

The United Nations Network of Experts for Paperless Trade

High Level Business Process Analysis Workshop for South Asian Logistics and Connectivity

16 October 2012
UNCC, Bangkok

Objectives of this workshop

The participants will learn:

1. Roles of **business process analysis** in process simplification, data harmonization, and Paperless Trade & Single Window implementation;
2. **Selected graphical notations** based on a standardized modeling language for business process modeling; and
3. **Step-by-step approach** to conduct business process analysis and development of recommendations for future improvement.

Proposed Schedule

- ☐ **Session 1 : Introduction to BPA, *Khan Salehin***
- ☐ **Session 2 : Conducting Business Process Modeling and Analysis, *Sang Won Lim***
- ☐ **Session 3 : BPA and Trade Facilitation: Comparative Analysis of BPA Cases in the Region, *Yann Duval***

Self Introduction of participants

The United Nations Network of Experts for Paperless Trade

Introduction to Business Process Analysis



This Session includes..

- 1. What is Business Process Analysis (BPA)**
- 2. Scope Setting of BPA Project**
- 3. Planning a BPA Project**

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

- Steps in Applying for and Issuing a Certificate of Origin
- Customs clearance at the border exit (e.g. Kolkata Port)

What is..

□ ..a Business Process Analysis?

An analysis and modelling of business processes for improvement and automation

□ Example

- 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



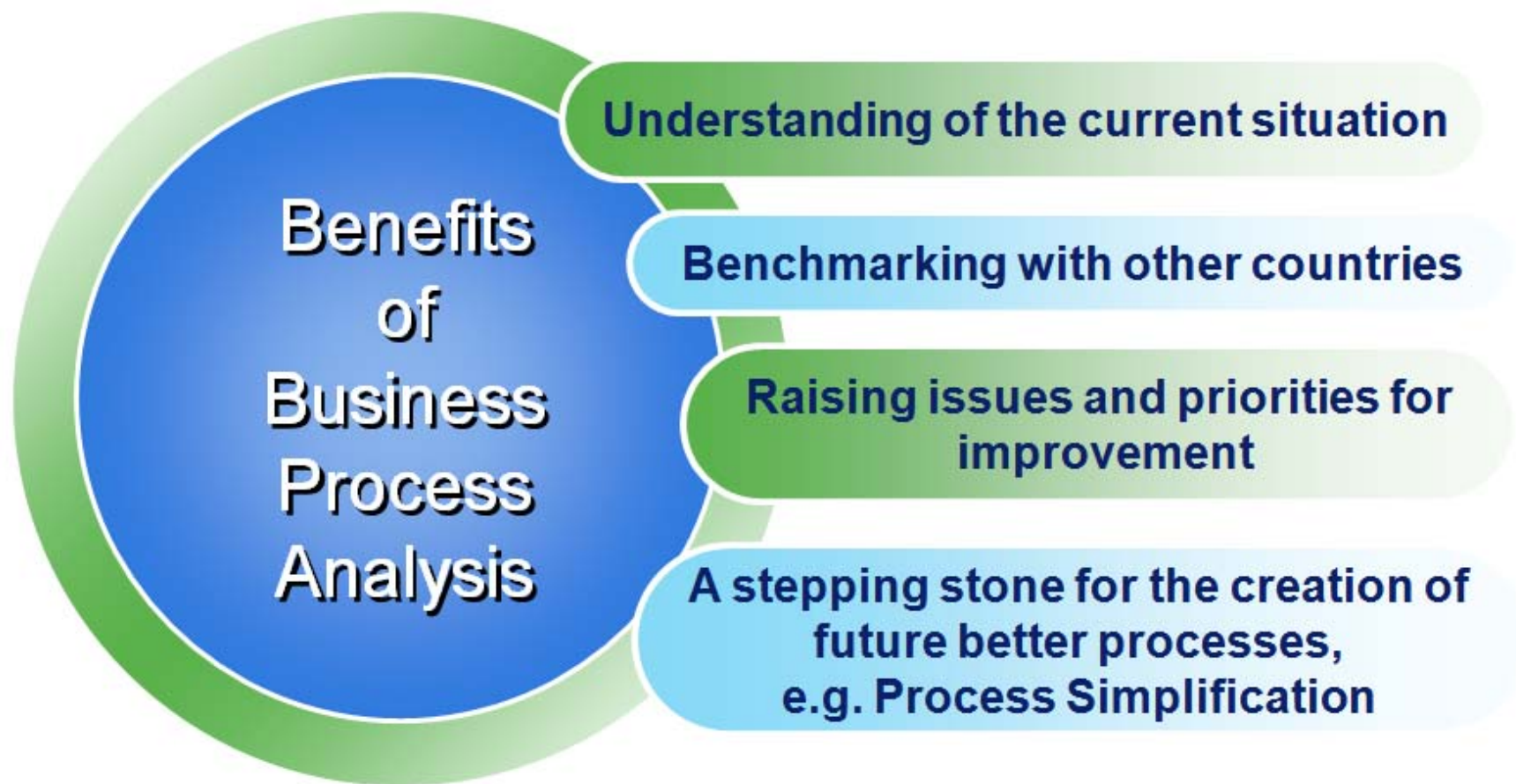
The issue is about

Increasing National Trade Competitiveness

by improving
Import/Export Procedures and Documents
Handlings
among Government Agencies,
Business Entities and
Logistics Service Providers

(“**Trade Facilitation**” improvement)

What are benefits of Business Process Analysis?



Economic impact of bottlenecks in business processes of cross border trade

- Each additional day of delay (e.g. because of trade logistics procedures) reduces trade by at least 1%

Source: Simeon Djankov, Caroline Freund, and Cong S. Pham. (2007). *Trading on Time*. Washington, D.C.: World Bank.

- “Direct and Indirect Cost from import/export-related procedures and required documents is about 1-15% of product cost.”

Source: OECD. (2003). *Quantitative Assessment of the Benefits of Trade Facilitation*. Paris: OECD Publications

Why trading across borders in some countries are more difficult, time consuming and expensive?

- ❑ Procedures and documents handling remain largely paper dependent
- ❑ Missing and incorrect documentation slows progress through the supply chain
- ❑ Keeping documents & freight in sync is complex and costly
- ❑ Multiple parties capturing the same data is inefficient and error prone
- ❑ We acknowledge other factors that makes trade in developing countries more difficult, including infrastructure, corruption, land locked, ...(but these are not the scope of discussion in this workshop)

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

BPA Phases

- I. **Scope setting and plan**– 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

Documents related to Exportation of Rice from Thailand

(from purchase order until the cargo container leaving the sea port)

36 Documents involving 15 parties, and more than 1,140 data elements to be filled

Buy/Pay Docs

1. Proforma Invoice (35)
2. Purchase Order (39)
3. Commercial Invoice (51)
4. Application for Letter of Credit (24)
5. Letter of Credit (32)
6. Packing List (25)
7. Cargo Insurance Application Form (20)
8. Cover Note (23)
9. Insurance Policy (24)
10. Booking Request Form – Border Crossing (25)
11. Booking Confirmation – Border Crossing (30)
12. Booking Request Form – Inland Transport (16)
13. Booking Confirmation – Inland Transport (18)
14. Bill of Lading (42)
15. Empty Container Movement Request (TKT 305) (20)
16. Request for Port Entry (TKT 308.2) (27)
17. Equipment Interchange Report (EIR) (24)
- 18. Container Loading List (28)**
19. Container List Message (32)
20. Outward Container List (34)

Transport Docs

21. Master Sea Cargo Manifest (17)

22. House Sea Cargo Manifest (37)

23. Export Declaration (114)

24. Good Transition Control List (27)

25. Application for Permission to Export Rice (KP. 2) (24)

26. Sales Report (KP 3) (21)

27. Application for the Collection of the Permit for the Export of Rice (A. 3) (35)

28. Permit for the Export of Rice (A. 4) (35)

29. Application for Certificate of Standards of Product (MS. 13/1) (44)

30. Certificate of Analysis (17)

31. Certificate of Product Standards (MS. 24/1) (45)

32. Certificate of Fumigation (21)

33. Application for Phytosanitary Certificate (PQ. 9) (29)

34. Phytosanitary Certificate (33)

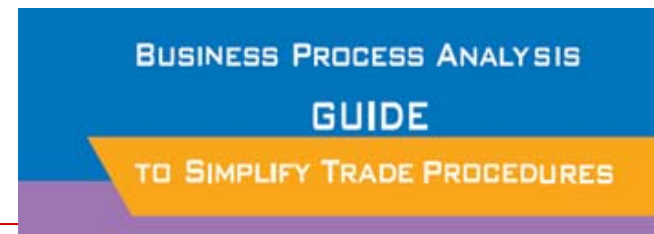
35. Application for Certificate of Origin (42)

36. Certificate of Origin (38)

Regulatory Docs

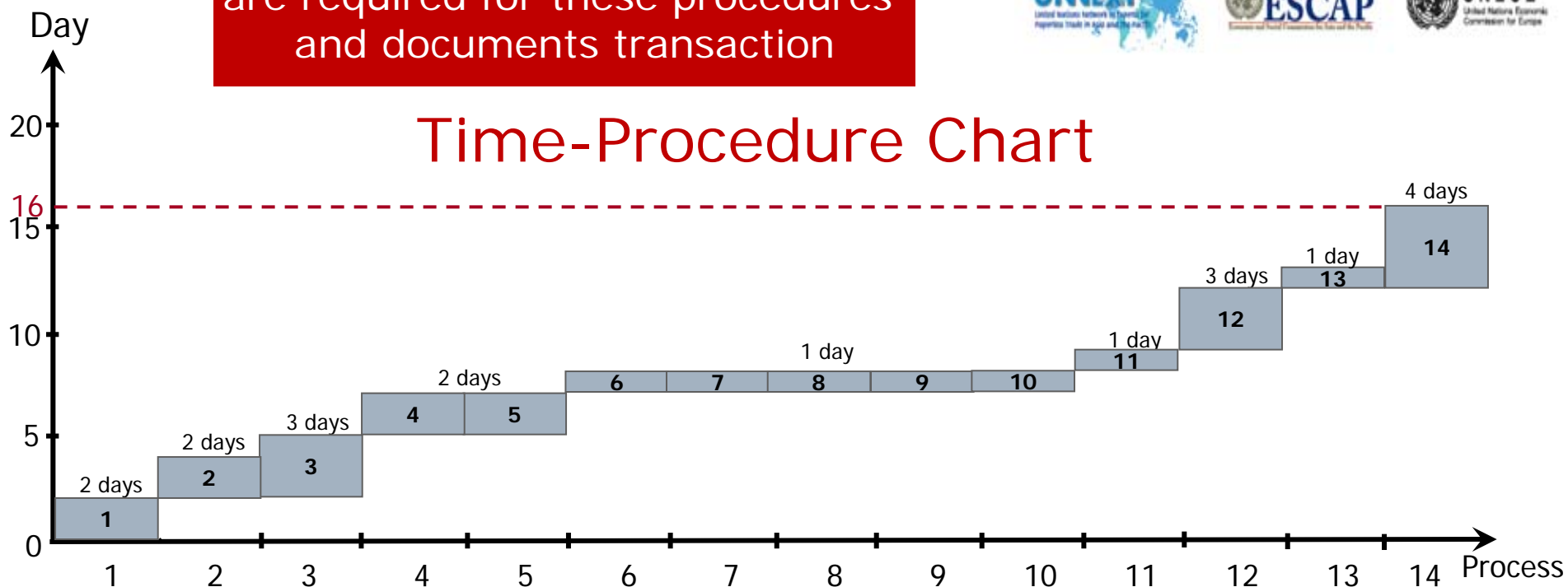
A Business Process Analysis

- in Exporting Jasmine Rice from Thailand -



16 days
are required for these procedures
and documents transaction

Time-Procedure Chart



1. Buy - Conclude sales contract and trade terms
2. Obtain export permit
3. Arrange transport
4. Arrange the inspection and fumigation
5. Obtain cargo insurance
6. Provide customs declaration
7. Collect empty container(s) from yard

8. Stuff container(s)
9. Transfer to port of departure
10. Clear goods through customs
11. Handle container at terminal and stow on vessel
12. Prepare documents required by importer
13. Verify the accuracy/authenticity of exported cargo
14. Pay - Claim payment of goods

Scope of a BPA Project

Business domain of interest

- Within an organization e.g., in-house software development
- Across organizations e.g., customs clearance, issuance of permit for crocodile skin import, frozen shrimp export

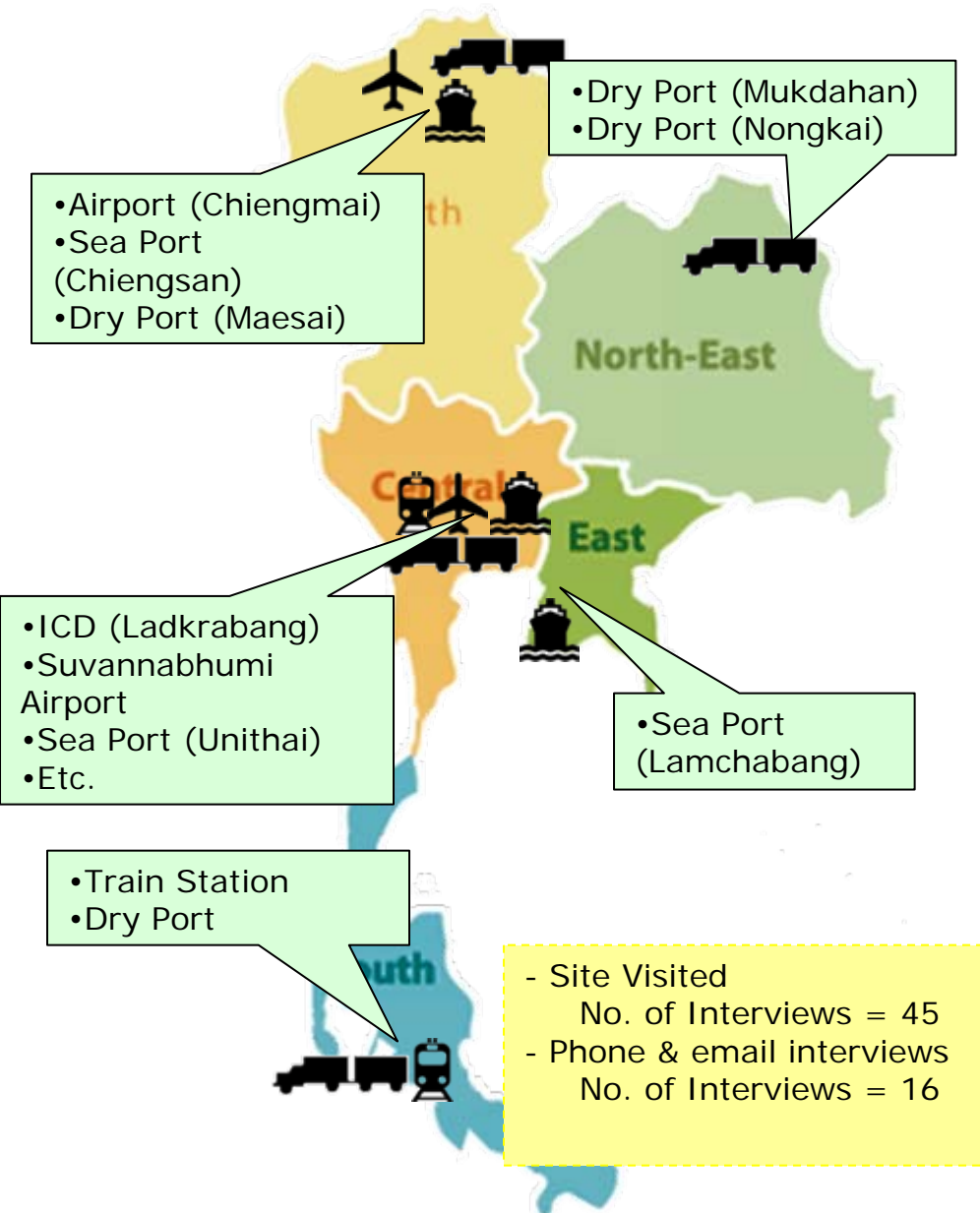
Coverage

- The stage of the international supply chain under investigation i.e., “Buy”, “Ship”, or “Pay”
- The environment and conditions in which the business domain of interest operates such as mode of transport, term of delivery, term of payment, country of destination, country of origin (given that regulatory requirements vary from one country to another)

Strategic importance

- Public sentiment
- Legislative priorities
- Economic rationale e.g., strategic export product, perceived threats in the international trade

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

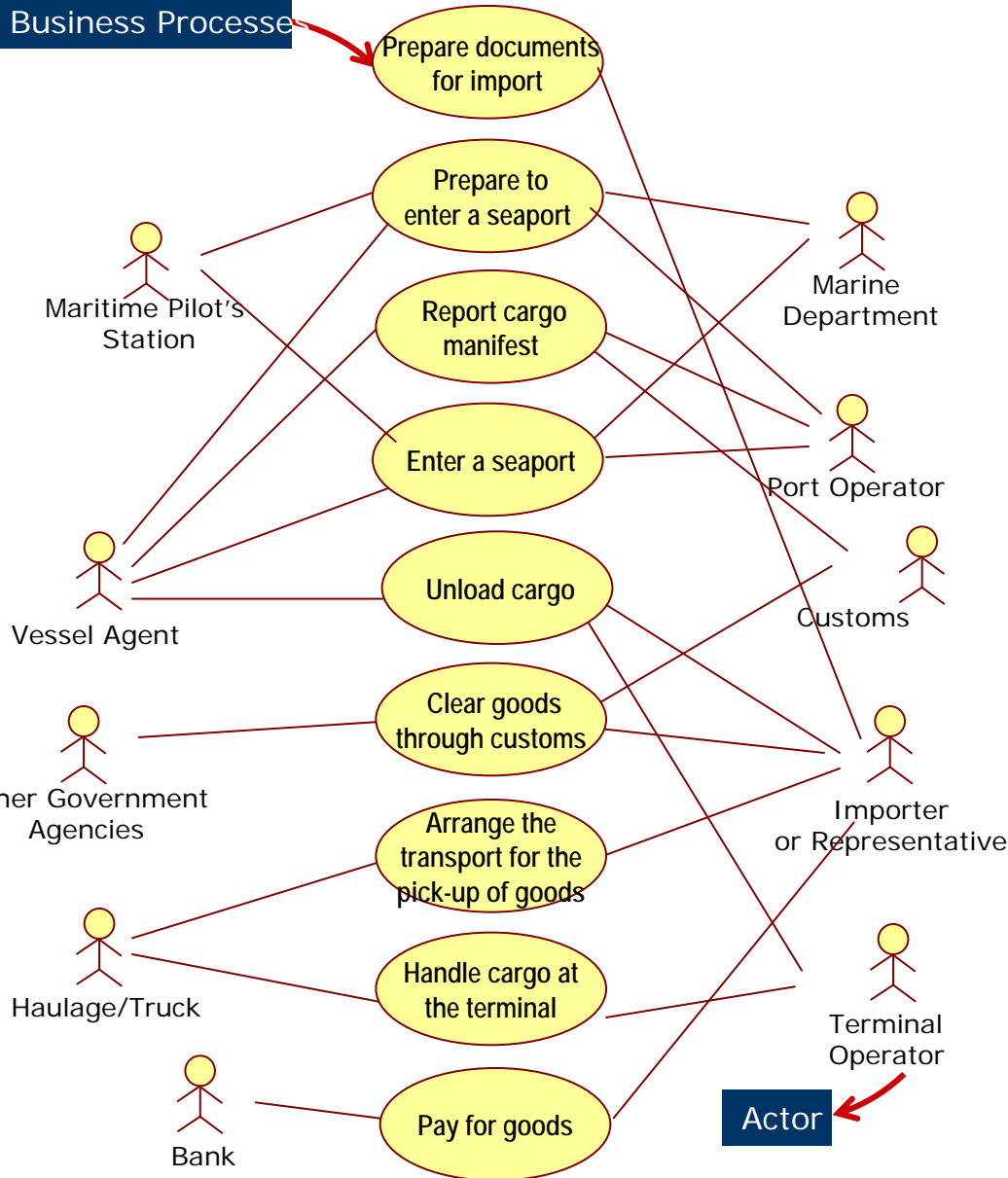
□ Export

- 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

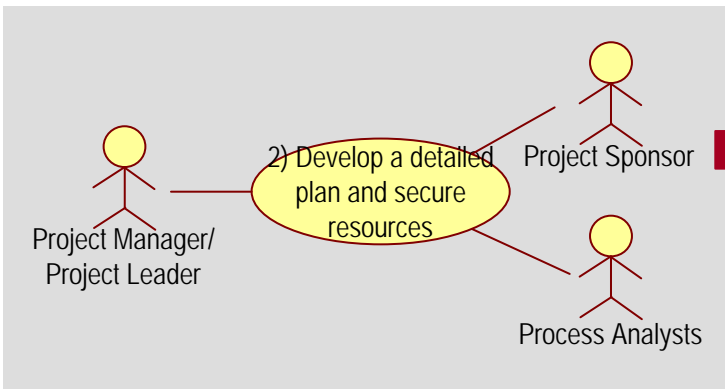
Tips

- Be precise on the scope of the BPA
 - Specify the environment and conditions in which the business domain of interest operates at the early phase of the BPA project

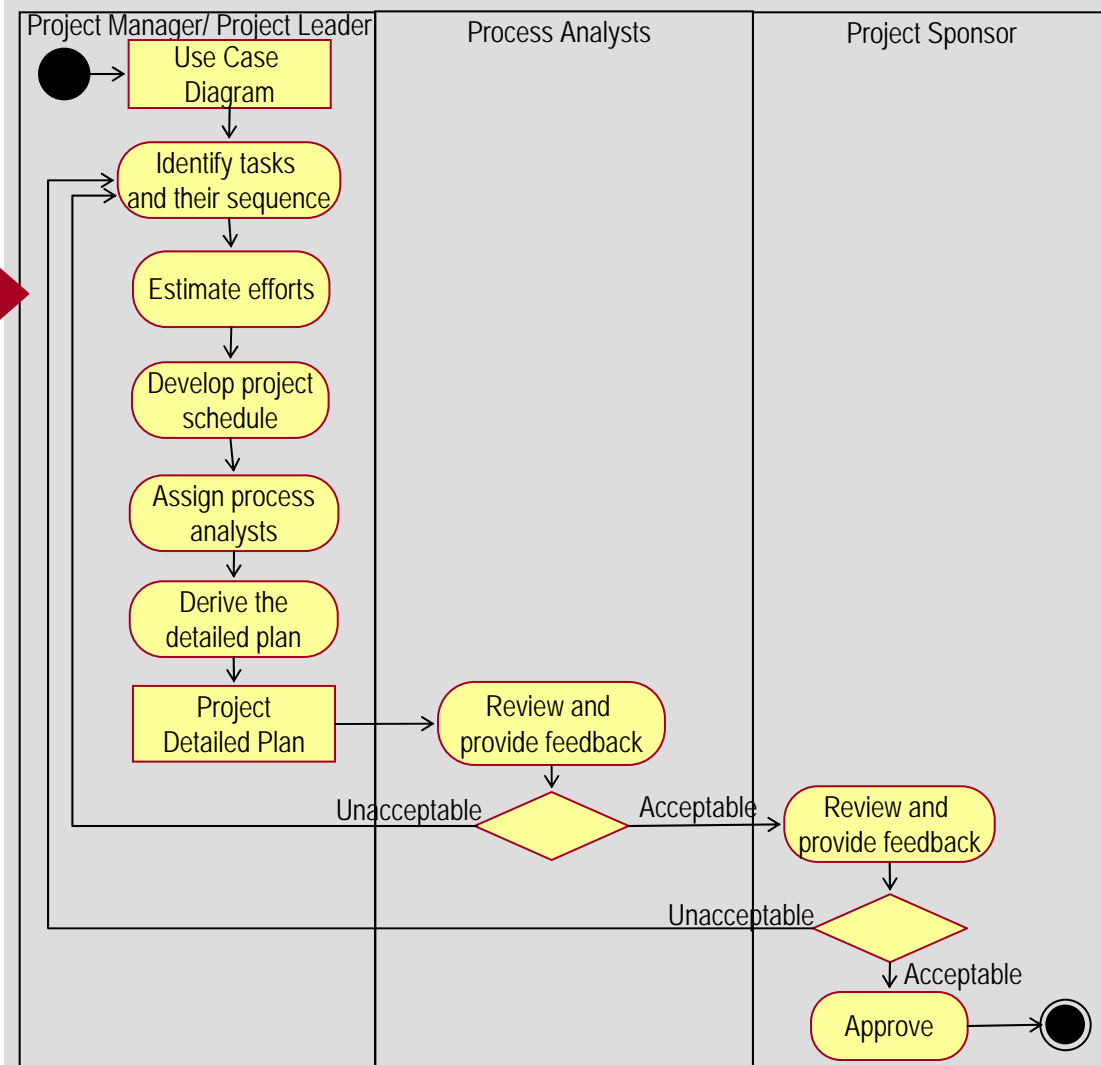
- Set the scope from the project beneficiary's perspective
 - With limited resources, detailed modeling and analysis of business process for exporting one product is not possible. In this case, the project emphasis should be oriented towards project beneficiary.
 - If the beneficiary is an exporter, the emphasis is on what the exporter has to do in order to ship the cargo to the destination country.
 - If the beneficiary is a carrier, the emphasis is on what the carrier has to do in order to leave the port of departure.

- Break the project into sub-projects if the scope is relatively large
 - E.g., if the project requires the analysis of business process for exporting 10 country's strategic products, break the project into 10 sub-projects and define the project scope for each of them

Planning a BPA Project

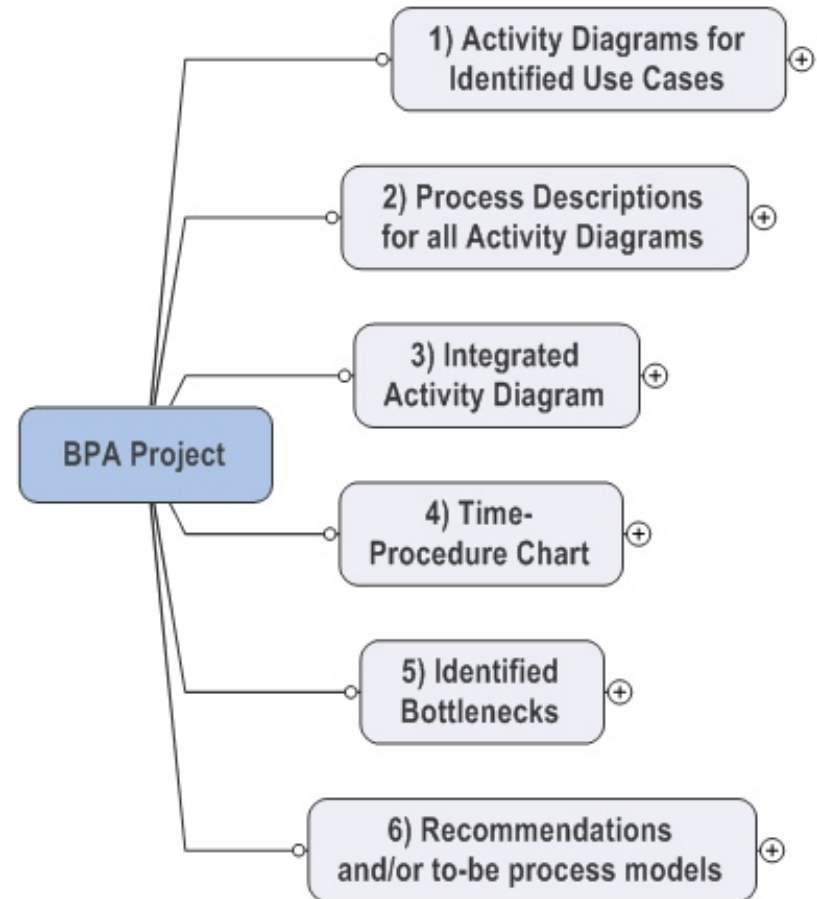


Objective – To develop a detailed work plan that helps guide and manage the implementation of a business process analysis project



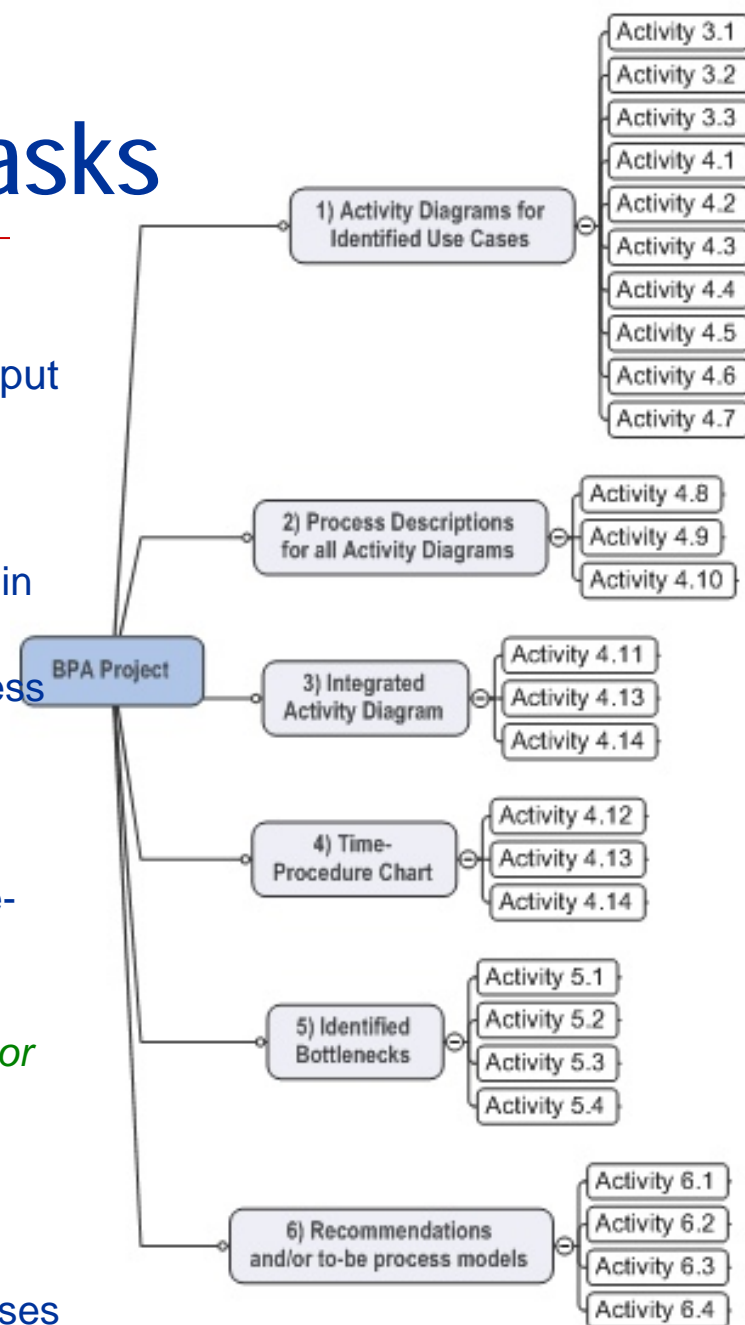
Identifying BPA Project Tasks

- Develop a work breakdown structure for a BPA project
 - A work breakdown structure is an output-oriented description of project tasks. It typically starts with outputs. The work components of outputs are then broken down into tasks necessary to achieve them.

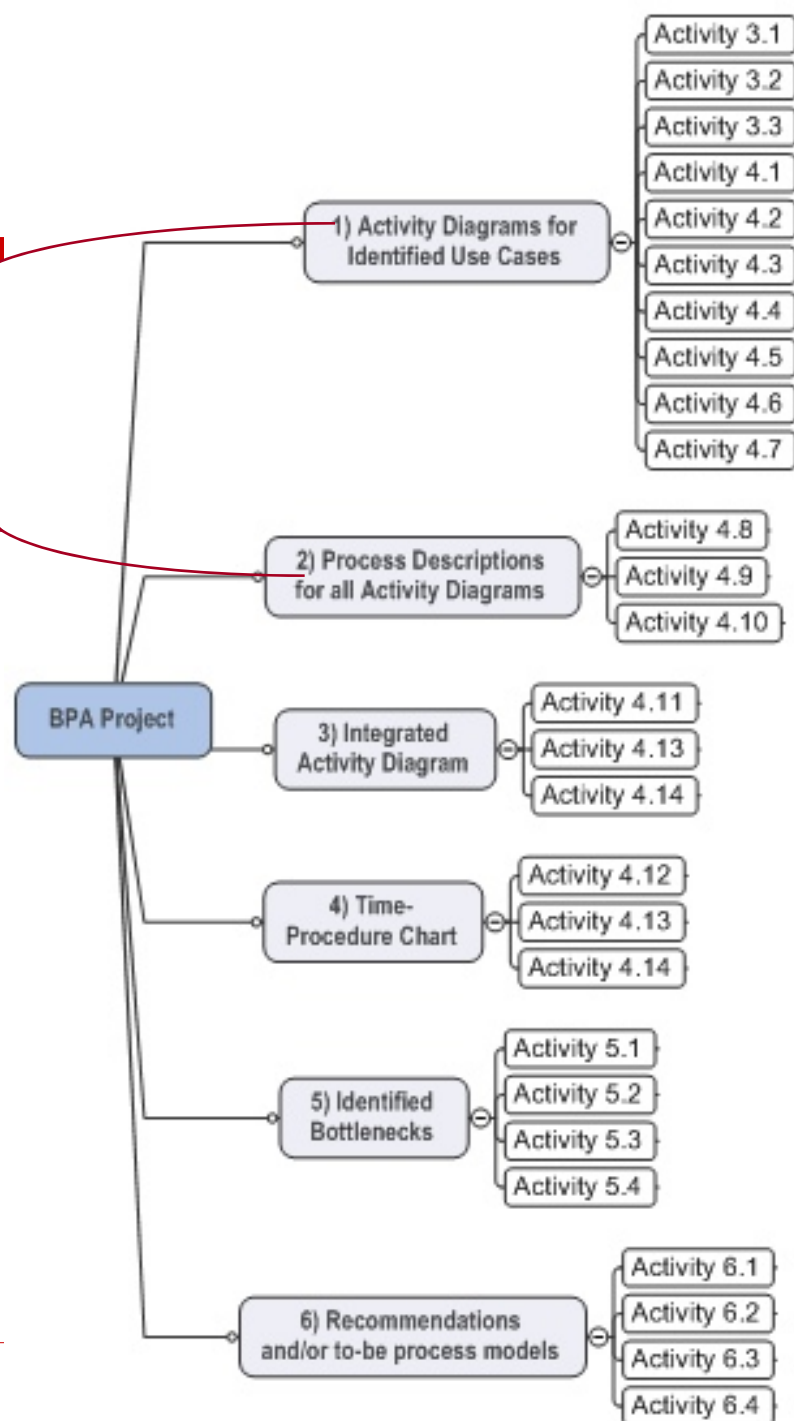


Identifying BPA Project Tasks

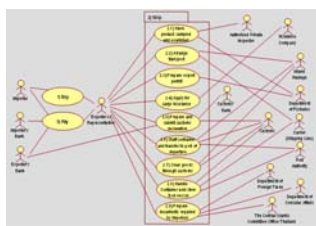
- Use the Business Process Analysis Guide to Capture and Simplify Trade Procedures, as an input for identifying BPA tasks for each output
 - Activity 3.1 – 3.3 and Activity 4.1 – 4.7 for the modeling of activity diagrams describing core business processes represented by use cases in the use case diagram
 - Activity 4.8 – 4.10 for the development of process description for all activity diagrams
 - Activity 4.11 – 4.14 for the development of an integrated activity diagram
 - Activity 4.12 – 4.14 for the development of time-procedure chart
 - *Activity 4.15 – 4.16 for the consolidation and submission of output no. 1 – 4 to project sponsor for perusal*
 - Activity 5.1 – 5.4 for the identification of bottlenecks
 - Activity 6.1 – 6.4 for the development of recommendations and/or new business processes



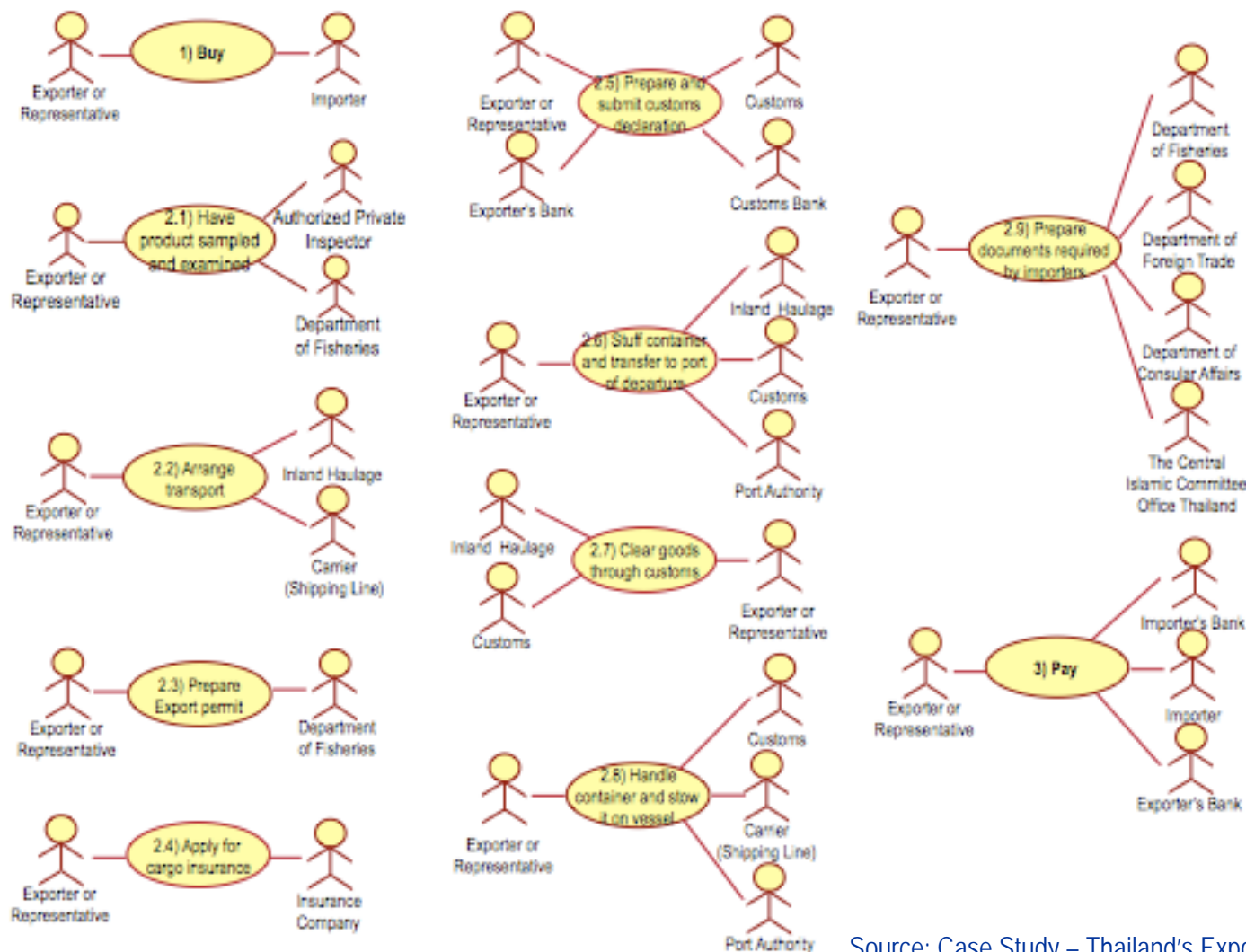
The number of key business processes and stakeholders involved in each business process must be taken into account when estimate time required for elaborating them into activity diagrams.



Small activities may be grouped into one prior to the estimation of efforts for a BPA project.



Use Case Diagram as an Input for Estimating Time Required to Complete Tasks to Product Output 1 and 2



Source: Case Study – Thailand's Export of Frozen Shrimp

Estimating Efforts for a BPA Project

$$\text{Task Estimate (PERT*)} = \frac{\text{Optimistic Time} + (4 * \text{Most Likely Time}) + \text{Pessimistic Time}}{6}$$

Task/Activity (Shrimp Case)	Predecessor	Optimistic Time (day)	Most-Likely Time (day)	Pessimistic Time (day)	Estimated Time (day)
A 3.1-3.3	None	5	8	10	7.83
A 4.1-4.2	A 3.1-3.3	2	4	5	3.83
A 4.3	A 3.1-3.3	2	3	5	3.16
A 4.4	A 4.1-4.2, A 4.3	3	5	10	5.5
A 4.5	A 4.4	3	4	10	4.83
A 4.6	A 4.5	5	8	10	7.83
A 4.7	A 4.6	1	1	2	1.16
A 4.8	A 4.7	3	4	10	4.83
A 4.9	A 4.8	5	8	10	7.83
A 4.10	A 4.9	1	1	2	1.16
A 4.11	A 4.10	2	4	5	3.83
A 4.12	A 4.10	1	1	2	1.16
A 4.13	A 4.11, A 4.12	5	8	10	7.83
A 4.14	A 4.11, A 4.12	1	1	2	1.16
A 4.15	A 4.7, A 4.10, A 4.14	1	1	2	1.16
A 4.16	A 4.15	1	1	5	1.66

* Project Evaluation and Review Technique

Developing Project Schedule

Task/Activity (Shrimp Case)	Predecessor	Estimated Time (day)	Week 1					Week 2					Week 3					Week 4					Week 5					Week 6					Week 7				
			M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F	M	T	W	T	F					
A 3.1-3.3	None	7.83																																			
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A 4.16	A 4.15	1.66																																			

Assigning Process Analysts

- ❑ **Technology skills:** The basic knowledge of UML notations, especially in use case diagrams and activity diagrams is desirable. Related work experience is complementary.
- ❑ **Business/ organization skills:** It is important that the selected process analysts know or have an access to the individuals of the business domain under investigation. It is also very useful if they have knowledge of a particular organization or industry associated with the targeted business domain.
- ❑ **Interpersonal/ communication skills:** Process analysts' ability to effectively communicate and interact with other project members is mostly crucial to project success. They should have the ability to create and sustain reasonably good relationships with project stakeholders and especially Process Participants/Business Domain Experts.
- ❑ **Analytical skills:** Process analysts should be able to capture relevant information from verbal expression and written documents, and then formalize them in various types of BPA output.

THANK YOU!