Organization Design Model for Indonesia Port Industry

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ABSTRACT. Organization design is the deliberate process of configuring structures, processes, reward system, and people practices and policies to create and effective organization capable of achieving the bussiness strategy. On port industry, there are several issue on the international context which is affected on port performance: containerization, size-based revolution in container ships' and role in developing and oprating container terminals. For Indonesia port industry, there are several key factor contributing to poor port performance, i.e geographic constraints, labour issues, lack of security, corruption and lack of port infrastructure. These factors are indicates that the organization model of port industry which is need an improvement to become more competitive on international context. This paper tries to establish frame towards the design of organization model for Indonesia port industry which is influenced by several proposed factors such as advance criteria, such as safety, technology, information technology, green & sustainability, globalizations, economic and research & development and training. By looking for several previous models of the organizational design model and the proposed factors, finally produce a proposed model of organizational design toward change and adapted to port industry.

KEYWORDS: organization design model; Indonesia port industry; advance criteria; port performance

1 INTRODUCTION

The term of organization comes from organon (greece language) which means as a tools. According to Etzioni (1964), Organizations are composed of deliberately selected and deselected people who coordinate their efforts toward a specific goal (Etzioni, 1964). The ultimate purpose of an organization is to achieve a specific goal or mission. To achieve its goal or mission, organizational design is needed. Organization design is the deliberate process of configuring structures, processes, reward system, and people practices and policies to create and effective organization capable of achieving the bussiness strategy.

In port industry, these Organizational design is answer the question, "What is the best organizational structure in port industry" and has two objectives (Weingarden, 2011). They

are to facilitate the flow of information within the port industry organization and to integrate organizational behavior across different parts of the organization so the behavior is coordinated (Duncan, 1979). It is impossible to achieve its two objective without a good organizational design in this industry.

There are two important things in developing organization design. The first one is strategy and environmental change by time, its means organization design is a continual process. The changes of organization design that occur are influenced by several things: safety issues, information technology, globalization, technology, green and sustainibility, global security, global economic, training research and development, etc. The second one is the changing of the structure including trying and possibility to make some mistake in order to construct a best organization design.

Due to organization design is dynamic and it is a continual process, this paper tries to propose a new organization design which suitable for port industry for advanced. It is expected that these new model organization design can be applied for port industry in advanced.

2 ORGANIZATION DESIGN

Organization theory concern organizations consist of different types. The classical organization theories (Mooney, 1947) provide useful insights into the functioning of mechanistic organizations. This type of organizations comprises systems of hierarchically linked job positions with clear responsibilities that use standard well-understood technology and operate in a relatively stable environment. In contrast to mechanistic or functional organizations, a substantial group of modern organizations are characterized by a highly dynamic, constantly changing, organic structure with non-linear behaviour. These organizations can be investigated using modern organization theories. Modern theories are based on two essential frameworks: the systems framework (Walter, 1968) and the contingency approach (Donaldson, 2001). The systems framework is based on the notion of inter-dependency, which implies that a change in one part of an organization affects the behaviour of all other parts.

The systems framework is applied for studying matrix and network organizations (Morgan, 1996). The contingency approach (Donaldson, 2001) focuses on external determinates of organizational structure and behaviour called contingencies. A contingency is any variable that moderates the effect of an organizational characteristic on organizational performance. The key thesis of the contingency theory is that to ensure the effectiveness and the efficiency of an organization, its structure and behaviour should be defined depending on particular environmental conditions. The contingency approach is claimed to be useful for studying organizations of most of the types and it is claimed to be particularly suitable for organization design. Organization design is a special topic in the organization theory (Lorsch & Lawrence, 1970). Galbraith (1978) stated that organization design is conceived to be a decision process to bring about coherence between the goals or purposes for which the organization exists, the patterns of division of labour and inter unit coordination and the people who will do the work.

Further Galbraith argues that design is an essential process for creating organizations which perform better than those which arise naturally. The ideas of Galbraith and others are used extensively in the managerial practice to redesign efficient and effective organizations (Romme, 2003). The literature on organizational design proposes an extensive set of factors identified at every level of representation of an organization such as micro, meso and macrothat influence the choice of specific design parameters which is the group size, the task complexity, reporting relations and the number of employees related to the organizational structure and dynamics.

3 CRITERIA THAT INFLUENCE ORGANIZATION DESIGN IN CONTAINER PORT INDUSTRY

3.1 Safety

There are many factors which can affect the safety performance as the safety at work is a complex phenomenon and the subject of safety performance in the port industry is even more complicated to understand. Given below are the many factors which could affect the safety performance. These factors are human factors, behavioural factors, psychological factors and also organizational factors.

Human factor is important sub-dimension to explain human involvement towards safety behaviour and its nature how human deals in with life (Subramaniam, 2004).The behavioural factor of safety refers to employee motivation and performance improvement through behaviour constrains. As discussed by Krause and Russell (1994) reported that the workers who have riskier behaviour are commonly present in most injury situations where people are case accidents and injuries. The worker psychological is the significant factor to contribute safety performance noted by Crocker (1995) found that the worker psychological very complicated and it depends as he added that workers will work more safely with a supervisor who is seen as someone who respects their workers and their contribution and who is stimulated by a distinct company.

3.2 Information Technology

Recent developments in information technology have deeply affected almost every field of industry, port industries are no exception. Since ports are places where various tasks must be carried on in harmony by various bodies, utilization of information tecjnology is inevitable to coordinate and harmonize these activities, ranging from basic tasks like cargo handling to auxiliary tasks such as communication between port to related bodies.

Ports information system is used for every kind of information technology like hardware and software thet used in port operations (Keceli et al, 2006). Information systems can be divided into three broad categories. First category is Terminal Operating Systems (TOS), Second category is Port Management Information Systems and third category is Port Community System (Jeffrey, 1999; Choi et al, 2003; Forward, 2003)

3.3 Globalization

Globalization being the process of international integration arising from the interchange of world views, products, ideas, and other aspects of culture. Globalization refers to the increasing geographical scale of economic, social, cultural and political interactions. In essence, instantaneous global transmission of local events promotes individual and institutional consciousness of opportunities and problems that exist beyond local and regional scales (Janelle, 1991). Globalization from the port organizational design view point is also characterized by changing patterns of institutional organization and structural shifts in the nature of the world economic order.

3.4 Technology

The implementation of new approaches and technologies offers a potential solution that is starting to be developed. Technological advancement has been slow to materialise in many sectors of the industry. This has primarily been due to resistance from labour to change and/or reluctance of terminal operators to commit capital funds without a guaranteed return on investment. In a marine terminal, the advent of equipment automation is focused on the shift to unmanned vehicles. Equipment such as automated stacking cranes (ASC), horizontal transport vehicles (HTV) and automated guided vehicles (AGV) are in development and once deployed will eliminate the need for manual operations, thus reducing operating costs, increasing equipment utilization and allowing workers to be redirected to other tasks.

3.5 Green and Sustainibility

Green and sustainability of a port is a value for competitiveness which is defined as when several economic subjects, services or markets can operate (compete) at the same level (Dvorak, 2008). The other concept of sustainability by Elkington (1997) divided by 3 type are economic prospective, environmental quality and social justice. For green port issue over last century as described by AECOM (2012), several port still using traditional operation such as happened in US port which developed primarily as manual operation using all diesel powered equipment and land availability was generally not the most significant concern to terminal developer. The best practice for a port to achieve the green ports are by concern in several area such as air quality, mobility, efficient of land use, water resources' and marine habitats, public uses and community interface and energy uses.

For recent years have seen growing in the environmental impact of port operations and development as described by AECOM (2012) due to pressing global issues such as climate change and energy consumption (Siu Lee LAMet al, 2012). Another things for consider is sustainable design for building container port (terminal). Among the sustainable activities at Southern California ports, green building design is only one aspect of the work being done. The main focus of this effort has been to reduce air emissions from marine terminals, although reduction of terminal boundaries and light and noise generation are also areas of consideration (Farrell et al, 2007).

3.6 Global Security

A major concern with the operation of containerized imports is the potential for security threats by terrorists attempting to ship "dirty bombs," chemical, biological or even nuclear weapons. Jones et al (2011) propose the SIERRA model which is represents an important new capability for the U.S. Department of Homeland Security (DHS) for assessing impacts of potential disruptions to container movement, either at the ports themselves or associated with transfer of the containers to rail or truck transport for domestic movement.

Longo (2010) proposes a research approach for designing operational policies and practices to manage better the flow of containers to be inspected within a container terminal. The author proposes a simulation model capable of recreating the high complexity of a real container terminal in terms of ships arrivals, unloading/loading operations, port equipment, and containers inspection activities.

3.7 Global Economic

A port is a place that provides for the transfer of cargo and/or passengers between waterways and shores. Alternatively, it is an intermodal node in the transportation network, where cargo and/or passengers change modes of transportation (Talley, 2006). According to Musso et.al. 2006. As far as investing in port assets is concerned, there are two ways, almost in contrast with one another, of regarding the port:

- The port may be considered a public service that is generally useful to the economy, justifying the tax system being utilised for the purpose of funding the investments required.
- The port may be considered a business system that operates within a highly competitive market and requires investment projects to be selected with efficiency.

There are three parameters that affect the global economic policy and development of the industrial port are trading, containerization and competitiveness.

3.8 Training Research And Development

Resent year, more acknowledgement are given toward the improvement of operation and service through research, development and training (M. Meletiou, 2006). While most research and development focus on issues that can increase the port competitiveness, training are more focus toward increasing human potential (T. Majidi, P. Jafari, M. A.

Hosseini, 2012). Research, development and training in an organizational design are more of a way to deal with globalization. This can be seen by steps taken by the Hong Kong and Singapore Port industry to focus more in this particular matter in order to remain competitive in the port industry market (A. MacKinnon, 2011). According to A.Mackinnon (2011), research and development of port doesn't limited toward the technology or service advancement of ports but also including the business model and staff training which is proven by Singapore action of investing in programs to develop a research and development focus within the maritime industry and academic institutions since 2009. This is because of the competition they been facing with the opening of more and more port worldwide. By having the research and development, as well as training within their expense, they can making sure to always develop new strategy in maintaining their position in modern port industry.

4 KEY FACTORS CONTRIBUTING TO POOR INDONESIAN PORT PERFORMANCE

There are 111 ports in Indonesia, including the 25 main 'strategic' ports, which are deemed as commercial ports and are controlled by the four state owned Indonesian Port Corporations (thereafter IPCs) I, II, III and IV. In addition there are approximately 614 UPT or noncommercial ports that tend to be unprofitable and are of little strategic value. A number of factors combine to undermine the performance of Indonesia's commercial ports system (USAID, 2008). First is geographic constraints. Port depth appears to be a major problem in virtually every port in Indonesia. The country has very few natural deep-water harbours and a river system prone to serious siltation that restricts port depth. Second is labor issues. In many ports, only one-shift of labor is provided and opportunities for overtime are limited. For those ports that are meant to operate on a 24-hour basis, six hours out every 24 are being lost because of rigid break periods not staggered to ensure continual servicing of vessels. Third is lack of security. Many ports in Indonesia is not apply for ISPS code for port security. Forth is corruption. Cause of non-working time is delay due to unfairness and corruption in berth assignment. Fifth is lack of port infrastructure. Only 16 of the 111 commercial ports have container handling equipment of some type. Lack of space for container storage and stuffing is another problem confronting most Indonesian ports.

5 PROPOSED MODEL

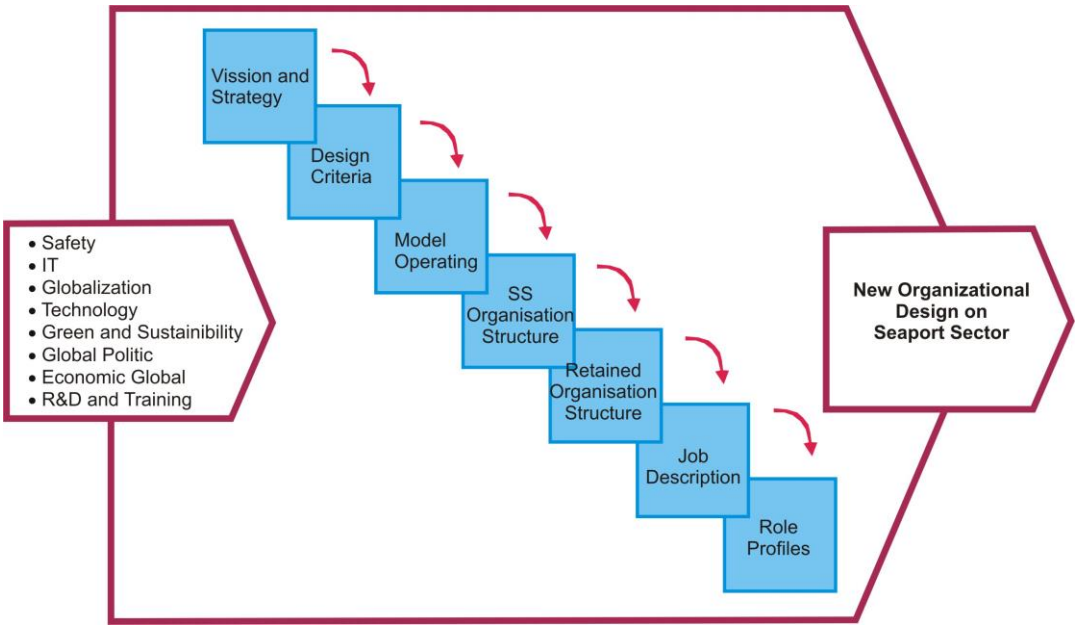

Figure 1: Port Organizational Design Model

Figure 2: Port Effectiveness by applying the new model

6 DISCUSSION

Vision of an organizational structure under the influence of the advance criteria should focus more toward competing globally. This is back up by the nature of port industry itself that consist mostly international customer, who operate their business worldwide. As for strategy, an organization that involve in this industry should adopt strategy that favor global customer without leaving out the local customer. The strategy also must also highlight the important in complying with international rules regarding port.

As the increasing criteria that influence the organization, the department involve in organization structure must be more diverse and detail to better suit the criteria. So careful planning in designing the structure must be applied to avoid confusion in work distribution and hierarchy. With this adjustment, work load can be distributed efficiently to the right workforce to be settled.

The influences cause job description to become more specific and specialize toward one sole responsibility based on what job they been assigned. For example, gantry crane operator will only involve in operate the gantry crane and will not involve in maintaining work of the crane. It also create worker with higher consciousness and morality with the work aspect they been doing.

7 CONCLUSION

New features of the proposed model as described in previous part shows that advance criteria become a strength of the model. The proposed model is produced by several basic models which describe by (Mooney, 1947), (Walter, 1968), (Donaldson, 2001), (Morgan, 1996) and Galbraith (1978). The advance criteria of safety, technology, information technology, green & sustainability, globalizations, economic and research & development and training have been making the current model more dynamic. Finally, an organization model in port has an important role in port development.. the organization model of Indonesian port industry is required against development in the port industry toward the port change. Indonesian port industry.

The key factors which is contributing to poor Indonesian port performance may reduced by applying the proposed model or by redesign the existing port organization model

following the advance criteria of safety, technology, information technology, green & sustainability, globalizations, economic and research & development and training.

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