



# PROPOSED IT FINANCIAL MANAGEMENT PROCESS USING ITIL (IT INFRASTRUCTURE LIBRARY) FOR PORT COMPANY IN INDONESIA

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## ABSTRACT

ASEAN Single Window (ASW) implementation ensures compatibility of Member States National Single Windows (NSWs) with international open communication standards while also ensuring that each of those Member States can then exchange data securely and reliably with any trading partners that use international open standards. Simpler and faster processing time, and a more transparent way of doing business. In order to facing of ASW, Indonesian Port Companies have to improve their services. Based on this fact, some Indonesia Port Companies try to invest Information Technology to achieve their goals and improve competitiveness. However, frequently processes related with IT investment do not managed properly. Port Company in Indonesia often ignore linkage analysis between IT investment, business objectives, and business impact. Therefore, the value of IT service not been well defined. This work has raised this issue and try to propose systematic approach for IT Financial Management process based on ITIL best practice standard. Research case study in one of the largest government-owned port company in Indonesia that implements Port Integrated IT services. This work start with planning, analysis, and design to be produced proposed IT Financial Management process. Business case analysis perform in planning phase to make sure the IT investment related with business objectives and has measurable impact. Assessment perform in analysis phase to measure the IT Financial Management process readiness. Total Service Valuation (TSV) also formulated to know the value of Port Integrated IT services. The last is design phase which is defined complete procedures, role and responsibilities for IT Financial Management process implementation. The result of this work is systematic approach to implementation IT Financial Management process in Indonesian Port Company.

**Keywords:** *IT Financial Management, ITIL, Port Company*

## 1. INTRODUCTION

Currently, Information Technology adoption in Business Port is not only used as a tools supporting management activities, but also has become part of a port services business process itself. In other words "*Information Technology is the driving force (Enabler & Driver) in the company's business*". This is evident in several ports in some countries that have implemented e-Port (Electronic Port).

- a. Singapore Port Authority with PORTNET
- b. Malaysia with Dagang.Net
- c. Port of Hamburg with DACOSY
- d. Rotterdam - The Netherlands with INTIS
- e. Port of Seattle, USA with LINX System
- f. Port of Miami, USA with MICs
- g. Port of Antwerp Belgium with SEAGHA
- h. Port of Sydney - Australian Ships
- i. Hong Kong with Tradelink – eBiz

In Indonesia, the government is developing the e-Port to which is the follow up of the implementation plan of the ASEAN Single Window (ASW) is scheduled for 2010 has been operating for the environment in ASEAN countries. Development of Information Technology at Indonesian Port Companies are a step that needs to be done to realize the vision of "Customer Choice Port Company with World Class Service Quality" and make information technology backbone that will be executed business processes in Indonesian Port Companies. Until now Indonesian Port Companies are developing an Integrated IT Services of Port to support business operations. However there are still weaknesses in the governance of IT in this company. By looking at the fact that there is good IT Service



Management at Indonesian Port Companies are needed [6].

One of the IT Service Management best practice is the ITIL (IT Infrastructure Library) which provides guidelines for best practice for IT Service Management, ITIL has become one of the frameworks used to conduct the IT Service Management approach in the governance of information technology throughout the world. One of the ITIL process areas is the IT Financial Management. Operational visibility, insight and superior decision making is the core capabilities of the company through strict application of IT Financial Management [4].

IT Financial Management provides a quantification of the business and IT, in financial terms the value of IT services, the value of the assets that underlie the provision of services, and qualifications of the operational forecast. If we talk about IT in terms of service then this is the essence of the changing perception of IT and its value to the business. Therefore, a significant portion of IT Financial Management will help IT and business to identify, document, helping establish mutual understanding on the value of services received, and to enable the service demand modeling and management [4]. The questions that answer in this study are:

1. How is the readiness of IT Financial Management process in Indonesian Port Companies?
2. What systematic approach should be done by Indonesian Port Company to carry out the process of good IT Financial Management?

In this research study will be conducted on how the governance of information technology related to IT Financial Management on the organization of Indonesian Port Company, so expect a good use of information technology can assist the organization in achieving its goals. Information technology governance guidelines that created based on IT Infrastructure Library (ITIL) version 3 which is a best practice for IT service management. The objective of this study are as follows:

1. Identifying and reviewing information technology governance processes currently available in the Indonesian Port Company associated with service strategy, particularly for IT Financial Management processes.
2. Implementation checklist to conduct the IT Financial Management from stage.
  - a. Planning, resulting in analysis of internal factors, external, and the business case for Integrated IT Services of Port.

- b. Analysis, resulting in value analysis services (service valuation) integrated IT Services of Port.
- c. Design, produce management proposals for the implementation of IT Financial Management Integrated IT Services of Port.

The result of this works is a systematic approach to implementing IT Financial Management process that can be adopted by any Port Companies especially Indonesian Port Companies to achieve excellence IT Service Management. Whereas the limitation of this work is data and supporting documents that used only from one Port Company, but this company is the largest public company in Indonesia.

## 2. RELATED WORKS

Today should be recognized that the information is a strategic resource in organizations that must be managed properly. The key to success in conducting the process analysis, production, and distribution of information within an organization is the quality of IT services which provided for the business. IT services is crucial, strategic, and regarded as an asset of the organization. Therefore organizations must invest resources at appropriate levels to realize the support, delivery, and management of critical IT Services. However, these aspects are often ignored or only discussed in passing in many organizations. As for the problems often faced by many senior Business Managers and IT Managers are as follows [2]:

1. IT strategic planning and business.
2. Integrating and aligning IT and business objectives.
3. Implementation of continuous improvement.
4. Measuring IT organization effectiveness and efficiency.
5. Optimizing cost and Total Cost of Ownership (TCO).
6. Achieve and demonstrate Return on Investment (ROI).
7. Demonstrating the business value of IT.
8. Developing partnerships and business relationships and IT.
9. Improving project delivery success.
10. Outsourcing and insourcing.
11. Using IT to gain competitive advantage.
12. Deliver the required IT services business (ie what is needed and at an agreed cost).
13. Managing change in business and IT..
14. Demonstrating appropriate IT governance.



One of the governance framework for information technology is the ITIL (IT Infrastructure Library) which provides guidelines for best practice for IT Service Management, ITIL has become one of the frameworks used to conduct the IT Service Management approach in the governance of information technology throughout the world. ITIL is a public framework that provides the best practice in IT Service Management. ITIL provides a framework for IT governance and focus on continuous measurement and improvement of the quality of IT services provided from the standpoint of business and customer.

With this background, the services that are critical in urgently need of a good IT service management because it has a great influence in the event of disruption. Therefore with the development of service management processes based on best practice that aims to reduce service delivery costs and increase the effectiveness and efficiency is fundamental to offer competitive financing services. Implementation of IT Service Management standard will assist in realizing that [3]. For example, the implementation of IT Service Management is conduct in five large organizations in Australia have shown positive effects and provide benefits for organization as facilitate the introduction and improvement of the IT infrastructure, improving the quality of cooperation and communication within the IT organization, the process of negotiating Service Level Management more smoothly, decrease down-time server, providing better services, processes documented IT Service Management, and consistency of recording of incidents [7]. Another application of the concept of IT Service Management is for handling incidents in Higher Education. In that study proposed a model of incident management that consists of defining the SLA, construction monitoring and trouble ticket system, as well as improved service desk [8]. Other research on 491 companies around the world related to the implementation of IT Service Management Framework indicates that when the level of maturity of the implementation processes of IT Service Management increased by increasing the profit earned by the organization is also increasing. Instead increasing maturity level showed a tendency to decrease in organizational management worries over the implementation of IT Service Management [9].

However, the implementation of IT Service Management is not always run smooth as an example a case study on the implementation of ITSM public organizations that exist in Portugal

where resistance to change becomes a major problem in the application of IT Service Management. Resistance to change is the most common problems that occur in many public organizations because of an unwillingness to change old habits and repair procedures. For this study suggest start of the process of Change Management in advance when they want to implement ITIL in public organizations [10]. In another study at one of the companies in Saudi Arabia failed to implement ITSM indicate that the IT staff, management, and users have a different view of the related factors of successful implementation of ITIL [12]. Several different approaches proposed in implementing such a ITSM evaluation framework that takes into account the viewpoint of management, technology, users, and IT staff. Evaluation is done starting from the corporate level / top management to the level of detail the process [11]. Another approach uses the basic variables that exist in the Technology Acceptance Model (TAM) to identify the determinants of successful implementation of ITSM, but this model has not been tested [13].

## 2.1 IT Financial Management

IT Financial Management is one of the areas in ITIL version 3. Operational visibility, insight and superior decision making is the core capability brought to the company through strict application of IT Financial Management. Just as business units, the profits obtained through analysis of product mix (product mix) and margin data, or customer profile and behavior of products, the usefulness of financial data will continue to increase the importance of IT Financial Management for IT and business. IT Financial Management is a strategic tool applies equally to all types of service providers Service Providers (Type I, II, and III). Internal service providers (type I) increasingly required to operate with the same level in terms of financial visibility and accountability as the business units and external partners. In addition, technology and innovation has become central to the ability to generate profits of many companies [4].

IT Financial Management provides a quantification of the business and IT, in financial terms the value of IT services, the value of the assets that underlie the provision of services, and qualifications of the operational forecast. If talking about IT in terms of service is the core of changing the perception of IT and its value to the business. Therefore, a significant portion of IT Financial Management will help IT and business to identify, document, make a deal on the value of services

received, and to enable service demand modeling and management.

## 2.2 Company Value (Enterprise Value) and the benefits of IT Financial Management

From strategic view, value can be financial, non-financial, and time [5]. Changing views on IT as a strategic business and delivery model that is quickly growing and shrinking product development cycles. These dynamics create what is called the dichotomy of IT professionals as priorities: increasing demands on performance and business strategy alignment, combined with greater demand for operational visibility and superior control. Just like other business units, IT organizations use IT to achieve the Financial Management [4]:

- a. Improving the quality of decision making
- b. Increase the speed of change
- c. Portfolio management services
- d. Compliance and financial control
- e. Operational Control
- f. Catching and value creation / value.

IT organizations today recognize that they are very similar to a company that is facing the market. They conduct activities to analyze, wrap, market and service delivery like any other business. They also share a common and increasing need to understand and control the supply and demand factors, and for the provision of services as cost-effectively while maximizing the visibility of the associated cost structure. This similarity is a value that is very valuable to businesses as they are viewed by IT are trying to reduce costs and enhance its service offerings.

## 3. METHODOLOGY

In this study, the methodology for define proposed IT Financial Management process shown in figure 1 as follows:

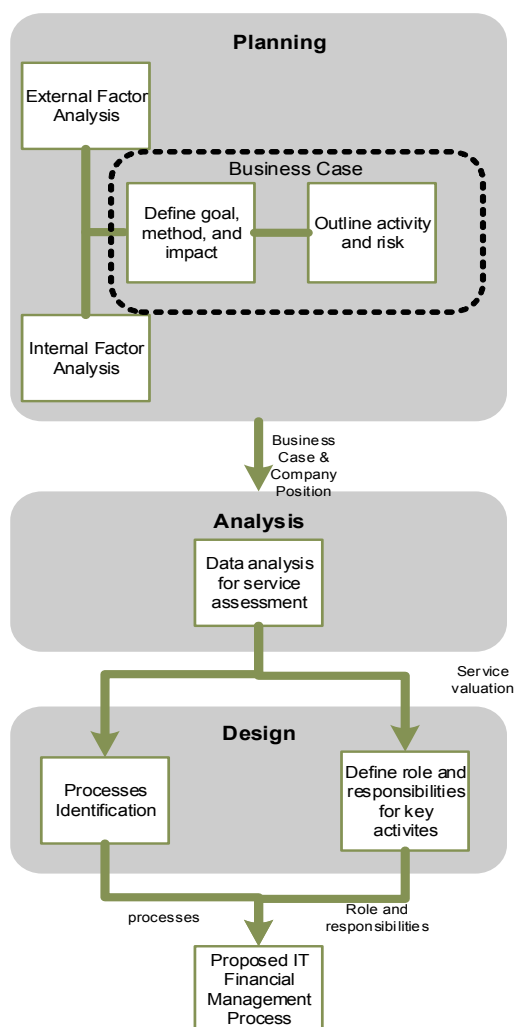


Figure 1. Methodology for define IT Financial Management Process

### 1. Planning

At this phase will be done a few things such as analysis of external and internal factors that form of identification strength and weakness, business strategy, threats, and opportunities. Next is the formulation of business case in which there is formation of goals, methods, impacts, risks, and determine the outline of the activities to be undertaken.

### 2. Analysis

This stage of data analysis on the assessment services and the distribution of the value of services (service valuation).

### 3. Design

Stages of design to create the expected output from an execution of IT Financial Management. At this stage the complete procedure will be generated from the implementation of IT Financial

Management, the roles and responsibilities of the organizational structure defined activities.

### 3.1 Planning

#### 3.1.1 Requirement of Port Integrated IT Services

Basically, the business unit / branch is a collection of assets that serve to create the value needed by the customer in the port services. Assets that exist in this business unit is categorized into two, namely the capability to coordinate and control asset resources. These assets are consumed by Port Integrated IT Services. The service is expected to increase the potential value received by a customer who directly also increases the company's outcome. The scheme of integrated IT service for Indonesian Port Company shown in figure 2 as follows:

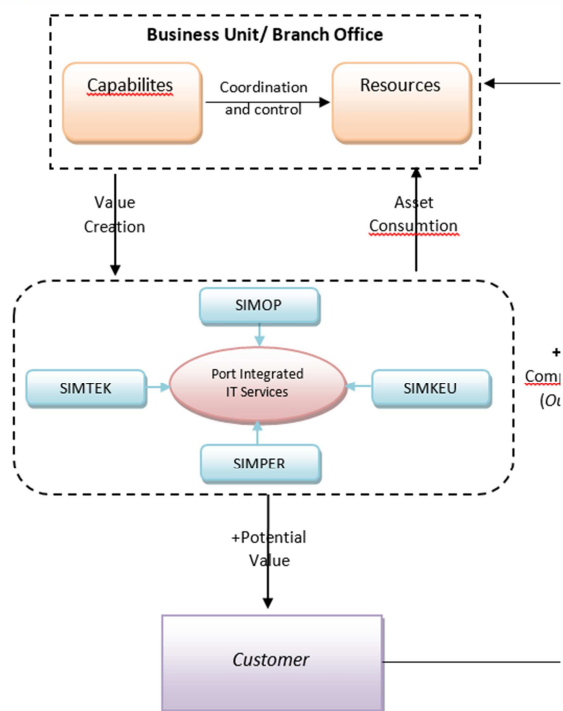


Figure 2. Integrated IT Service Scheme for Indonesian Port Company

In order to facilitate control, governance, maintenance and system development, the concept of centralized architecture is recommended, whereby all applications and data centrally stores [6]. So the branch office port/ operational unit only serves as the end user by using the internal data communication network system.

#### 3.1.2 Business Case Analysis of Business Impact

Here is a business impact analysis of the implementation of Integrated IT Services of Port. This business impact analysis must be linked with business objectives that have been defined. Business case and impact analysis shown in figure 3,4, and 5 as follows:

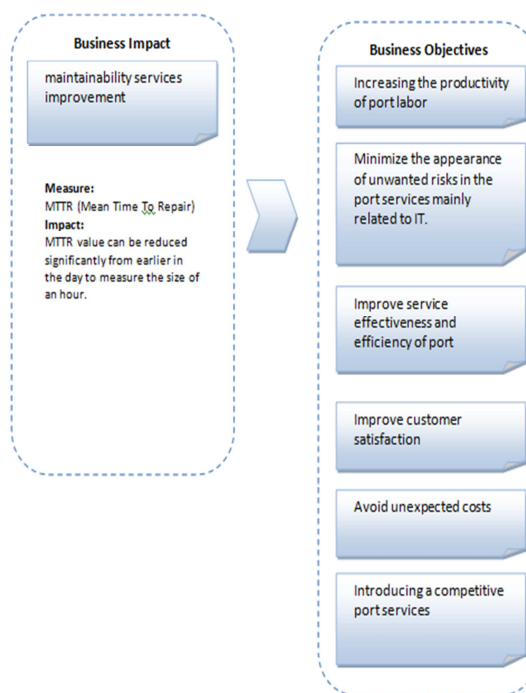


Figure 3. Improved maintainability of services that are supported by IT

Table 1. Target and measure maintainability services improvement

Business Objectives	Measure	Target
Increasing the productivity of port labor	Ship and Cargo Flow	Flows from 53.617 to 56.708 ships units Flow of goods from a 125.294.545 to 109.719.552 tones.
Minimize the appearance of unwanted risks in the port services mainly related to IT.	Adequacy of services on-line system (Likert scale)	From 3,26 to 4,40
Improve service effectiveness and efficiency of port	Operating Ratio (OR)	From 64,96 to 70,11

Business Objectives	Measure	Target
Improve customer satisfaction	Customer Satisfaction Index (Likert Scale)	Ship service from 3.28 to 4.50 Container service from 2.89 to 4.44 Non-container services from 2.59 to 4.47
Avoid unexpected costs	Difference in income & expenses outside the business	From Rp. 423,19 million to Rp. 208.14 million
Introducing a competitive port services	Achievement Level of Safety & Service	From 97,11% to 100%

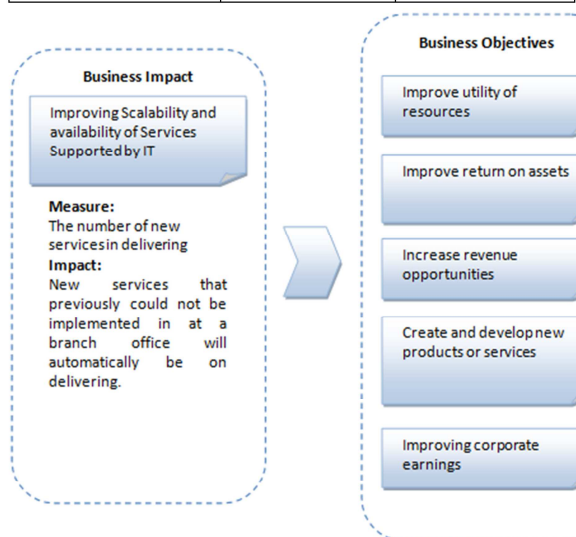


Figure 4. Improved scalability and service availability

Table 2. Target and measure scalability & availability improvement services

Business Objectives	Measure	Target
Improve utility of resources	The percentage of port utilization rate of assets	From 99,56% to 100%
Improve return on assets	Percentage Return on Asset	From 16,28% to 16,36%
Increase revenue opportunities	Projected increase in net profit company	From 973.36 billion to > 1000 billion per year
Create and develop new products or services	The number of potential business segments cultivated	Targets are 4 new business segments, namely: service bunkers, the car port, port

Business Objectives	Measure	Target
		consultants, and forwarder Multimode
Improving corporate earnings	Percentage of Revenue Growth	From 2,66% to 20.02%

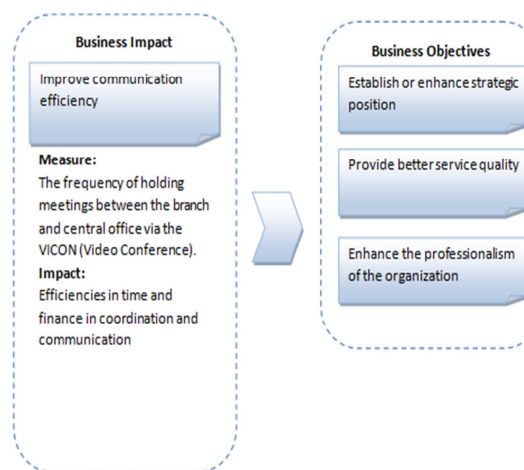


Figure 5. Improved communication

Table 3. Target and measure communication effectivity

Business Objectives	Measure	Target
Establish or enhance strategic position	The integrity of public Service ranking	Currently Indonesian Port Company ranking based on the institution is 27, the target into the future, is ranked fifth major.
Provide better service quality	Achievement Level of Safety & Service	From 97,11% to 100%
Enhance the professionalism of the organization	Internal Business Process KPI achievement	From 98,03% to 100%

### 3.2 Analysis

#### 3.2.1 IT Financial Management Assessment

To determine the current condition of the IT Financial Management process, the survey have been conducted carried out by the horizontal aspect (distribution organization) and vertical aspects (management level). Respondent mapping shown in table 4 as follows:

Table 4. Respondents Mapping

Respondent	Number
IT Senior Management	1
IT Staff	7
Non IT Senior Management	8
IT User	15
<b>Total</b>	<b>31</b>

Mini assessment tool from the art of service used to measure readiness level of IT Financial Management [1]. From assessment that has been conducted, IT Financial Management readiness level is 3.24 of scale 5. This result show IT Financial Management process is not good enough.

### 3.2.2 Services Valuation

The analysis phase of generating service valuation for Port Integrated IT Services which includes the analysis of service provisioning (SP), service value potential (SVP), and service apportioning.

Provisioning for the actual value of the underlying costs associated with the procurement of IT services, including fulfillment of all elements, both tangible and intangible. In this process approach is applied price/ value of the procurement of Integrated IT Services of Port with some elements of the cost of hardware, software, personnel, accommodation, external services, and training. Service is a component of potential value added value perceived by customers of the Integrated IT Services of Port that consist of two components, namely utility (the ability to achieve customer goals) and warranty (the ability to be used by the customer). Calculation of Service Value (SV) can be defined as follows:

$$SV = \sum_{k=1}^n SP + \sum_{k=1}^2 SVP \tag{1}$$

Service provisioning and service potential value will be the total value/ total service valuation (TSV) from Port integrated IT Services added with anticipated demand variance (ADV). So the formulation of TSV can be shown as follows:

$$TSV = SV + ADV \tag{2}$$

### 3.3 IT Financial Management Processes Design

The following is an outline of the IT Financial Management Implementation Plan which includes proposals previously defined. This outline contains the steps or a systematic approach to implementing IT Financial Management process in Indonesian

Port Company which is shown in figure 6 as follows:



Figure 6. Systematic approach to implementing IT Financial Management process

#### 1. Initialization

This stage represents an early stage in the application of IT Financial Management process that provides the basis for further process implementation. Things that are done at this stage it is suggested not too detailed because it will cause us to get stuck in the details that are too large and would tend to confuse. Some things are done at this stage, among others, is to make an agreement on goals, objectives, scope and implementation approach, which is still in broad outline. Use document communication plan to assist these activities. The appointment of the owner / manager needs to be done by considering the processes owned by a person of competence, the employee usually associated with IT Service Delivery (Service Delivery) is highly recommended. Perform a review of related processes within existing IT Financial Management as the collection of the current financial needs, IT budgeting, accounting, and charging. Get the approval of the relevant parties about the process of planning and design outline. Perform a review of all elements of cost necessary in the process (HR, software, hardware, accommodation). The latter is the agreement on the policy set associated with this process.

#### 2. Define Strategic Planning

This phase is more detailed steps of the first stage. After basic and general description of the program



has been formed at the first stage of this phase aims to provide insight and answers regarding questions about the reasons, objectives, and scope of this process.

a) The policy statement - this statement has the essence of the reason why the process / program needs to be done. Often people ask why I had to do all this. If not properly explained will most likely arise refusal/ resistance to implementing IT Financial Management processes. Need to be explained why this process is important and what contribution and added value to the business if the process is carried out.

b) Statement of objectives - all activities undertaken must be clear objectives. General objectives of the IT Financial Management is to ensure the effectiveness of assets management of IT services through the implementation of Financial Management processes such as the provision of IT budgets, IT accounting policies, and financing policy / charging. Do it quickly defining the target (not too long) and do the review again later time and then make a commitment to achieve realistic results.

c) Statement of Scope - This statement will say what the limits of the process and what information flows (and out) of the process of this area into other areas of the process. Common examples of the scope statement is the processes of IT Financial Management is responsible for budgeting, accounting, IT, and funding / charging which covers aspects of IT infrastructure such as hardware, software, and others.

### 3. Perform the initial steps implementation

This stage is the stage that has a goal to create a foundation in the application process. The end result of this phase in the form of documents and reports are published to the relevant parties. With the existence of these documents and reports it is expected that all parties will have an understanding and provide support for the program. Basically there are various ways of doing IT Financial Management processes. There is a company or organization that is more suitable to apply the "Big Bang" but also many organizations that are more suitable to do it in stages.

### 4. Formulate implementation costs

This stage aims to define the costs required in the implementation of the program include the cost of human resources, accommodation, Software, Hardware, Education / Training and Procedures / External Services. Another goal of this phase is to establish the oversight of these cost elements at the

beginning, during, and end the process. In most cases, the cost to the process of implementation must be budgeted or allocated well before the issuance. Part of this step involves determining the mechanism of financing / charging for new services (Integrated IT Services of Port) that will be offered. In this stage can utilize the document to communicate the cost of communications.

### 5. Formation of Committees

Each process needs owner and in many situations the process is assisted by a team. IT Financial Management Process is one of the service delivery process that shows the real benefits from the very beginning and this affects the perception of IT services to customers and end users. This team is built on the roles and responsibilities of IT Financial Manager which can be seen from the document roles and responsibilities.

### 6. Analyzing the current situation

The purpose of this phase is to take pictures of current conditions relating to IT Financial Management process to identify the processes and related roles that will become a material consideration of the roles in the future in the new process. Indonesian Port Company has indeed been implementing IT Financial Management processes such as IT budgeting, accounting, and charging. However, these processes are still not done well. Some areas that need to be analyzed, among others, such as team strengths, formal and informal procedures, descriptions of roles, organizational structure, repository, and others.

### 7. Implementation

After all previous steps undertaken and the basic decisions relating to planning and entire scope of activities have been completed, the next stage is conduct implementation activities. The purpose of this phase is to implement everything that has been prepared, and defined earlier. Maybe there is some activity that is repeated again, this is intended to be more detail what has been done before. As an example of the practice review current IT Financial Management process, accuracy and relevance of existing processes, as well as a review about the functions and capabilities of existing employees. These activities will ensure that the process will run more efficiently by utilizing the capabilities and resources that exist today. Another activity is to decide the best way or method that will be used to select vendors for external services required. In determining this, it is necessary to understand how the structure of the sourcing of services and





consider the suitability of the current organization. Next is a set of selection guidelines for the evaluation and selection tools are needed to support the process areas and procurement also installation of this tool. Make sure every business process interface in the process of IT Financial Management can be provided by this tool, the interface can be either report or other content. Communicate all plans regarding the roles, responsibilities and training to executive management. Make sure the benefits of this process has also been communicated previously. After that do the training for employees that includes the understanding and importance of this process considering the understanding of employees of Indonesian Port Company.

#### 8. Transition to the New Process

Questions related to when the new process will begin is not an easy question to answer. If we are going to step into a new process that let IT Demand Management and Service Portfolio Management Then we should not assume that IT Financial Management process is completely finished. Basically, the problems associated with this process will probably always exist and need to be handled.

#### 4. CONCLUSION

Until now many Indonesian Port Companies have applied IT to support business processes. Recent investments is the Integrated IT Services of Port using the concept of centralized Application and Database. However, the IT adoption in many Indonesian Port Company has a weakness and less well managed. These results obtained from analysis through interviews, documents, and survey on IT Service Management Process Assessment at IT Financial Management process areas at this company. Business Case Analysis of Business Impact has been conducted to determine linkage analysis between IT investment, business objectives, and business impact. The result shows that the readiness of IT Financial Management process in Indonesian Port Companies is not good enough. This work also propose Service Valuation Analysis includes the analysis of service provisioning (SP), service value potential (SVP), and service apportioning.

Finally, this work has been developed the outline of the IT Financial Management Implementation. This outline contains the steps or a systematic approach to implementing IT Financial Management process in Indonesian Port

Company. The systematic approach can be used by other companies for IT Financial Management process best practice to achieve excellence IT Service Management.

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