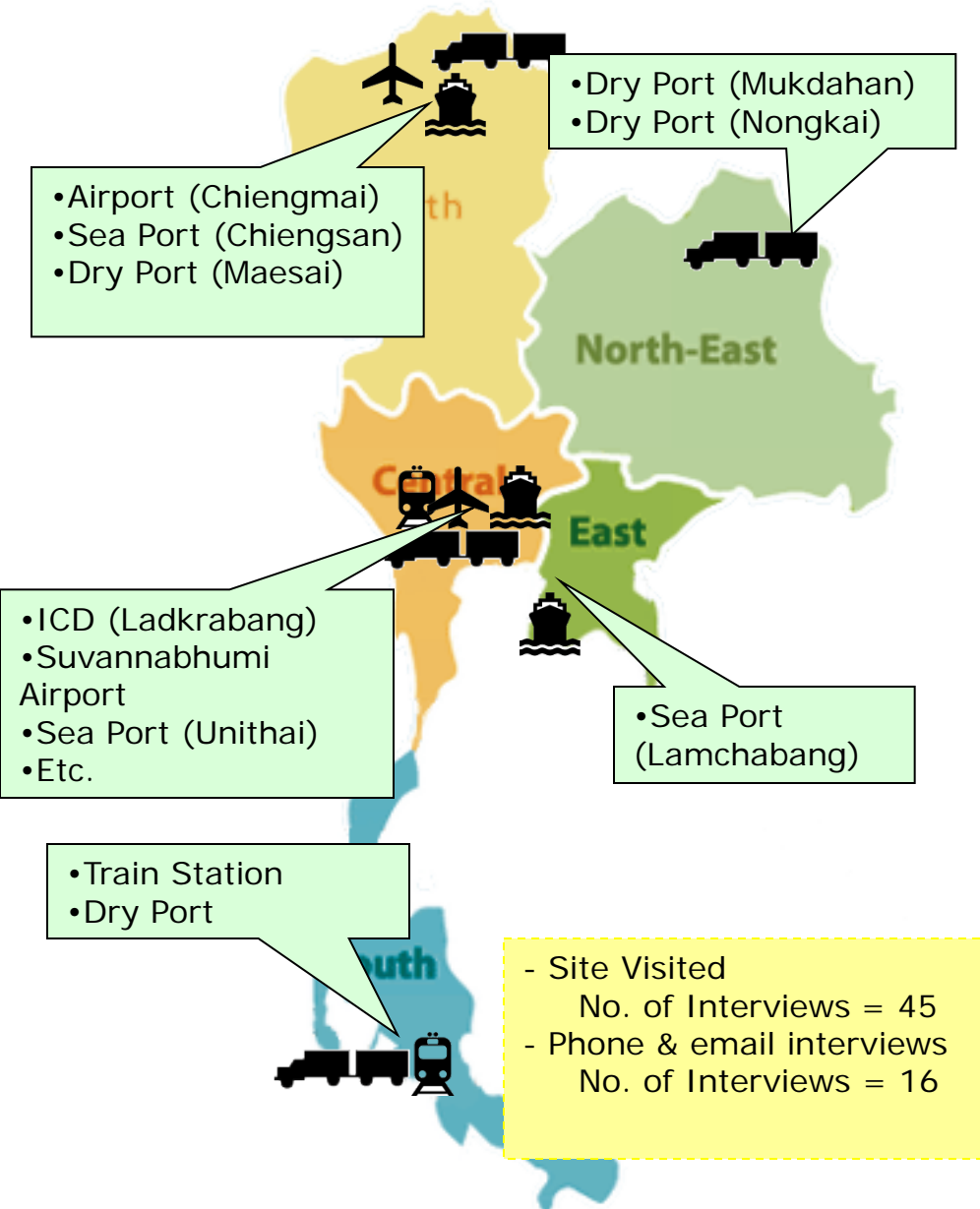
Outputs of BPA

	Step	Deliverable
Phase I	Step 1: Define project scope	<input type="checkbox"/> Use case diagram illustrating business domain, process areas, process participants, and key business processes
	Step 2: Develop a detailed plan and secure resources	<input type="checkbox"/> Detailed project plan including an estimation of human resources required, schedules, and software supported tools <input type="checkbox"/> A list of potential interviewees and their contact information
Phase II	Step 3: Acquire background information	<input type="checkbox"/> A folder of background information about the business processes under the investigation <input type="checkbox"/> A list of guiding questions for the interview
	Step 4: Conduct interview and document captured data	<input type="checkbox"/> A set of activity diagrams illustrating activities that come in a specific order and decision points, actors who perform those activities, defined inputs and outputs of each activity, criteria for entering and exiting the business process, relationships among actors, and information flow <input type="checkbox"/> A set of business process descriptions that describes activity diagram and lists all related rules and regulations <input type="checkbox"/> Activity diagram illustrating integrated processes in the business domain <input type="checkbox"/> Time-Procedure chart displaying time required to complete each business process
Phase III	Step 5: Analyze the “as-is” processes and identify bottlenecks	<input type="checkbox"/> A set of observations of the as-is business processes that have the potential for improvement
	Step 6: Develop and propose recommendations	<input type="checkbox"/> Final report with recommendations which may include diagrams of “to-be” business processes

Agenda

1. Business Process Analysis for Trade Facilitation
2. Introduction into Unified Modeling Language (UML)
3. The three Phases of a Business Process Analysis Project
4. Example: BPA of national transport logistics

Phase I: Scope Setting



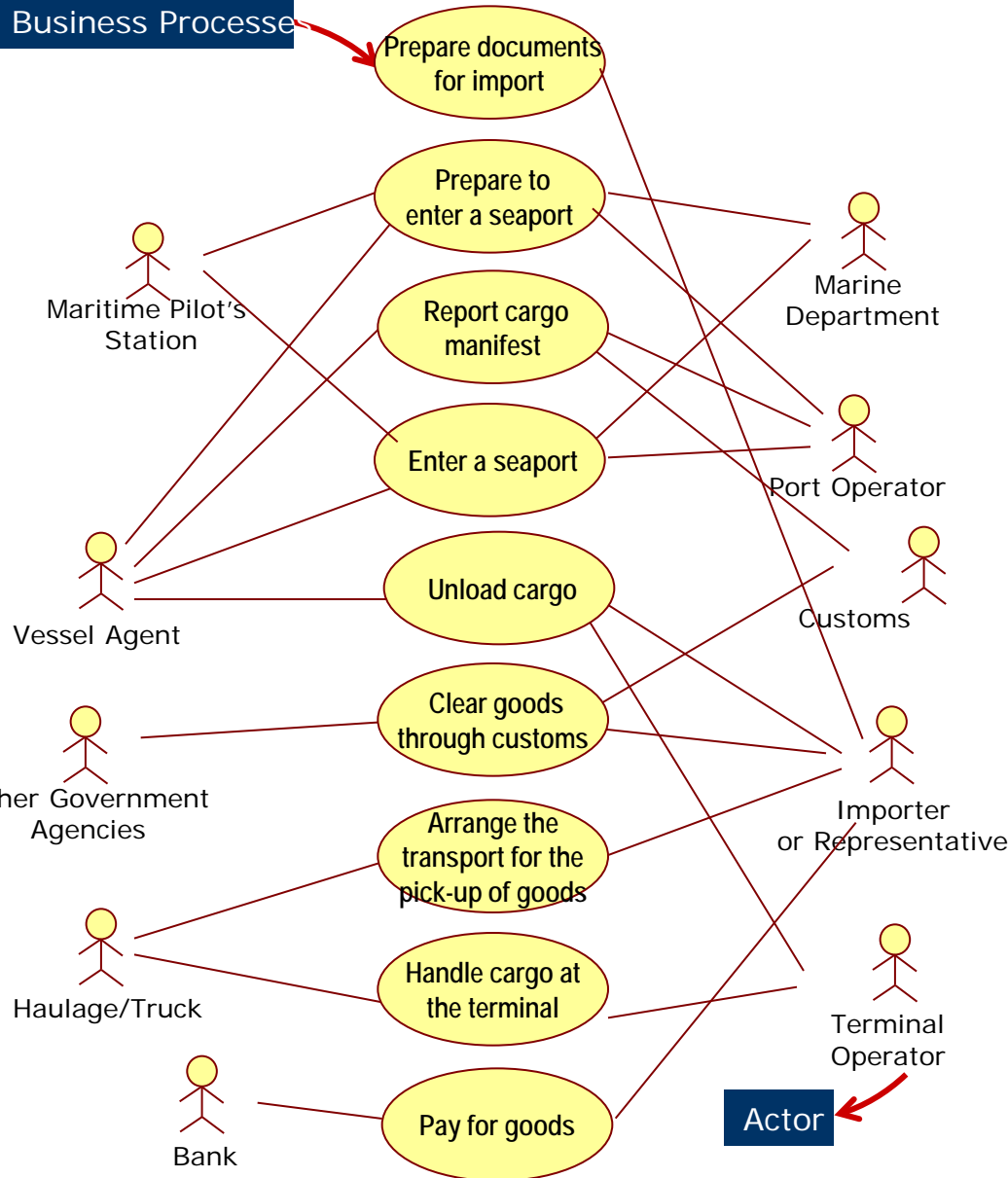
Example:

- ☐ Regulatory and business requirements related to the operation and management of port before, upon, and after the *import and export of containerized ordinary cargoes* through all modes of transportations (*road, rail, air, and sea*)
 - Carrier scheduling for port use
 - Cargo handling
- ☐ Import
 - Starting point: when a carrier enters port
 - Ending point: when cargo is picked up and transferred to an importer
- ☐ Export
 - Starting point: when cargo arrives port
 - Ending point: when cargo is on board and ready to be transferred to the country of importer

Phase I: Scope Setting

Example: Importation by Sea

Business Processes



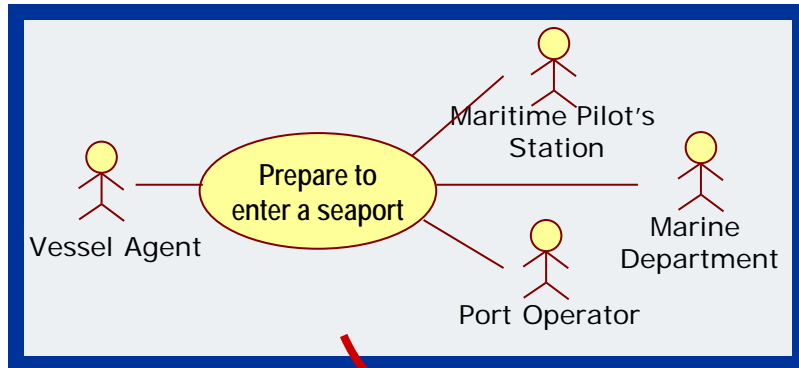
Draw a **use case diagram** to illustrate the business domain with process areas and high-level business processes as well as stakeholders associated with each of them

Example: Capturing the Stakeholders involved in importation by sea

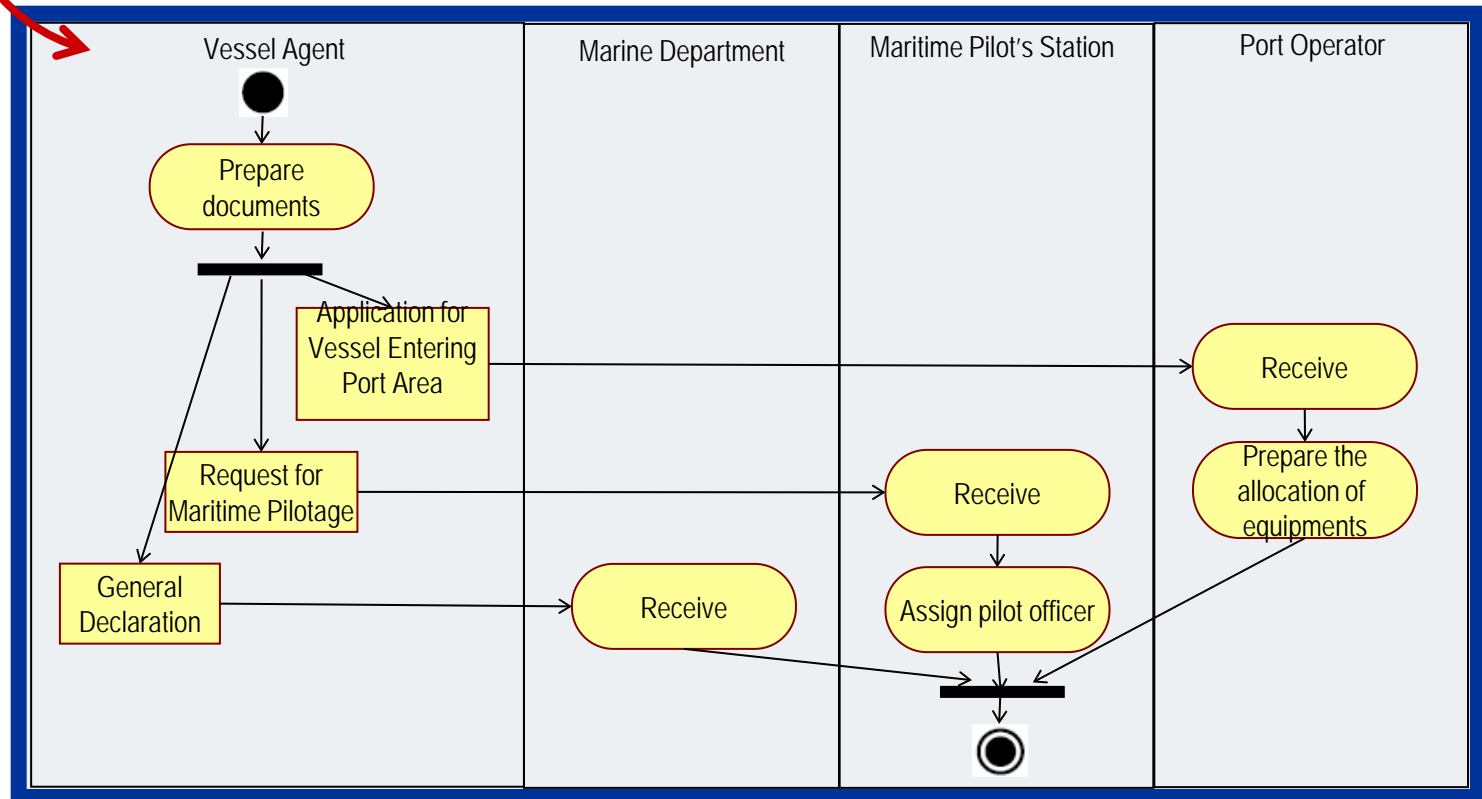
- Vessel Agent
- Maritime Pilot's Station
- Marine Department
- Port Operator
- Customs
- Other Government Agencies
- Importer or Representative
- Terminal Operator
- Haulage/Truck

Phase II: Data Collection and Process Documentation

Example: Prepare to Enter a Seaport Process

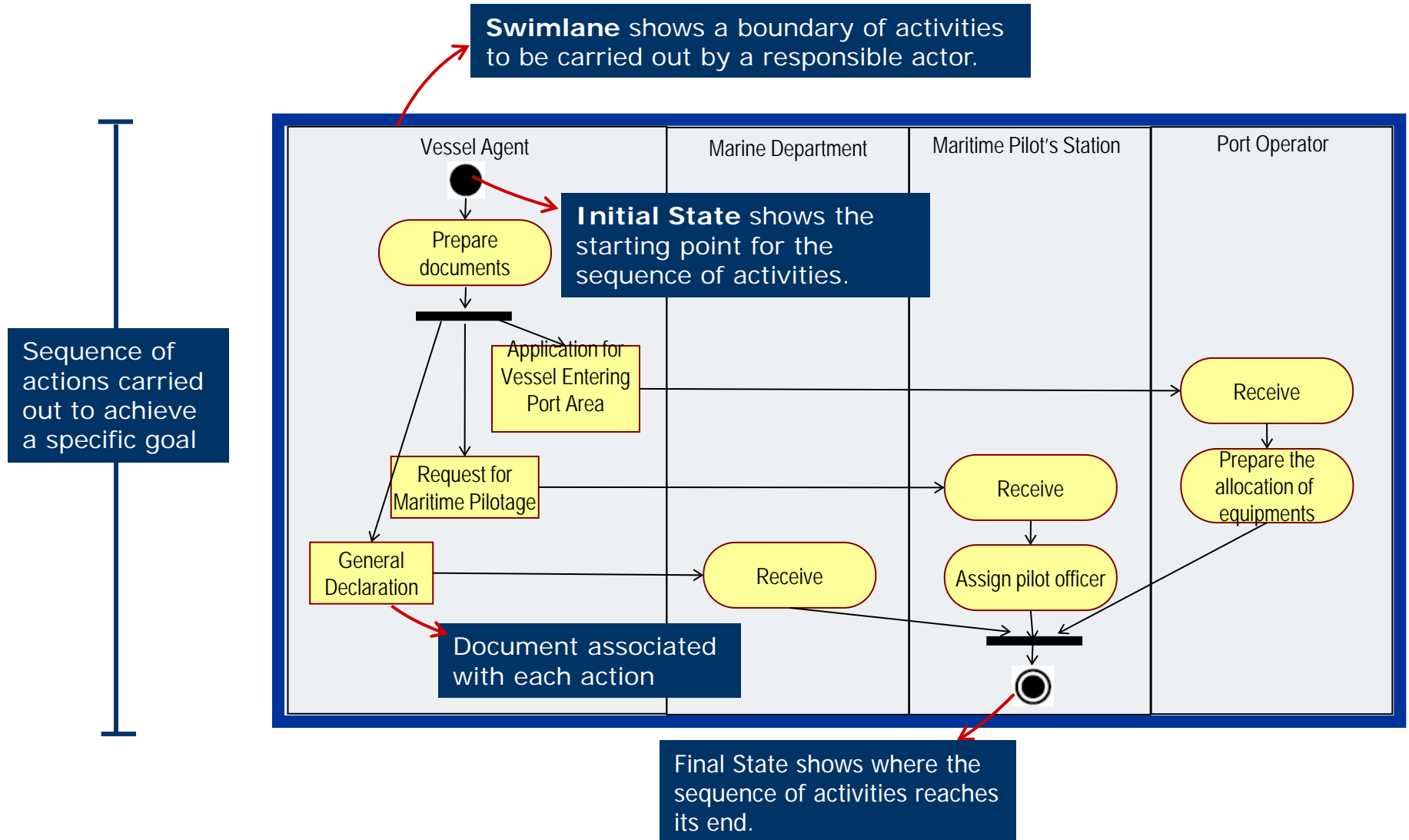


For each process, draw an **activity diagram** that describes activities and associated documentary requirements



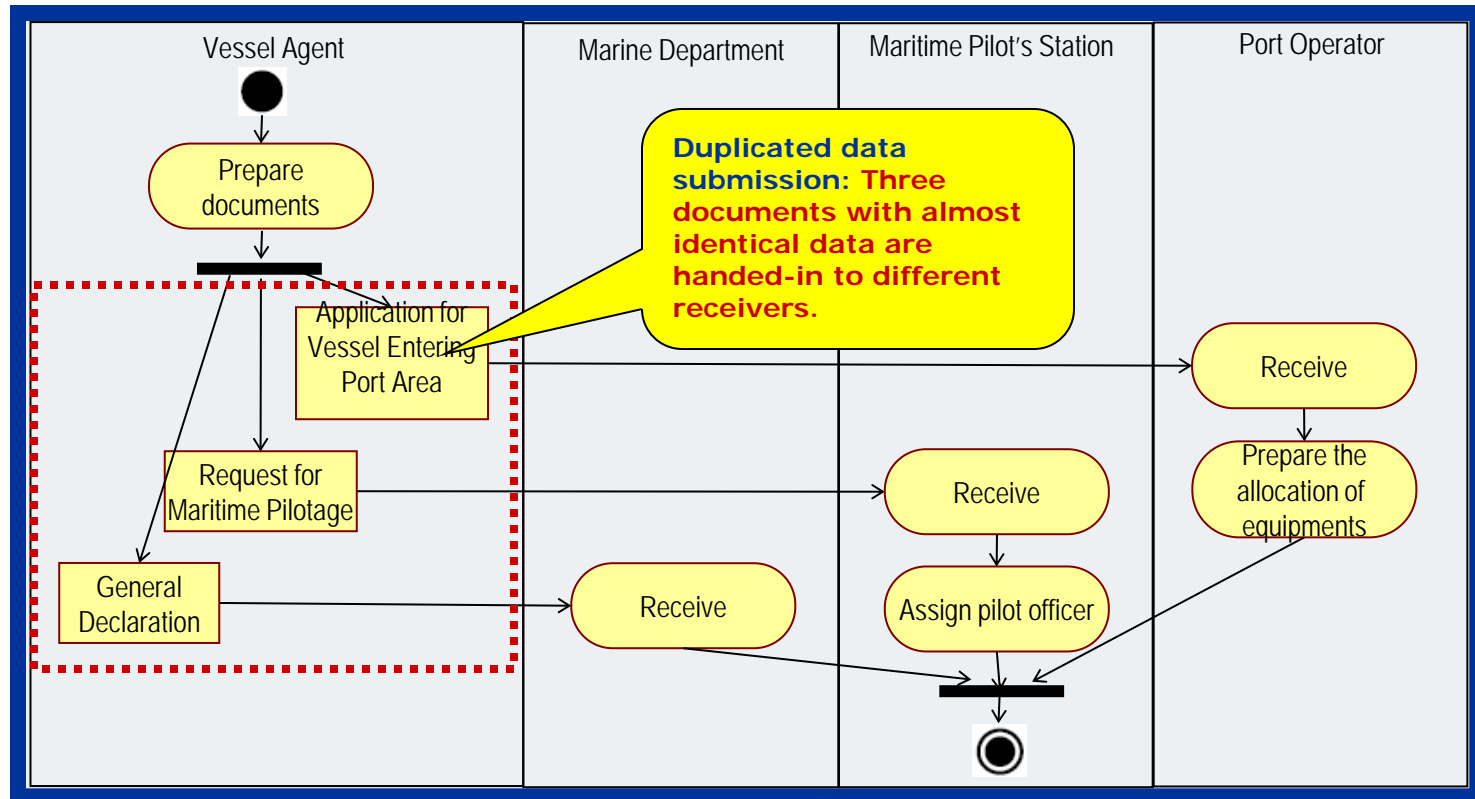
Phase II: Data Collection and Process Documentation

Example: Activity Diagram of Prepare to Enter a Seaport Process



Phase III-1: Process Analysis

Example: Prepare to Enter a Seaport Process (Existing Process)

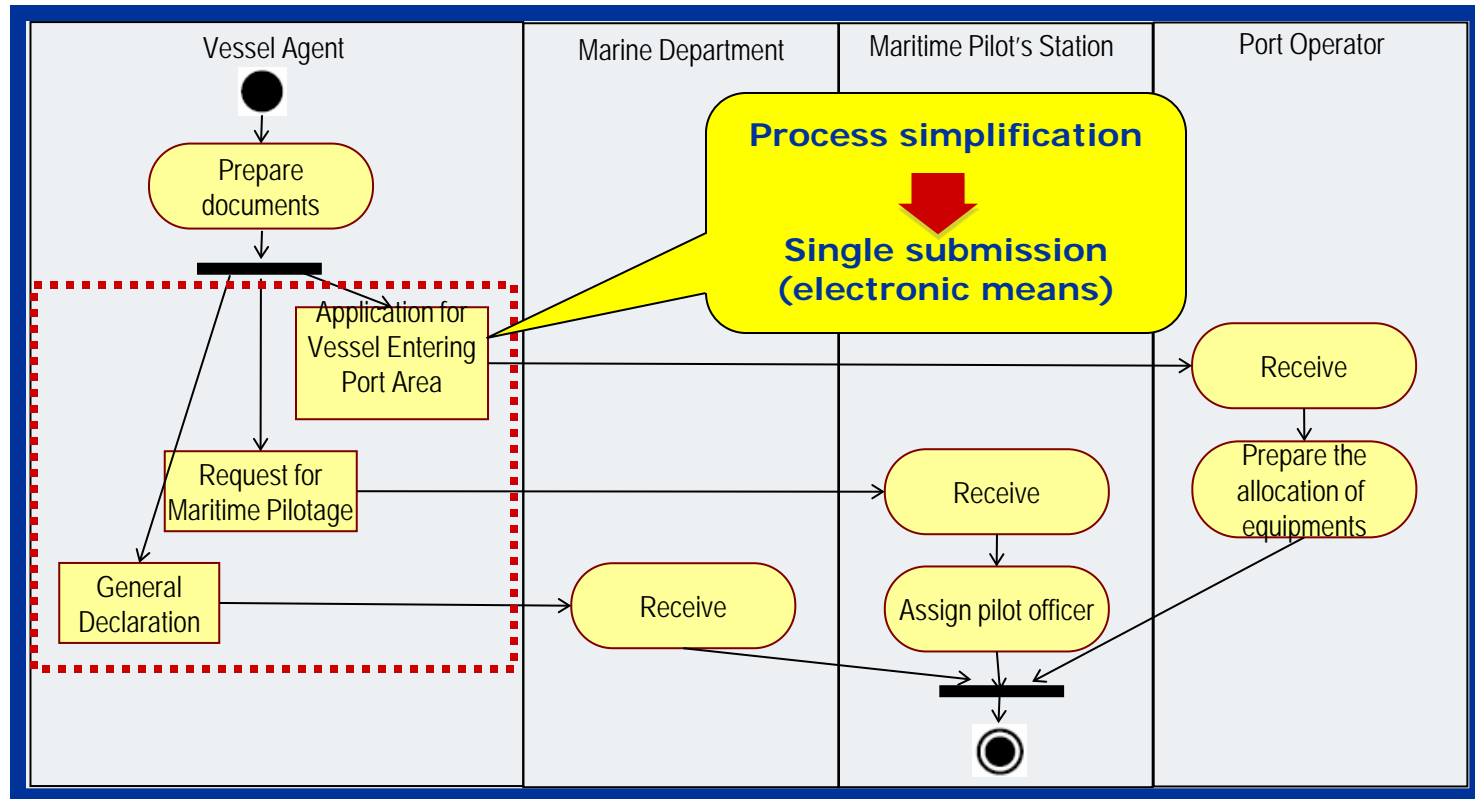


Problems :

- Duplicated Information
- High Cost and Time for sending and receiving documents
- Data Inconsistency

Phase III-2: Recommendation Development

Example: Prepare to Enter a Seaport Process

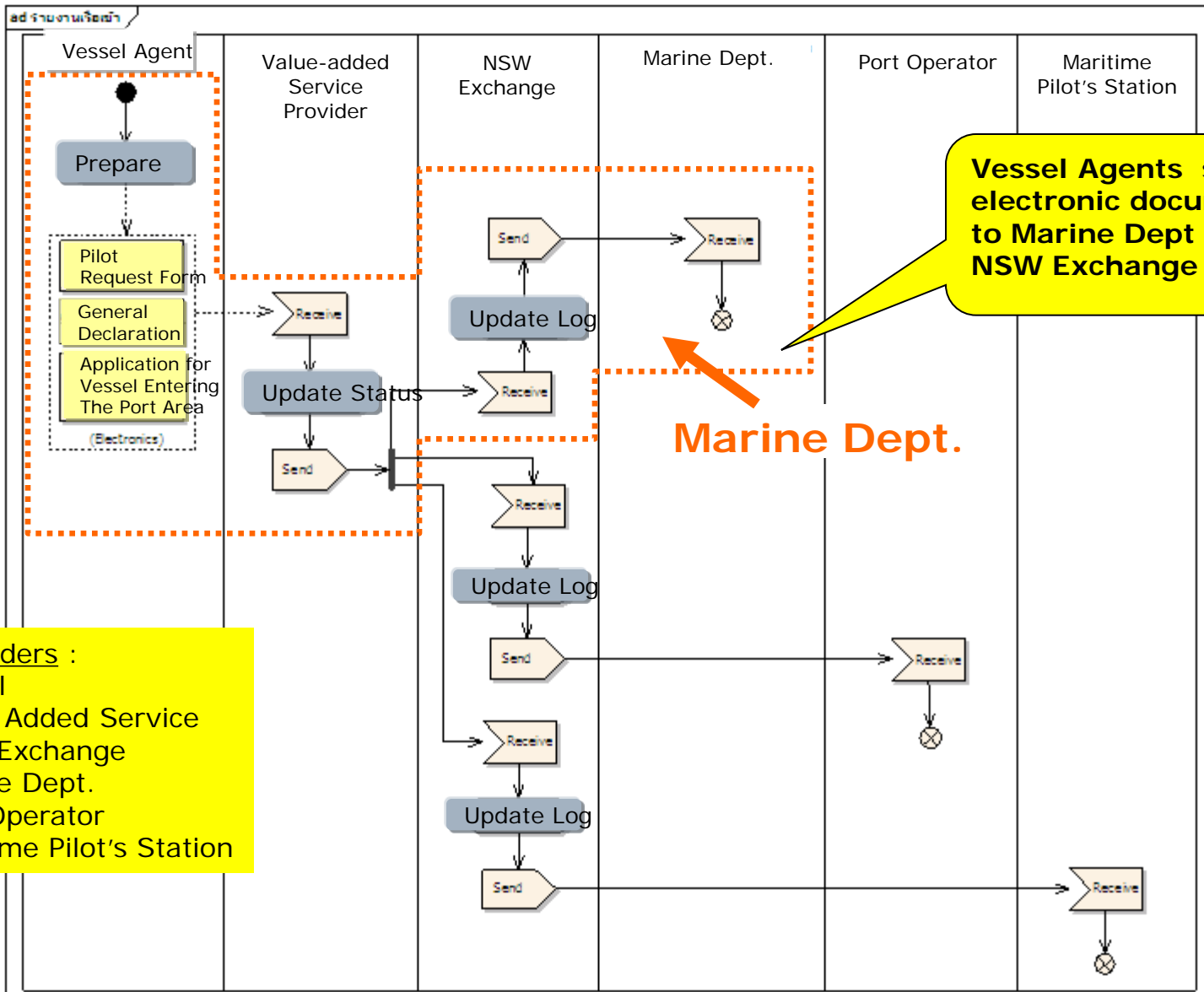


Proposed Recommendations :

- Remove unnecessary data requirements
- Harmonize and standardize data requirements
- Automate "prepare to enter a seaport" process

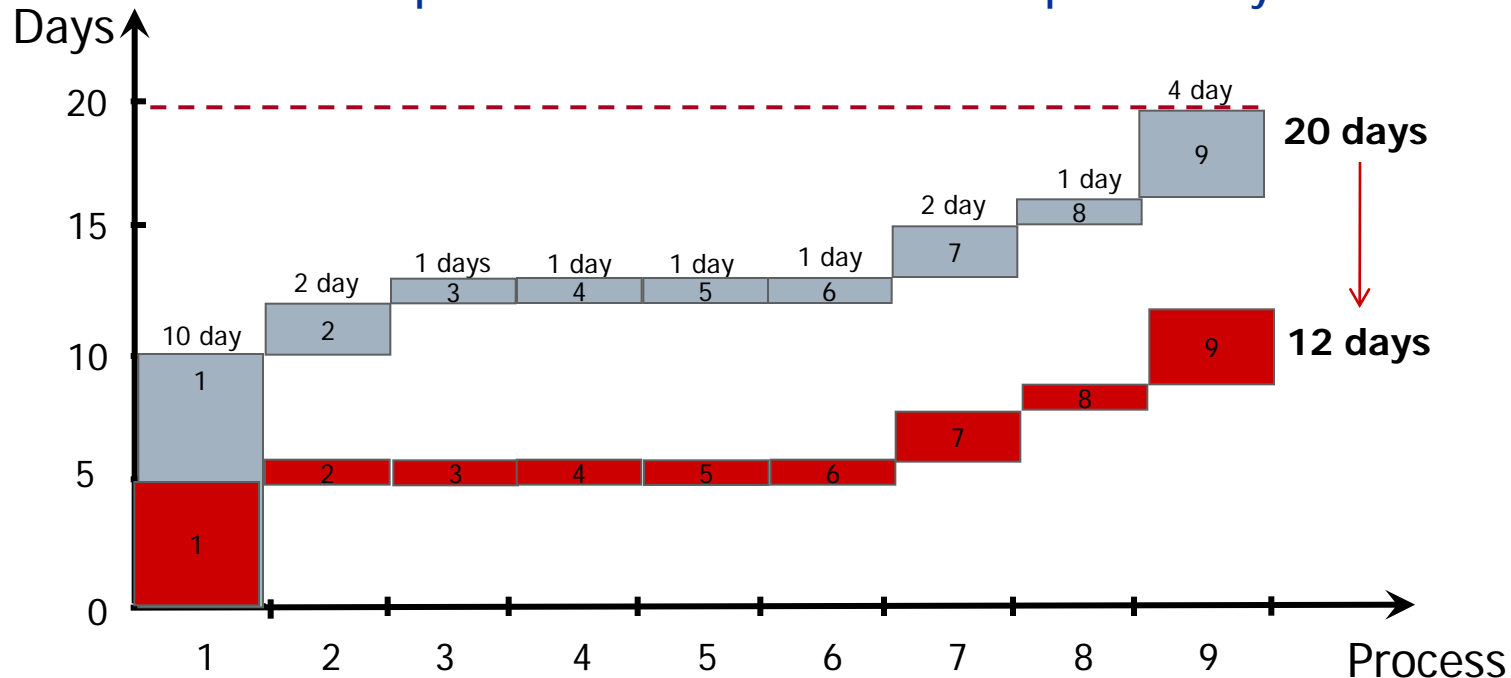
Phase III-2: Recommendation Development

Example: Prepare to Enter a Seaport Process (Proposed New Process)



Phase III-2: Recommendation Development

Example: Time – Procedure Chart of Importation by Sea



9 Main processes

1. Prepare documents for import
2. Prepare to enter a seaport (Vessel)
3. Enter a seaport (Vessel)
4. Report cargo manifest
5. Unload cargo
6. Clear goods through customs
7. Arrange the transport for the pick-up of goods
8. Handle cargo at the terminal
9. Pay for goods

Summary of a study: Usage Time for Import

Transport Mode	As-Is Usage Time (day)	To-Be Usage Time (day)	Expected Reduced Time (day)	Expected Reduced Time (%)
Import by Ship	20	12	8	40.00
Import by Airplane	10	8	2	20.00
Import by Truck	10	7	3	30.00
Import by Train	11	9	2	18.18

Criteria (following UN/CEFACT Recommendation No 18, and other)

- Reduce time for Traveling, Sending and Receiving Documents by humans
- Reduce time for Preparing Documents for next step
- Reduce time for Making Payment
- Reduce time for Searching Information
- Reduce time for Verifying Information

Lessons learned from Implementing BPA

- ☐ Get Buy-in from the officials
- ☐ Secure adequate resources
- ☐ Clear Roles and responsibilities of the project stakeholders
- ☐ Choose a Champion
- ☐ Start small, and then evolve
- ☐ Profit from experience
- ☐ Invest in training
- ☐ Performance measurement

☐ Additional slides

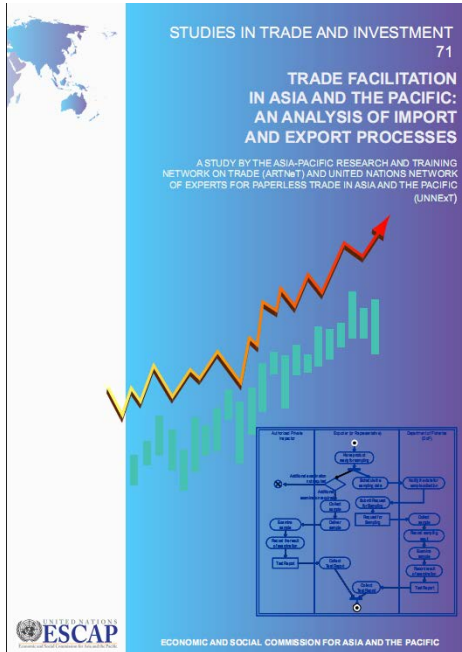
ESCAP's Initiative on Business Process Analysis (BPA) for Trade Facilitation

- UNNExT BPA guide/methodology applied in over a dozen countries of the region
 - Used in Cambodia to support the new *Rice Export Policy* Implementation

- Typical application/scope
 - Export or import process of (1-4) key export products / import products
 - From factory floor to ship deck (container with goods stowed and ship ready for departure) OR to foreign buyer's warehouse

- Outputs can be used:
 - To assess TF performance (time and cost)
 - To increase transparency / raise awareness for reform
 - To identify inefficient process and re-engineer them before (eventual) computerization/automation

ARTNet*/UNNExT Intra-Regional Business Process Analysis of Import and Export Procedures

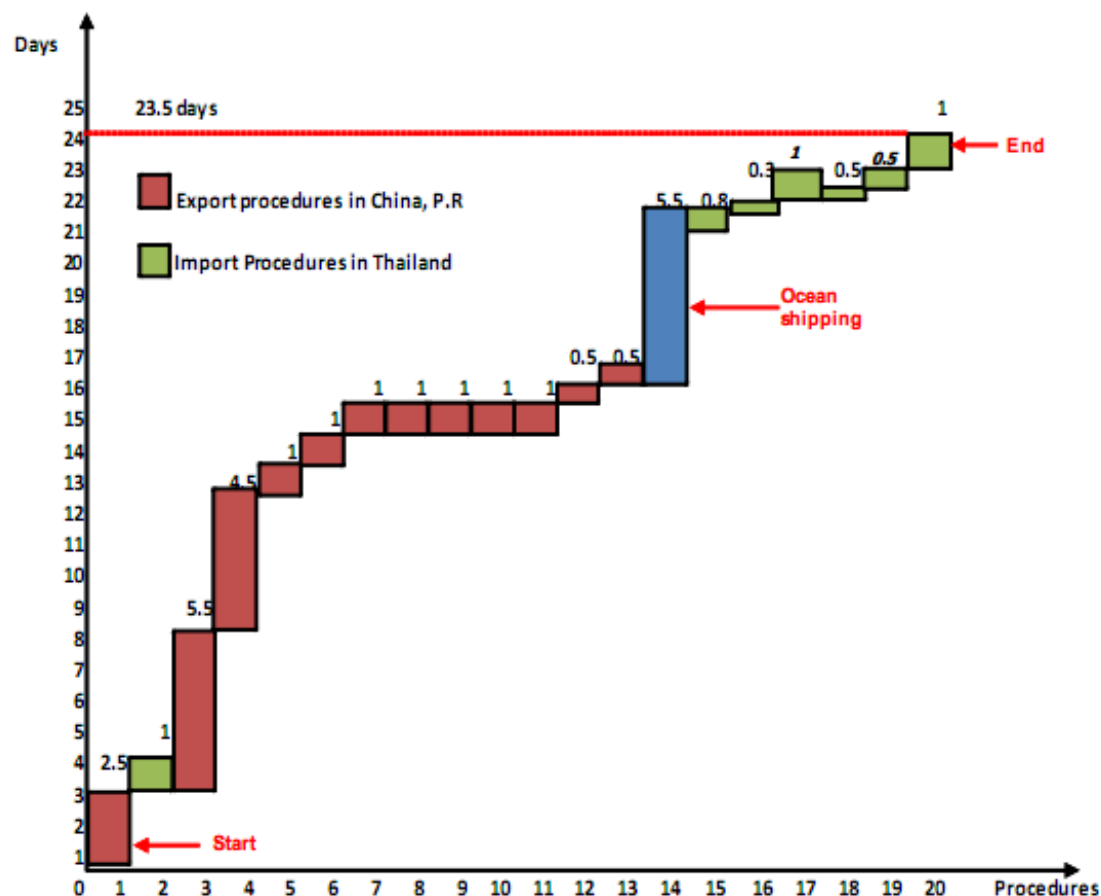


- Coordinated BPA study of import and export of selected products among 7 countries of the region
 - Based on the UNNExT BPA guide methodology
- Outcome
 - Mapping of export-import process
 - from factory in exporting country to warehouse of importer
 - Information on complexity, number of stakeholders involved, and time and cost of the procedures including:
 - Buy process
 - Document preparation
 - Inland transport and handling
 - Customs and related clearances at border/port
 - Payment process and delays

www.artnetontrade.org

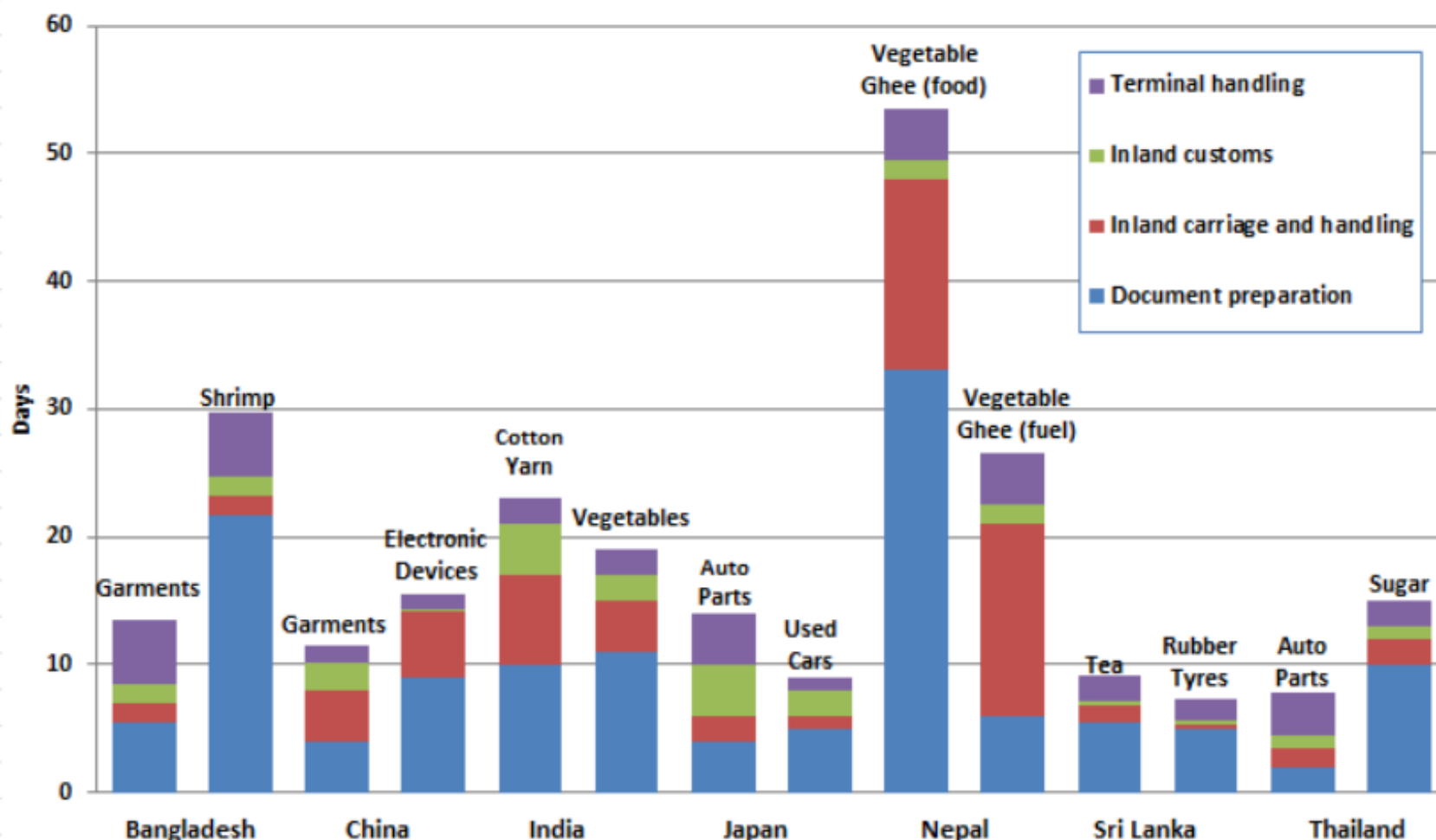
Sr. No	Process	Days
1	Buy	2.50
2	Obtain permission for raw materials release	1.00
3	Obtain export permit	5.50
4	Arrange transport	4.50
5	Arrange inspection	1.00
6	Prepare customs declaration	1.00
7	Collect empty containers from yard	1.00
8	Stuff a container	1.00
9	Transfer to port of departure	1.00
10	Clear goods through customs	1.00
11	Handle containers and stow on vessel	1.00
12	Obtain cargo insurance	0.50
13	Prepare documents for payment	0.50
14	Ocean shipping	5.50
15	Request for vessel berthing	0.75
16	Unload goods from vessel	0.25
17	Declare goods to Customs	1.00
18	Arrange goods for inspection	0.50
19	Inspect and release goods	0.50
20	Pay	1.00
	Total	23.50

Figure 4. Time Procedure Chart: Trade in electronic devices from China to Thailand



Source: ARTNeT Working Papers 88 and 103.

Figure 9. Export time for selected products and countries in Asia (adjusted)*



Notes: *Adjusted to the DBD approach, i.e., time for moving goods from factory to deck of sea vessel
See Annex 5 for details on the method of adjustment.

Source: Authors' calculations based on ARTNeT Working Papers.

Selected findings from BPA for TF studies

- ❑ Document preparation takes most time, followed by transport/handling issues
- ❑ Some procedures/regulations driven by industry associations to prevent entry by new/small players
- ❑ Procedures between private parties are a big part of the overall trade process
- ❑ Importance of port logistics confirmed
- ❑ Large variations in time and cost across products (or product usage), transport routes, destination, firm size,...
- Data collected needs to be carefully validated (e.g., through multi-stakeholder meetings)

Benefits & Lessons learned from BPA studies

- BPA of Trade Procedures conducted in over a dozen developing countries of Asia and the Pacific*
 - The process of conducting the BPA (i.e., interviews of those involved in the trade transaction being analyzed) can itself increase awareness on trade facilitation
 - The outputs provide a credible/systematic basis for discussion; and clearly show where priorities for reducing time and cost of trade procedures lay
 - If well disseminated and presented, the outputs can help secure high-level support for reform, and prompt procedural changes by organizations involved (so as not to be identified as the key bottleneck to TF)
 - Conducting BPA of trade procedures regularly (annually) for key products can help assess progress on TF
 - Standardized BPA can facilitate bilateral and regional cooperation on simplification of trade procedures

(possible) Way Forward on BPA

- Conduct of regular standardized BPA studies on trade process can be considered at both national & regional level
 - (1) Conduct of “baseline” cross-border BPA studies of import-export process on a small number of strategic products
 - (2) Annual updating of the BPA studies, including time and cost estimates; expansion to other products if resources allow
- Benefits
 - BPA is much more than a “performance measurement” tool
 - Will provide a catalogue of standardized representation of procedures, making it easy to identify best practices and harmonize
 - Conduct of cross-border BPA involves consultation with private sector, as well as with stakeholders in partner countries, furthering regional cooperation
 - Possibility of combining BPA with the WCO Time Release Study methodology and other tools (e.g., ESCAP time/cost distance model for transport corridor performance assessment)