THE IMPACT OF ORGANIZATIONAL STRUCTURE ON PORT OPERATIONAL EFFICIENCY: THE CASE OF TAKORADI PORT

BY

GRACE ANNA NKETSIAH
RMU ID NO: MPS0000312
UG ID NO: 10332324

THIS DISSERTATION IS SUBMITTED TO THE UNIVERSITY OF GHANA, LEGON IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF MASTER OF ARTS (M.A) PORTS AND SHIPPING ADMINISTRATION DEGREE

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DECLARATION

I, Grace Anna Nketsiah, the author of this project report ‘Assessing the Impact of Organizational Structure on Port Operational Efficiency’ do hereby declare that except for references to other people’s work duly cited, this work was done by me in the Department of Ports and Shipping Administration. This work has never been presented either in whole or in part for any degree in this University or elsewhere.

STUDENT: GRACE ANNA NKETSIAH

SIGNATURE: .......................... DATE: 17th May, 2014

SUPERVISOR:

MR. AUGUSTUS ADDY- LAMPTYEY

SIGNATURE: .......................... DATE: 17th May, 2014
DEDICATION

To all through whose love, care and generosity, I have come this far in my education and life, I dedicate this research work.
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ABSTRACT

The study sought to assess the impact of organizational structure on port operational efficiency in Ghana with the port of Takoradi as the reference point. The entire total sample size was set at 107 respondents. Descriptive statistics was used to describe the socioeconomic characteristics of the respondents and the results show that the organization is dominated by youthful population. The data also shows that the males outnumber the female respondents. It was revealed that there is an increase in the performance of the port over the years. The study established that the structure of the port’s organogram is such that power and control of the activities of the port are concentrated within a central command structure. The organization practices a formalized system of management in which work is formally defined through written manuals or procedures. It has also been established from interviews with management that the port utilizes Advanced Technology. The port boasts of attractive and flexible tariff and additional incentive packages for transit operators. It is suggested that institutional strengthening and capacity building for effective planning and training programs should be planned within the context of the strategic agenda of the port. Provision of Specific information to employees with regards to lines of authority, Creating more Opportunities for training, Career Planning and development, Develop employees through formal education, and Enrich job experience as well as improve interpersonal relationships and Motivation and Morale. The GPHA and other stakeholders of the port must also be encouraged to invest in modern equipments and logistics in order to attract the expected volume of cargoes. This, they can do by engaging in Public Private Partnership (PPP) agreement or by leasing out the deal to interested and credible investors.
CHAPTER ONE

1.0 INTRODUCTION

1.1 Background to the study

Companies may be structured in different ways, depending on their organizational goals. How a company opts to organize itself is extremely important, as organizational structure has a multifaceted impact on the productivity of the organization. Organizational structure refers to the framework within which an organization arranges its lines of authority and communication. An organization's structure determines the manner and the extent to which roles, power, and responsibilities are delegated, controlled, and coordinated, and how information flows between levels of management. Andrews (1995) states that "organizational structure consists of job positions, their relationships to each other and accountabilities for process and sub-process deliverables". The structure of an organization depends entirely on the organization's objectives.

However, organization theory researchers (Child & Mansfield (1972); and Emery & Trist (1973)) have postulated that the organization's size, technology, or task environment is the single most important predictor of the firm's structural configuration. Meanwhile, Montanari (1978) reported that technology was first introduced as a determinant of organization structure by Woodward (1958). Lawrence and Lorsch (1967) proposed that the organization's environment influences its structural configuration. Montanari (1978) also proposed that organization size, technology, or environment is the single most important determinant of organization structure. Chandler (1962) indicated that in successful firms, the organization's structure was designed in response to, and consistent with, its operating strategy. Child, (1972) postulated that the firm's
environment presents constraints within which the decision maker must make size, technology, structure, and human resource decisions.

Like many organizations, port managements are guided by organizational structures that depict the hierarchical arrangement of command or authority and responsibility. As an organization grows it becomes increasingly difficult to manage without more formal work assignments and some delegation of authority. Therefore, large organizations such as ports develop formal structures in which tasks are highly specialized and detailed rules and guidelines dictate work procedures. Communication flows, and hierarchical relationships serve as the foundation for authority, responsibility, and control. The type of structure that develops determines the organization’s ability to operate effectively and improve efficiency. However, a lack of understanding with regards to organizational structures and their influence on performance may negatively influence the choices made to resolve organizational problems.

A number of factors influence the way ports are organized, structured and managed. These include; the socio-economic structure of a country, historical developments, location of the port and type of cargos handled. Guided with these, different categories of port management models such as Service Port, Tool Port, Land Lord Port, and Fully Privatized or Private Service Port emerged. Each of these models concerns ports that have different characteristics concerning the ownership of infrastructure, superstructure and equipment, terminal operation, dock labour management and who provides port services such as pilotage and towage.

The landlord port represents the most common management model where infrastructure, particularly terminals, are leased to private operating companies with the port authority retaining ownership of the land. The most common form of lease is a concession agreement where a private company is granted a long term lease in exchange of a rent that is commonly
a function of the size of the facility as well as the investment required to build, renovate or expand the terminal. The private operator is also responsible to provide terminal equipment so that operating standards are maintained. With this model, dock labour is employed by private terminal operators, although in some ports part of the labour may be provided through a port-wide labour pool system. (World Bank, 2007, port reform tool kit)

The ports of Takoradi and Tema (established in the year 1928 and 1961 respectively) were operated under the service port model in which the cargo handling activities were executed by a separate public entity called Ghana Cargo Handling Company. The Cargo Handling Company usually reports to the same Ministry as the Port Authority. These public entities were faced with serious management challenges as they sometimes have conflicting interest in reporting to the same Ministry. As a result, the Port Authority and Cargo Handling Company were merged into one single entity known as the Ghana Ports and Harbours Authority in 1986.

However, consideration for the Ghana Ports and Harbours Authority to become a Landlord Port is presently under way as a result of privatization of some port activities. This is to enable the ports handle the increase in the sea-borne traffic as a result of increase in foreign and coastal trade. Additionally, there is the need for major expansion in the port infrastructure and mobilization of substantial resources to improve the efficiency, productivity and quality of services and also bring competitiveness in port services.

Under these periods the port of Takoradi operated under different organizational structures which had impact on the productivity and efficiency of ports in terms of Average Ship Turn Around Time, Average Ship Berth Output and Cost Effectiveness of Berth Operations. This research focuses on the types of organizational structures and the various structures used by the Takoradi Port within the period 1996 – 2004 and 2004 – 2010, and how they impacted on
port efficiency with particular attention to port performance indicators of service and productivity.

1.2 Problem Statement

The most complicated problem existing in the maritime transport field today is the ship turnaround time in ports. Ship owners, consignees and shipping agents prefer ports that operate with a lower turn round time so as to minimize cost and maximize profit. This is normally achieved when operational procedures are well planned for things to be done at the right time to ease traffic flow and thereby enhance efficiency in operation. Growing international trade and increasing congestion focus attention on trade facilitation. Seaports function as a necessary and an integral component in facilitating trade. As the clearinghouses for a major portion of the world’s rapidly increasing international trade flows, sea ports and the efficiency with which they process cargo have become an ever more important topic. Poorly performing ports may reduce trade volumes, particularly for small, less-developed countries (Clark et al., 2004: Wilson et al., 2003).

Port efficiency is an important issue in addressing trade facilitation practices, which has been a recent focus of the World Trade Organization and regional trade institutions, such as the Asia-Pacific Economic Cooperation organization (NETS report 2006). Most of the studies on port efficiency have been carried out in the Western world. Particularly in our Ghanaian context the issue of how the organizational structure of the Ports reflects on the efficiency of its operations has not received scholarly attention. The Takoradi Port which is well connected to its hinterland and thus makes it the preferred and ideal gateway to the middle and northern part of Ghana and the other countries like Burkina Faso, Niger and Mali has not served its purpose in recent times. The chain of command that pertains in the port operations as to who takes decisions on vessels arrival, berth allocation, and waiting time have impact on the

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efficiency of the port. This study contextualizes the problem of port efficiency with particular reference to the Takoradi port. This research proposes to fill the gap in empirical knowledge and contribute to the building up of relevant information on organizational structures and its impact on port operational efficiency in Ghana.

1.3 Research Objectives
The general objective of this research is to find out the impact of organizational structure on port efficiency in Ghana. The specific objectives are:

1. To determine the nature of the Takoradi port’s organizational structure
2. To examine the variables that goes into port efficiency.
3. To determine the relationship between port efficiency and organizational structure
4. To assess the perception of the employees on productivity of the port.
5. To examine employees attitudes and behaviors toward the port’s operations.

1.4 Research Questions
The research will seek answers to the following questions:

1. What factors determine the efficiency of a port?
2. What is the nature of the organizational structure in operation at the Takoradi Port?
3. What is the relationship between the organizational structure at the port and port operational efficiency?
4. What are the perceptions of the employees regarding the productivity of the port?
5. What are employees’ attitudes and behaviors toward the port’s operations?

1.5 Significance of study
This research can contribute to available literature in the area of port efficiency. It will also serve as a point of departure for researchers who are interested in carrying out further research into factors that are associated with port efficiency. The findings of this study shall
also contribute to bridging the knowledge gap in organizational structures and their impact on port efficiency in Ghana since the area remains less explored.

This research hopes to contribute to give a blue print on how the organizational structure at the port affect the efficiency of its operations. It will also assist industry watchers to appreciate the importance of effective structural design on productivity. It will aid in determining how a particular chain of command has a direct impact on operational results or output. It will help those who lay hands on the document to be familiar with the type of organizational structure that the Takoradi Port operates with.

1.6 Organization of the study

The study is divided into five chapters. Chapter one features the introduction and background of the study, the problem statement and the research questions as well as the justification and the organization of the study, chapter two deals with literature related to the study. Chapter three talks about the methodologies used in collecting data and analyzing the data collected, whilst chapter four deals with presentation and discussion of results and chapter five deals with the summary, conclusion and recommendations of the study.
CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

A literature review constitutes the foundation of knowledge necessary for the different phases in a research project; (Williamson 2002); and it is a part of the academic development in understanding the topic and identifying previous research and key issues (Hart 1998). However, it is widely accepted in theory that an organisation's optimal structure is contingent upon various situational factors. In practice, however, providing practical advice based on this understanding has been difficult (Nasrallah et al., 2009). The purpose of this literature review is to provide a synthesis of economic, business and public administrative perspectives on structural factors and relationships that may influence the performance of organizations, particularly those in the public industry with special reference to the Port of Takoradi. The perspectives will serve as a background to the study's investigation as to the extent to which the organizational structure of ports influences these ports' search for improvements in various measures of performance.

2.2. Theory Development

Scientific research rests on two major components: theory and empirical research. Establishing a connection between these two has been a subject of controversy among social scientists. (Frank Fort –Nachmias and Nachmias, 1996). According to one major school of thought, theory should come first, to be followed by research. This is often referred to as the theory – then research strategy; (Popper 1968). In this regard, a theory is acting as a logical – deductive system. In sharp contrast to the theory-then-research strategy, Merton (1968) proposed research-then-theory strategy, which implies new problems for theory calls for new
theoretical formulations that lead to the refinement of existing theories and serve the function of verification. The contention of this researcher is to integrate the two approaches. Theories would be developed and after the research results could be used for refinement of some existing theories.

2.2.1 Theory One

The theoretical model of the relationship between organizational structure, internal communication, integration, and performance is presented in Figure 2.1. In this study's first theoretical model, integration is a broader construct composed by three parts: supplier integration, customer integration, and functional integration.

The proposed theoretical framework

![Diagram of the proposed theoretical framework](Figure 1)
2.2.2 Theory Two
The general model represents the relationship among the main empirical phenomena of the study. The phenomena could be treated as dependent, and independent variables of the research.

Figure 2.2: A General Model of Leadership Practices and Organizational Effectiveness

In the model, organizational effectiveness is contingent on corporate leadership practices leadership practices are the independent variables; organizational commitment, job satisfaction and organizational effectiveness represent the dependent variables. Organizational effectiveness can also affect the two main work attitudes: job satisfaction and organizational commitment. The model also predicts interrelationship between work attitudes (i.e. job satisfaction and organizational commitment) and corporate leadership practices.

2.3 Definitions of an Organization

Seeger (1997:9) defines an organization as a rational, goal directed entity characterised by a structure of hierarchy, division of labour, policy procedures and rules. Communication holds
the characteristics together, by consistently sharing the organization's goals. Mersham and Skinner (2001:4) perceived an organization as having two elements and mentioned people working together towards a common goal as one of them but failed to mention the other element. People in an organization fulfil different roles which are assigned to different levels. They are motivated by various aspects such as salaries, achievements, promotions and teamwork. It is expected that the Takoradi Port employees work together to sustain the Port's business activities in order to protect their employment. It is of mutual benefit for both parties, that is, the organization makes money and the employees have employment.

2.3.1 Definition of Structure

Organizational theorists have defined structure as the configuration of relationships with respect to the allocation of tasks, responsibilities, and authority (Greenberg & Baron, 1997; Jones, 1995; Stewart & Barrick, 2000). Organizational structure institutionalizes how people interact with Organizational structure defines the scope and limits of behaviour within an organization, its lines of authority and accountability, as well as the organization's relationship with its external environment. It is an important question whether policy analysts, administrators and elected officials give this public administrative matter adequate consideration in their quest for increased performance in public agencies.
2.4 Structure of an Organization

Organizations are managed through various types of structures of which the most popular ones are the tall and flat structures. Communication flows according to the structure of the organization. Mersham & Skinner (2001: 32) view structures as an arrangement of components and subsystems within an organization. They further believe that it refers to the patterns of relationships among the units in a social organization and relationships that might be expressed in terms of power status or other variables. Sometimes organizations are structured such that the units in the organization are differentiated from each other. Van Staden, Marx & Erasmus – Kritzinger (2002:22) revealed that organizational structures help to make the flow of information more effective and ensure that there are formal communication channels to be followed whenever information needs to be exchanged. However the same structures can impede communication. People in an organization work together and take instructions from those who are in authority. The structure of the organization is implemented through an organogram or organizational chart. The organogram expresses the expected patterns of formal communication. Mersham and Skinner (2001: 32) indicated that the purpose of the structure is to provide stability, regularity and predictability to the organization.

An organization has many forms of structures. The two extreme ones, according to Pace & Faules (1994:7), are the tall or vertical and the flat or horizontal structures. Tall structures have many levels of authority, with managers exercising a narrow span of control. These structures are characterised by close supervision and personal relationships. Flat organization has only a modest amount of direct supervision and fewer rules and regulations. According to Fielding (2006:40), tall structures are designed such that they allow control of messages up and down a hierarchy of managers and departments. In tall structures managers have tight
control over their juniors. The tall structure does not encourage horizontal communication unless a special arrangement has been made. Vertical communication is the favoured channel of communication. Messages pass through different levels which sometimes result in message distortion. GPHA (Takoradi) as an organization also subscribes to organizational structures, the research will show the impact of the structure towards communication.

2.5 Organizational Communication

Gibson and Hodgetts (1991:12) believe that organizational communication is the transfer of information and knowledge among organizational members for the purpose of achieving organizational efficiency and effectiveness. Furthermore, it is imperative to inform all the role players about the same goals of the organization. For example, if the norm of handling containers at Takoradi Harbour is 20 containers per hour, then all employees for this function must be informed to ensure that the task is executed effectively and efficiently. Schonfelder (1998:52) intimated that organizational communication should take a holistic approach of communication within an organization. Organizational communication assumes that everyone is responsible for communication. The focus is on behaviour and processes to create an effective communication culture in an organization. Jones, Watson & Gardner (2004:722) posited that communication is the core process of organizing thus organizations are continually called upon to change the economic pressure by changing their internal structures and relationships to their market which is done through communicating the strategy and implementation of those plans.
Fielding (2006:13) postulated that organizational communication is particularly concerned with the flow of information upward, downward and sideways as well as concerned with the effects of managerial styles, leadership and motivation on communication. Pace and Faules (1994:21) revealed that organizational communication is the display and interpretation of messages among communication units that are part of a particular organization. Byers (1997:4) defined communication in an organization as a process through which people act together, create, sustain and manage meanings through the use of verbal and non-verbal signs and symbols within a particular context. Organizational communication allows one to explain what individuals in an organization do, how they perform organizational tasks and what effect it may have on the receiver. Barker & Angelopulo (2006:74) argued that organizational communication involves an understanding of the influence of the context of an organization on communication process and the manner in which the symbolic nature of communication distinguishes it from other forms of organizational behaviour. Organizational communication in an organization serves various functions and according to Baker (2002) the literature on communication generally acknowledges that the basic function of communication is to affect receiver knowledge or behaviour by informing, directing, regulating, socializing, and persuading. Indeed, Neher (1997) identified the primary functions of organizational communication as:

♦ Compliance-gaining

♦ Leading, motivating, and influencing

♦ Sense-making

♦ Problem-solving and decision-making

♦ Conflict management, negotiating, and bargaining.
Meanwhile, Richmond, McCroskey, and McCroskey (2005) also postulated that there are six functions that seem to dominate communication in the organizational context. They are; inform, regulate, integrate, manage, persuade, and socialize. They intimated that the informative function is the function of providing needed information to personnel so they can do their jobs in an effective and efficient manner. The regulative function of communication is involved with the communication that is directed toward regulatory policies within the organization or messages about maintenance of the organization. For example, an employee might be informed by the manager that he or she has broken some rule or regulation and is not to break it again. The integrative function of communication is focused on coordination of tasks, work assignments, group coordination, or the fusing of work units toward a common goal.

Richmond et al (2005) also revealed that the management function of communication is communication focused on getting personnel to do what is needed, learning information about personnel to know them better, and establishing relationships with personnel. They argued that with the persuasive function of communication the supervisor attempts to influence the employee to do something in particular and argued that whereas simply issuing an order might accomplish the same function, persuasion makes for much better relations between supervisors and subordinates. Finally, they argued that socialization doesn't mean being "buddies" with everyone. It means being integrated into the communication networks in the organization. It means being told the idiosyncratic behaviours of others. It means knowing whom you should associate with and whom you should avoid (who are the "in" people and who are the "out" people). A close examination of the functions will assist this researcher in pinpointing functions which are not served at GPHA.
2.6 Organizational Structure: A Business Management Perspective

The structure of an organization reflects the value-based choices made by the company (Zammuto & O'Connor, 1992); it refers to how tasks are formally divided, grouped, and coordinated. Quinn's (1988) competing values model showed how different value orientations of organizations can influence structure. One dimension of value systems that is related to structure is the control-flexibility dimension (Quinn, 1988; Zammuto and Krakower, 1991). Control-oriented value systems try to consolidate management control by centralizing decision making in managerial hands and decreasing employee discretion and flexibility. This result in a highly mechanistic structure that emphasizes the importance of achieving high levels of production and efficiency through the use of formal procedures, centralized authority, direct supervision, and specialized labour. Even when employees recognize problems, they do not have the authority to correct them without management approval (Liu et al., 1990). Organizational control processes are hierarchical (Barker, 1993) and involve vertical coordination and communication, and vertical dependency.

There are essentially five strategy-related approaches to organization: (1) functional specialization, (2) geographic organization, (3) decentralized business divisions, (4) strategic business units, and (5) matrix structures featuring dual lines of authority and strategic priority. Each form relates structure to strategy in a unique way and, consequently, has its own set of strategy-related advantages and disadvantages; (Simmonds, Bierhanzl, Campbell and Queeley (2003)). According to Simmonds, et al (2003) a functional organizational structure tends to be effective in single-business units where key activities revolve around well-defined skills and areas of specialization. In such cases, in-depth specialization and focused concentration on performing functional area tasks and activities can enhance both
operating efficiency and the development of a distinctive competence. Generally speaking, organizing by functional specialties promotes full utilization of the most up-to-date technical skills and helps a business, whether private or public, capitalize on the efficiency gains resulting from use of those technical skills; it also helps a business capitalize on the efficient. Organizing according to geographic areas or territories is a rather common structural form for large-scale enterprises whose strategies need to be tailored to fit the particular needs and features of different geographical areas.

Geographic organizational structures have its advantages and disadvantages, but the chief reason for its popularity is that it promotes improved performance. Grouping key activities belonging to the same business under one organizational roof, thereby creating line-of-business divisions facilitates strategy implementation. The outcome is not only a structure that fits strategy but also a structure that makes the jobs of managers more doable; (Simmonds (2003)).

A strategic business unit (SBU) is a grouping of business units based on some important strategic elements common to each; the possible elements of relatedness include an overlapping set of competitors, a closely related strategic mission, a common need to compete globally, an ability to accomplish integrated strategic planning, common key success factors, and technologically related growth opportunities. In large, diversified companies, the number of decentralized business units can be so great that the span of control is too much for a single chief executive. This explains both the popularity of the group vice president concept among broadly diversified firms and the recent trend toward the formation of strategic business units (Bettis and Hall, 1983).

In a matrix structure, subordinates have a continuing dual assignment: to the business/product line/project and to their home base function. The outcome is a compromise between
functional specialization and product line or market segment or line-of-business. A matrix-type organization is a genuinely different structural form and represents a "new way of life." One reason is that the unity-of-command principle is broken; two reporting channels, two bosses, and shared authority create a new kind of organizational climate. In essence, the matrix is a conflict resolution system through which strategic and operating priorities are negotiated, power is shared, and resources are allocated internally on a "strongest case for what is best over-all for the unit" type basis (Galbraith, 1971:10).

2.7 Types of Organizational Structures

Formally, and traditionally, public sector structures are viewed from a macro level and are generally discussed in the context of operational management, control and ownership. To fully understand these characteristics of structure it is sometimes best to examine structures according to types of structures. Using a modified version of Perry’s (1984) typology of public systems to investigate the relationship between structure and performance is crucial here. Perry suggested five different structures namely (1) General Government/Public Management (GGPM); (2) Special Authority/Public Management (SAPM); (3) General Government/Contract Government (GGCM); (4) Special Authority/contract management (SACM); (5) private ownership/private management.

2.7.1 Macro versus Micro Level Structure

According to Simmonds (2003) the literature recognizes that the micro-level of organizational structure is a significant starting point in understanding the relationship
between structure and performance. What is it, for instance, about two organizations of the same structure purported to be appropriate for both public systems (e.g. Ports of Takoradi and Tema) and notwithstanding, one unit has high performance results while the other experiences poor performance? This is not an easy question to answer, but when the researcher probes the macro-level characteristics of the transit structures, he or she is likely to be moving in the right direction for reliable answers.

Yelsey's (1984) satellite model (See Figure 2.3 below) helps as a starting point in identifying several aspects of the micro-level of organizational structure.

![Diagram](source)

**Figure 2.3**

Source: Alan Yelsey (1984:25) "strategies and actions for improving organizational performance" Academy of management review
The various elements of his model (along with others not mentioned in his model) are likely predictors for explaining the "influences" on performance in organizations. Notably, these elements can be viewed as internal and external to the organization. Internally, for instance, the nonhuman resources imply quality and quantity of capital assets that are utilized within the organization; likewise, human resources element of the model refers for instance to the quantity and quality of personnel at line, managerial, or policy making levels. Knowledge and training levels of personnel (in strategic and non-strategic capacities), specific to the functional tasks, can and do impact performance.
As they vary from one organization to another so will performance even though both organizations are of the same structural type. Executive Orders, statutes, ordinances, and political climate, as external influences can also determine the degree of integration as manifested daily through coordination, control, and implementation of maritime policies. Another significant influence on performance at the micro-level of organizational structures is incentive systems. Johathan Karpoff (2001) pointed this out in that study and also reminded us of the importance of looking at the micro-level for possible answers to questions raised about comparative performance between or among organization structures at the micro-level.
Galunic and Eisenhardt (1994) in a review of empirical studies on the relationship between structure and performance identified studies that similarly recognized the value of studying the organizational structure at the “intra-corporate” or micro-level. Further, the study by Chow, Henriksson and Heaver (1995), examined the hypothesis that the best fit between strategy and structure leads to improved performance; here again, these scholars sought to better understand the relationship between structure and performance at the micro-level. A search for understanding of such a relationship at the micro-level, it must be pointed out, cannot rely exclusively on quantitative analysis; qualitative analysis is critical to achieving insights on the relationship between structure and performance.

2.9 Measuring Performance

Simmonds (2003) postulated that the problem of measuring performance is well recognized in the business management literature. Tracking strategy, or evaluating progress toward established objectives, is an important task in strategy implementation as it relates to an organization’s structure and culture. A strategic performance measurement system requires reporting not by profit center or cost center but by strategic business unit [SBU] (Strickland, 1987; Sridharan and St. John, 1998). According to Simmonds (2003) ordinarily for a business, performance can be measured simply by profit and loss analysis, which tells us about the efficiency of resource use. Simmonds (2003) posited that a service is said to be produced more efficiently if it involves the production of the same level of output at a lower cost. This definition of efficiency is consistent with the term’s general use in business and economics. A detailed exposition of the issue is provided in Productivity, Efficiency, and Quality in Urban Transportation Systems by Tomazinis (1975).
2.10 Organizational Structure and Performance

Several years after Tomazinis’ book, Talley and Becker (1982) attempted to unify the ideas of both efficiency and performance. Benjamin and Obeng (1990:15) stated that the definition of total factor productivity is consistent with the generally accepted understanding of the term productivity: “total output per unit of total resources expended”. For purposes of their study output was measured in terms of passenger miles and vehicle miles, and inputs were measured in terms of labour operating cost, fuel price, and number of vehicles. Their efficiency measures consisted of maintenance hours per vehicle, number of employees per peak vehicle-mile, average miles per hour, and proportion of time a vehicle is operating when it is en route.

Simmonds (2003) argued that the work of Benjamin and Obeng succeeded in maintaining a small number of measurements, but at the cost of eliminating important information about effectiveness. A fruitful approach to addressing this issue can be seen in a 1985 work by Fielding, Babitsky, and Brenner (and also in earlier works by these and other authors). In the authors’ conceptual model, cost efficiency, service efficiency, service effectiveness, and cost effectiveness are some of the important components or dimensions of performance.

2.11 Management Practices

Koontz, (1961) recognised managerial know how as the crucial element for economic growth. The great economist Schumpeter referred to managers and entrepreneurs as “engine of growth”. Peter Drucker, a well-known management consultant, calls management the life-giving organ of the enterprises body (Glueck, 1980). Ansoff (1988) believed that development of conducive corporate policy and the return to the “basis” of good management
practice will produce spectacular results for organisations. The relative success of Japan has been attributed to her distinctive management styles and techniques that mirror her cultural background (Negandi, Eshgli and Yuen, 1985; Ouchi, 1981; Pascale and Anthos 1984; Wood, Hall and Asumi, 1983; and Yoshida, 1989).

Unameka (1981) revealed that the transformation of the developing economy into industrialized economy requires fashioning out a very liberal policy toward the adaptation of management methods, philosophies, techniques and practices that are known to help the attainment of high productivity levels in the industrialized nations. The management functions developed by Guilick (1937) from Fayol's (1949) planning, forecasting, commanding, directing, coordinating and controlling still have universal application and acceptance despite strong attacks by some management writers like Mintzberg, (1975). Prodle and Bennett (1975) have argued that mere performance of these functions does not make managers effective unless they achieve results within the constraints and opportunities of the culture and environment.

Management scholars and practitioners have developed a variety of techniques to assist managers in achieving results. Such techniques include time management, delegation of authority, strategic planning, management by objectives, forecasting, financial analyses, quantitative techniques and manpower development (Drucker, 1974; Gardner, 1965). Bello (1986) emphasized the need for professional managers in African countries to utilize these modern management techniques. Inegbenobor (1987) also attributed the ineffectiveness of Nigerian organisations to inappropriateness of management techniques in use. The structure of the company often dictates the way it operates and performs (Waterman et al., 1980). Traditionally, businesses have been structured in a hierarchical way with several divisions and departments, each responsible for a specific task such as human resources management, production or marketing. The idea is to make the organisation more flexible and devolve the
power by empowering the employees and eliminate the middle management layers (Boyle, 2007).

2.12 Components of Organizational Structure

Organizations form the most efficient and rational social groupings in society; therefore, modern society is dependent upon organizations. While combining personnel, resources, and materials, the organization is able to evaluate its performance and adjust accordingly in order to be successful in reaching its goals (Etzioni, 1964). Hatch (1997) argued “structure refers to the relationships among the parts of an organized whole” (p. 161). The basic elements of organizational structure, first outlined by sociologist Max Weber, are hierarchy of authority, division of labour, and rules and procedures. In an extensive overview of organizational structure and its many component parts, Robbins (1990) discussed ways many of those parts are related to one another and therefore affect organizational structure. The more complex an organization is, the greater the need for effective communication, coordination, and control (Robbins, 1990).

The level of formalization dictates the degree to which rules and procedures guide organizational behaviour. There exists a link between complexity and formalization. It has been found that, due to the skill of specialists in highly complex organizations, high complexity generally sets the tone for low formalization. A formalized structure includes many rules and procedures that dictate how organizational activities are to be carried out; therefore, formalization generally tends to reduce the amount of communication in an organization due to the discouragement of innovation (Hatch, 1997).

Centralization determines where the decision-making authority in the organization lies. Highly centralized decision-making leads the senior executive(s) to make judgments. In organizations that are less centralized, decision-making authority trickles down to lower
levels. Highly complex organizations are generally more decentralized while organizations lower in job specialization require a central locus of control. Decentralized organizations require more communication and employee involvement (Robbins, 1990). Structure encompasses three other dimensions that are present in an organization. Organizations may be mechanistic, organic, or bureaucratic, depending on their levels of complexity, centralization, and formalization.

2.13 Organizational Structure and Business Model

Sousa (2012) revealed that Business Models & Organizational Structures (Theory X and Theory Y) and argued that an effective internal business model and organizational structure is crucial for any type of business. Two of the most recognized business models are Douglas McGregor’s Theory X and Theory Y. Both theories come from the field of psychology. Theory X is considered the traditional management style in which superiors assume that “employees are basically lazy, untrustworthy, lack ambition, and offer little in the way of useful ideas” (Falk, Kopelman, & Prottas, 2010, p. 120). Such a mind-set influences them to manage “in such a controlling and commanding fashion that these beliefs are ‘brought to life’ by employee behaviours” (Falk et al., 2010, p.121). This model is focused on productivity, instead of employee satisfaction, and is currently the most popular organizational structure. On the opposite side of the spectrum, managers who follow the procedures of Theory Y believe that employees can be “motivated to work hard and find work enjoyable; are capable of self-direction and self-control; often seek to grow and accept responsibility; and can be the source of many useful ideas” (Falk et al., 2010, p. 121). Focusing on an approach that “is strongly associated with improving the quality of people’s work lives,” in turn, is assumed to increase productivity and the quality of work done by employees (Greenburg, 2010, p. 7). However, Sousa (2012) opined that it is important to note that no theory or management
concept has been deemed completely effective or ineffective. The best organizational structure will foster all of the best components of all existing models.

Research suggests that firms organized to deal with reliable and stable markets may not be as effective in a complex, rapidly changing environment (Gordon and Narayanan, 1984; Spekman and Stern, 1979). The more certain the environment, the more likely the firm's organizational structure may have a centralized hierarchy with formalized rules and procedures (Lawrence and Lorsch, 1967). Organizations that operate with a high degree of environmental uncertainty may decentralize decision-making (Ruekert et al., 1985), rely less on formal rules and policies (Jaworski, 1988), and flatten their hierarchies (Walton, 1985). According to Nahm et al (2003) organizational structure has multiple dimensions, and Damanpour (1991) provides a rather thorough list: through an extensive review of the organizational innovation literature, he documents that researchers have used specialization, functional differentiation, professionalism, formalization, centralization, managerial attitude toward change, managerial tenure, technical knowledge resources, administrative intensity, slack resources, external communication, internal communication, and vertical differentiation, in their probe into the relationships between organizational determinants and innovation. Daft (1995) provides a list that includes formalization, specialization, standardization, hierarchy of authority, complexity, centralization, professionalism, and personnel ratios.

Germain (1996) focuses on specialization, decentralization, and integration in describing the role of context and structure in adopting logistical innovations. Paswan et al. (1998) use formalization, centralization, and participation in explaining linkages among relations environmental uncertainty, and bureaucratization in distribution channels. Koufteros and
Vonderembse (1998) employ centralization, formalization, and complexity in describing the impact of structure on just-in-time attainment. Germain et al. (1994) focus on integration, performance control, specialization, and decentralization in their research on the impact of just-in-time selling on organizational structure. Lyonski et al. (1995) concentrate their focus on the degree of centralization of decision-making, formalization of rules and procedures, and structural differentiation in their investigation of environmental uncertainty and organizational structure from a product management perspective.

2.14 History of the Takoradi Port

The port of Takoradi, Ghana’s premiere port was opened in 1928. Takoradi, the Regional capital of the Western Region of Ghana is about midway between the Ports of Tema and Abidjan. It is about four hours drive from Accra, the capital city. The Port is well connected to its hinterland which makes it the preferred and ideal gateway to the middle and northern part of Ghana and the Sahelian countries- Burkina Faso, Niger and Mali. The Port is also serviced by leading shipping lines/companies and clearing and forwarding companies. The harbour and the Tema Harbour are the only harbours in Ghana. The idea for the construction of the port was first advocated in 1895 by consulting engineers of the British government. The engineers proposed that the harbour when constructed could serve both as a terminal port for the Tarkwa railway project and a naval port to serve the British Empire in war times. The site for the harbour was proposed at the Amanful village which sat in the bay of the harbour today; (www.amanful.com. Accessed 5th June, 2012 at 16:00 Hrs GMT). The construction of the port begun in 1921 by then governor of the Gold Coast, Sir Gordon Guggisberg and was completed in 1928. (www.ghanagov.gh. Accessed 5th June, 2012 at 16:05 Hrs GMT).
2.15 Trade/Business

The port is open seven days a week, all year round, except on Christmas Day and Good Friday when ships are handled only in emergency. The port operates two shifts: 07.30 hours to 19.30 hours and 19.30 hours to 07.30 hours. Overtime rates apply on Saturdays, Sundays, public holidays and during lunch breaks. The Takoradi harbour is 230 kilometres from Accra, the capital of Ghana. The port receives and exports high volumes of cargo. The management of the harbour is the responsibility of the Ghana Ports and Harbours Authority; (www.ghanaports.gov.gh. Accessed 5th June, 2012 at 16:05 Hrs GMT). The harbour serves as the main export port for Ghana. It handles 65% of total export with about 600 vessels visiting it; (www.otal.com. Accessed 5th June, 2012 at 16:05 Hrs GMT).

Annually, the Port handles over 600 vessels, 37% of total national seaborne traffic, 62% of national exports and 20% of total national imports. The main exports include Manganese, Bauxite, Cocoa and Forest products while key imports are Clinker, Containerized cargo, Oil products and Wheat. In recent years Takoradi has been handling large volumes of transit cargo for Burkina Faso, Mali and Niger. Many transit operators have found the Takoradi corridor fast and cost-effective and thus prefer to use this corridor. The harbour also serves the international trade purposes of land locked countries in the Sahel region of Africa. Some of the countries are Mali, Burkina Faso and Niger. The harbour transits large volumes of cargo for these countries. (www.ghanaports.gov.gh. Accessed 5th June, 2012 at 16:05 Hrs GMT). The harbour handles 37% Ghana's seaborne traffic and 62% of national exports. It receives 20% all the imports that the country receives (www.ghanaports.gov.gh. Accessed 5th June, 2012 at 16:05 Hrs GMT).
2.16 Facilities

In July 2004 it was announced that a 250 million dollar modernization project which was to upgrade the harbour was to begin. The project included the dredging of wharf and construction of container berths to increase the volume of cargo the harbour could handle. The Authority also constructed a 14-metre high wall around the port. The wall was to improve security and prevent the incidence of stowaways (www.otal.com). Again, in July 2009 the Authority announced a 700 million dollar project to rehabilitate and upgrade the harbour. This was to make the harbour ready for the country's new oil and gas industry. The project was to include the reclamation and redevelopment of the old log pond into an oil services facility.

Berthing facilities include four multipurpose berths with drafts between 9.0m to 10.0m and dedicated berths for Manganese, Bauxite and Oil. There are also buoys with a maximum draft of 11.0m. With the completion of its three modern sheds, the Port now has a covered area of 140,000 sq. metres and an open storage area of 250,000 sq. metres which enables the Port to store a variety of cargoes. The Port has a container holding capacity of more than 5000TEUs and 100 reefer points for storing refrigerated containers. Furthermore, the Port of Takoradi has adequate stock of cargo handling equipment and a wide range of water-crafts to support its operations. The Port’s vessel repairs facilities are being modernized and expanded. The slipway is being expanded to accommodate vessels up to 500 tonnes deadweight and a length of 40-45m. The drydock is being expanded to a length of 55m and breadth of 14.5m. It has also been revealed that an area for pipe welding, supply of fresh water, bunkering facilities for supply vessels, repair facilities for offshore oil rigs, repair facilities for supply vessels, berthing (space) for the supply vessels, cranes for handling of plant and materials, and trained workforce for stevedoring of plant and machinery from vessels will be provided. (www.ghanabusinessnews.com. Accessed 5th June, 2012 at 16:05 Hrs GMT)
2.17 The Port Industry

The development of the shipping industry has gone hand-in-hand with changes in port organization. According to Caschili and Medda (2012) a recent study for the European Parliament ports have undergone major transformations in their organizational structures, i.e., they have evolved from the containerization process to what is known as the 'terminalisation era', where ports carry out multi-functional operations through the development of highly specialized terminals. As the maritime shipping system has evolved so has the role of port authorities also transformed. Their main duties now involve the optimization of process and infrastructures, logistics performance, the promotion of intermodal transport systems, and increased relations with their hinterlands.

In a similar development Chlomoudis et al., (2003) postulated that the port industry has experienced significant changes that had profound affects in the operational, organisational and ownership status of the ports. Technological development (unitisation of cargo), introduction of informatics, organisational innovation (just-in-time manufacturing, logistics, multimodal transport operation, liberalisation of world markets and a shift towards less state intervention in economies has led to the transformation of the port industry. Beresford et al. (2004) also intimated that the trend of port integration in international production and distribution networks which resulted in the contemporary port environment resulted also to the transformation of the port product and the emergence of new worlds of production.

However, Port industry studies can be categorised into two types of studies based on the literature. The first category focuses on the location aspects and the investment opportunities that ports are faced with, while the second type focuses on the criteria used by shippers in their port or terminal selection process. Within the boundaries of the former type studies is that of Rodrigue (1999) who analysed the importance of synchronisation of the port terminals.
within the supply chain context as he acknowledged the importance of integration between the various players in the chain. Hayut (1981) emphasised on certain factors that he considered as important for the development of a load centre port. According to his findings these factors are the large-scale local market, high accessibility to inland markets, advantageous site and location, early adoption of the new system and aggressiveness of port management. Familiar studies have been made also by James (1972), Slack (1977) and Bird (1973) identifying the factors that affect port development and increase competitiveness. It should be pointed out that all these studies focus on container port terminals.

Other studies have based their methodology on an Analytic Hierarchy Process like Bagchi (1987; 1989), and on “salience selection criteria” used by Brooks (1990). In terms of port selection criteria, Murphy et al. (1988; 1989; 1991) whose studies focus on determining the factors that affect port selection, has contributed to most of the research. Due to the increasing role of container transportation in world trade a number of management studies have focused on port container terminals. Won Yi et al. (2000) proposed a conceptual model of sharing terminal resources (berthing facilities, equipment, labour etc.) using as an example the terminal of Pusan in order to improve terminal productivity. Along these lines, Dragovic et al. (2006) examined the efficiency of operations and processes in port container terminals on the ship–berth link with the use of simulation. Chen (1999) and Chen et al. (2000) studied the effect unproductive moves on the yard have on terminal operations and how these can be minimised. Koh (2001) developed a heuristic algorithm which can be used as a management tool in order to evaluate alternative investment plans in port container terminals. Steenken et al. (2004) documented and categorised logistics operations–processes which take place in container terminals and suggested methods for their optimisation. Maloni and Jackson (2005) reviewed the container port capacity in North America and proposed ways of solving capacity and network problems. Song and Yeo (2005) identified the factors that determine
Chinese container port competitiveness with the assistance of Analytic Hierarchy Process. Zan (1999) studied the effect port management policy issues have on container shipping companies and shippers with the assistance of simulation.


2.18 Evolution of Port systems in Developing Countries

The analysis of port systems is an important part of transport and regional development studies (Hoyle, 1974). Increased globalization has fostered a global transportation system that redesigns inter-port relationships on various geographical scales (Slack, 1993). The port system is a rather vague geographical concept. On the one hand, it corresponds to the port region or land area within which port activities substantially impact the economic structure (e.g. employment), but it is often confounded with the hinterland that reflects the market area.
in which inbound and outbound port-related transport flows take place. Before evaluating to what extent port concentration occurs in North Korea and the implications for such a phenomenon, a closer look at the specificities of port systems in developing and socialist countries is needed. (Thorez, 1998a).

Since the 1960s, literature on port systems has emphasized the impact of containerization on Asian colonial and post-colonial port cities (Basu, 1985; Murphey, 1989; Kidwai, 1989). Technological changes in shipping and globalization processes caused port concentration and selection, questioning the notion that the amount of cargo handled by the port was strictly proportional to the economic weight of the surrounding region (Todd, 1993). The model proposed by Taaffe et al. (1963) shows the degradation and disappearance of minor ports due to the growth of gateway ports at the head of transport corridors, where agglomeration economies are intensified. The argument of Smolensky and Ratajczak (1965) about the shift of larger cities from centre to periphery is questioned by Stern and Hayuth (1984), who observed that remotely located ports have limited local impact due to their dependence on inland core regions. Although port development relates to the existing urban structure of a given country, attempts to develop peripheral regions through port activities in developing countries have been rather limited (Fujita and Mori, 1996). Spatial concentration of population, economic activity, and port traffic also appeared in socialist countries such as Cuba (Alfonso, 2001).

Port development in developing and socialist countries is dictated by wider mechanisms of state planning, resource allocation, and settlement structure. The relative absence of property rights, lack of international openness and human capital, limited infrastructure and
manufactured inputs, small market size, and complex governance often result in a lack of incentives and innovation (Edwards, 1993; Tybout, 2000). This is exactly the case in North Korea, where reliance on heavy industries and military control prevented the emergence of a competitive advantage in the world economy (Jo, 2000). Limited foreign trade, protectionism, and capital stock resulted in small port capacity, outdated infrastructure, and inadequate cargo handling facilities (Ahn, 2001; Yoon and Babson, 2002; Ahn, 2003).

Ducruet and Roussin (2007a) reported that North Korean ports remain relatively small, poorly equipped, and specialized in the handling of bulky products, while limitations of nautical accessibility indicates wide gaps with global shipping standard requirements. As a result, most cargo is loaded and unloaded by hand using a large quantity of workforce at the docks. This situation can be accentuated by bureaucratic obstacles and institutionalized corruption that is defined by favored military and power-holding elites having better access to information, foreign manufactured goods, travel opportunities, nepotism, and cronyism (Bermudez, 2006). In Indonesia, cumbersome customs regulations once hampered the spread of containerization (Airriess, 1989) and still nowadays more than 80% of Indonesian trade is transshipped through Singapore due to low port capacity locally (Ghani, 2006). Similarly, the national renovation policy of Vietnamese ports faces low technical standards and port capacity (Vinh, 2004). In other cases such as Baltic ports, port reforms and increased private participation in port management allows a steady modernization (Brodin, 2003).
2.19 Assessing Port Performance

Relatively simple but standard measures have been used, basically, to compare ("benchmark") performance over time or in one port with another. However, the lack of clarity and uniformity of data often used led Dowd and Leschine (1990) to comment, "the measurement of container productivity has more in common with a commercial art form than with science!" (p. 110). There are many factors that have an effect upon the performance of a port; the location, infrastructure, superstructure and connectivity to other ports are but a few. However, the way an organisation is structured can also have a significant effect on its performance in terms of efficiency. Over the last twenty years much reorganisation has occurred within ports following the global adoption of privatisation policies by individual governments.

Between 1990 and 1998 there were 112 port projects with private participation in 28 developing countries providing an investment totalling more than US$9 billion (Sommer 1999). The value of world-wide privatisations in all industries for 1999 grew by 10% over the preceding year providing governments with US$145 billion (Washington Times 2000). Numerous studies have been conducted on port efficiency, some made using the assessment of productivity based upon output per worker (DeMonie 1987), output per wharf (Frankel 1991) whilst others use production functions (Kim and Sachish 1986, DeNeufville and Tsunokawa 1981).
2.20 Port Performance and Turnaround Time

According to Mokhtar and Shah (2006) Port researchers have studied the issue of port dwell time by looking at four main topics: port operations and, in particular, the means of optimizing port productivity; trade competitiveness, which considers the impact of cargo dwell time on trade; port competition, which has recently been the subject of growing attention in the context of direct competition between port terminals at the regional and global levels; and supply chain performance, with authors such as Robinson (2002) calling for a paradigm shift to focus on the role of ports in global supply chains. (Raballand, Refas, Beuran and Isik 2012). From an operational perspective, researchers are interested in the determinants of the operational performance of ports and the means and resources to optimize it.

Mokhtar and Shah (2006) indicated that the primary indicators of operational performance are vessel turnaround time and port throughput. Asset performance indicators are also widely used to compare berth, yard, or gate performance of different ports. Cargo dwell time in terminals appears to be only a secondary indicator, since it depends on the characteristics of the cargo and the shipper (Chung 1993). Raballand et al (2012) revealed that few attempts have been made to model cargo dwell times in terminals with the noticeable exception of Moini et al. (2010), who use data-mining algorithms to estimate dwell times for a U.S. container terminal. Vessel turnaround time, however, has been subject to many modeling attempts, the most traditional being queuing models that depend on three inputs: the distribution of arrivals, the distribution of service times, and the number of servers—that is, berth stations (Tsinker 2004). Vessel service times are an important component of cargo dwell time in congested ports, and it is therefore important to understand the dynamics of these queuing models, but for most ports, the bulk of cargo dwell time is spent in the yard,
and vessel turnaround times are of secondary importance to shippers. In a more recent attempt, Huynh (2006) analysed the relationship between dwell time and yard capacities by taking into account re-handling productivity and storage strategies. He concludes that port authorities should be well informed about the impact of dwell time on yard productivity before setting tariffs or free time periods that encourage long dwell times.

Ng, (2004) argued that the most important objective for a port container terminal is to increase its throughput or in other words, is to decrease the turnaround times of vessels. As a result, the turnaround time of a vessel is dependent on the effectiveness of allocating and scheduling key resources such as, quay cranes, yard cranes, berths and trucks. Nagorski, (1972) foresaw this scenario way back then when he discussed that a careful planning is necessary for obtaining satisfactory results. Nor Ghani (1996) also stressed out on turnaround time when he studied the relationship between queuing theory and congested cost. Consequently, the issue of turnaround time for vessel is related with berthing cost for shippers and increment voyage for vessel itself. Preston and Kozan, (2001) argued that port users look into berthing side as it actually can determine the whole aspects such as cost, voyage, marketing, planning and scheduling. The pivotal key here is turnaround time for vessel, because it is able to solve a lot of things for shipping industry.

Marlow and Paixao (2003) argue that most studies conducted in port container performance are based on quantitative measures as it is easier in assessing port performance. Port container terminal is service-oriented therefore, efficiency is very crucial in determining moves per hour for loading and discharging container from and onto vessel. Other researchers have also delved into port performance and efficiency to show the critical aspect
in container terminal (Clark et al., 2004; Safaradis, 2002; Sanchaz et al., 2002; Estache et al., 2002; Bardhan et al., 1998; Tongzon, 1994, 1999, 2001; and Talley, 1994). Hartmann, (2004) argued that container terminals face challenges of reaching turnaround time with more and larger vessels in the shortest possible time. As a result, in order to obtain operational efficiency objective, there are three aspects between planning and control level which can be segregated into strategic level, tactical level and operational level (Vis and Koster, 2003).

Gordan et al., (2005) revealed that Singapore provides supportive government policies to her shipping line ample investment from government and private as well as operations, location, and deep water draft for vessels, thus simultaneously sustaining Singapore’s port among port users. Marlow and Paixao (2003) and Tongzon (1995) made use of port performance indicator in order to focus and distinguish between port efficiency and effectiveness as well as in measuring port performance. As far back as 1971 Oram and Baker, (1971) posited that turnaround time is one of the factors that should be included when measuring port performance; the other factors are material handling or labour productivity and berth occupancy. Since the 2000’s most studies in port container terminals have narrowed the scope by focusing on terminal equipment such as yard crane and truck (Ng, 2003; Ng et al., 2005; Zhang, 2002; Kim et al., 2001), quay crane (Kim et al., 2004, Kozan, 2001) and rubber tyre gantry crane (Zhang et al., 2002).

Tongzon, (1994) described that port performance is measured in terms of the number containers moved through a port, known as throughput, on the assumption that the ports are throughput maximisers. In addition, Tongzon, (1994) also revealed an alternative port performance indicator in simpler way than UNCTAD, (1976), when it concerned on location,
frequency of vessel calls, port charges, economic activity and terminal efficiency, hence Tongzon, (1994) conceptualised it into economic, location, and operational. Talley, (1994) revealed his port performance indicators and narrowed it only into economic perspective. Culllinare et al. (2002) asserted that a lot of arguments can be made since the methods are different, and actually it will distort the development of port industry itself. Talley, (1994) attempted to build a single performance indicator in financial aspect as the shadow price of variable port throughput per profit dollar to evaluate performance of a port and this overcomes the drawback of multiple indicators. Evidently, it can be concluded that even a single performance indicator (financial), is merely impossible to be standardised as the methods applied varies such as allocating capital cost, different taxation systems, depreciation of assets, different forms of 'financial assistance', and cargo handling costs as it mutually based on negotiation with client.

2.21 Port Productivity

The literature on container terminal productivity measures is highly varied, comprising trade journal articles, research reports, academic papers and articles, and conference presentations. There is a parallel and sometimes interwoven literature on the basis of competition between ports terminals and on shipper and carrier criteria for choosing ports and terminals. The Tioga Group, Inc. (2010) revealed that observers tend to focus on overall throughput and productivity measures such as annual TEU, TEU/acre, and TEU/crane. A good example of such discussions is Le-Griffin and Murphy (2007) which uses TEU/foot of berth, TEU/crane, TEU/crane-hour, and TEU/acre. They also asserted that industry participants tend to emphasize either terminal handling costs, vessel turn times, or crane moves per hour as the basis of competition between ports and terminals. It must be noted that because terminal
handling charges and port fees are negotiated between ports, terminal operators, and ocean carriers, they are largely confidential thus making vessels turn times or crane moves per hour thus become surrogates for costs. A number of sources note that there are two costs involved: terminal handling charges and the cost of the vessel while in port.

According to Summath, (1984, p.4) the meaning of productivity is concerned with the efficient utilisation of resources (input) in producing goods and or services (output). Whereas, in shipping industry, Kim et al., (2003) described that port container terminal productivity can be measured in two types of operations; first is the vessel operation which involves discharge and loading of container from and onto vessel. The other one is receiving and delivering operations, where containers transfer to and from outside trucks. In addition, as far as financial is concerned, productivity in port container operation is the key determinant for the cost of providing container stevedoring services.

Meyrick and associates and Tasman Asia Pacific, (1998) reported that there are two partial productivity measures that have been used in port productivity studies. First is annually lifts per employee (labour productivity), and it is defined as the number of container movements (container lifts) per terminal employee. The other is net crane rate (capital productivity) and it is defined as the number of container movements (container lifts) per net crane hour. De Monie, (1987) reported that the measurement of port productivity is greatly impeded with some factors: the sheer number of parameters involved; lack of up-to-date, factual and reliable data, collected in an accepted manner and available for dissemination; absence of generally agreed and acceptable definitions; profound influence of local factors on the data obtained and divergent interpretation given by various interests to identical results.
According to Mokhtar and Shah (2006) these factors are ironically slightly better with the emerging of information technology. As the advent of information technology synchronises the process and procedure in various industries, therefore productivity as well continuously improved. Even though cost factor for technological advent higher than others, in long terms it merely surpasses cost factor.

Oram and Baker, (1971) defined vessel turnaround time as the process needed for loading, discharging and servicing a vessel from berthing until vessel's departure. This period starts from actual arrival of a vessel at berth to its actual departure from the berth. The way of measuring vessel turnaround time has been done by Amoyaw, (1999) and Imikata, (1978). Clark et al. (2004) elaborated further that port efficiency directly affects turnaround time for vessel in wharf. And it varies widely from country to country and region to region. For instance Singapore and Hong Kong are the most efficient ports in the world, whereas, inefficient ports are located in developing and third world countries such as Ethiopia, Nigeria, Malawi for Africa continent, or in South America such as Colombia, Venezuela and Ecuador. Since port efficiency is highly correlated with handling cost, lower turnaround time for vessel means that a particular container terminal has lower handling costs. And the length of time spent by vessels in port represents a loss of revenue from economic point of view (Takel, 1974).

2.22 Techniques for Measuring Port Efficiency

Efficiency can simply be expressed as a ratio of output to input provided that the product only produces one output. However, as most institutions produce multiple outputs from multiple
inputs each variable must be given a weighting to produce a more accurate result. Efficiency then begins to resemble the sum of weighted outputs over the sum of weighted inputs. Data Envelopment Analysis (DEA) is an established statistical technique which measures the relative efficiencies of units where simple efficiency measures are difficult to obtain (Farrell 1957 and Charnes et al 1978). It is of most use where there are a large number of units providing an ‘identical’ service in relative isolation (Szczepura et al 1992). DEA was first developed as a way of measuring service units by Charnes et al (1978) and was based upon Farrell’s (1957) idea of linking the estimation of technical efficiency and production frontiers. The model has since been added to and developed over the years.

Between 1978 and 1992 over 400 articles, books and dissertations were published on DEA (Charnes et al 1995). Warwick Business School has pioneered the research and is regarded as one of the leading institutions working in this field. DEA has been successfully used to research airports (Gillen and Lall, 1997 and De La Cruz 1999), local government authorities, courts, hospitals general medical practitioners and bank branches to test efficiency where there are multiple centres of inputs and outputs. Its application to the port industry would therefore appear to be ideal. There have however only been a few studies involving seaports using DEA. Martinez-Budria et al (1999) and Tongzon (2001) are two studies using Spanish and Australian ports, respectively. Roll and Hayuth (1993) in a hypothetical study state that DEA is a most suitable tool for measuring port efficiency.

Sachis (1996) looked at the different techniques for measuring productivity and confirmed DEA’s usefulness. However his research adopted an engineering method to take account of the technological investments when looking at the efficiency of Israeli ports. Various other
studies have used the assessment of productivity based upon output per worker (DeMonie 1987), output per wharf (Frankel 1991) whilst others use production functions (Kim and Sachish 1986, DeNeufville and Tsunokawa 1981). Gillen and Lall (1997) looked at airport terminals and chose two outputs, number of passengers and pounds weight of cargo. They chose six inputs: number of runways, number of gates, terminal area, number of employees, number of baggage collection belts and number of public parking places. They conclude that the number of gates has the greatest overall effect upon efficiency. In terms of ports, gates, which facilitate the loading of the cargo, could be equated to loading cranes, and runways to berths. Martinez-Budria et al (1999) and Tongzon (2001) conducted research using DEA on Spanish and Australian ports respectively.

2.23 Ownership Structure

Cass (1996) in his study of world port privatization concluded that there were only really three types of port ownership, public, private or joint public/private. He points out that the most common type of port privatization are (1) the sale of operating concessions, (2) joint public/private venture, (3) private orientated but port authority controlled operating subsidiaries, (4) the 'corporatization' of government port agencies or (5) the dissolution of government owned cargo handling monopolies. The 'lock, stock and barrel' approach of Great Britain and New Zealand are the exceptions. The degree of public involvement is naturally dependent upon national ideology. Cass (1996) and Heikkila (1990) both state the examples of the United States where the municipal authority plays a major part in the operation of the port, and where ports compete against other ports along the coast for business. However, at the other end of the scale is Taiwan where the administration of the ports is centralized.
Boardman and Vinning (1989) found that different types of ownership structure, the state owned enterprises and mixed economies performed substantially worse than similar private companies. They concluded that there were performance differences between public and private companies in competitive environments and, that where there was a partial privatization the performance was sometimes the worse. They cited that conflicting ideologies between the two different owners cause ‘cognitive dissonance’. However, Bos (1991) looked at what Tandon (1997) called “the survey of all the surveys” on the efficiency of public and private firms and came to the opinion that Boardman and Vinning (1989) had directly opposing views from a previous study by Borcherding et al (1982). Tandon’s (1997) explanation of these apparent conflicting views relies not upon the ownership structure but upon the market conditions in which they operate. Private firms are likely to be in a more competitive environment and thus more in tune with the need to be efficient than public enterprises that perhaps operate in a restrictive environment. He argues that in studies involving public and private firms in the same business, such as airlines, some private airlines are more profitable but on balance it is approximately equal. This research aims to see whether this is the case for ports.

Caves et al (1982) in looking at United States private railways and Canadian public railways concluded that the Canadian public firm was more efficient. Tandon (1997) postulated that the process of identifying which approach is more efficient depends upon disentangling ownership from the effects of deregulation and competition. De Alessi (1980) intimated that not only are government firms less efficient but are also less successful in satisfying the consumer’s needs. Everett and Robinson (1998) in their research into Australian port reform suggested that the “corporatization” of some ports has not resulted in the liberalization and
the near private performance that was anticipated. Frech (1980) in looking at the role of property rights within the firm suggests that if the ownership structure is attenuated this leads to lower firm wealth and more non-pecuniary benefits. Thus, privatization, by shortening the ownership structure should have an opposing effect. Likewise the organizational structure should also play a significant role by suggesting that simple structures be inherently more efficient than the more complex machine bureaucracy and divisional structures.

2.24 Relationship between Organizational Structure and Efficiency

The relation between organizational structure and efficiency has been an important topic in the literature (e.g. Weiss, 1991; Cummins, Weiss, Zi, 1999). Agency theory has led to the development of several hypotheses about organizational forms, resulting from the observation that stock companies and mutual companies have comparative advantages in dealing with different types of agency costs (Jensen and Meckling (1976), Mayers and Smith (1981) and Fama and Jensen (1983)). Demsetz and Lehn (1985) suggested that regulation provides some subsidized monitoring and disciplining of the management of regulated firms. Roe (1999), in looking at the newly privatized subsidiaries of the state owned Polish Ocean Lines, observed that there was a desire to avoid control from the parent company and to change the organizational structure soon after privatization. Mintzberg (1979) looked at organizational structures and reached the conclusion that there are essentially five different types: simple, machine bureaucracy, professional bureaucracy, divisional and adhocracy. The simple structure is the most flexible, allowing separate divisions/departments reporting straight to the top decision-maker. As the name suggests it is usually the first stage through
which a company progresses in its evolution. This structure by its simplicity is therefore likely to be the most efficient. The machine bureaucracy is characterized by its many departments reporting up a chain of command to a line manager before reporting to the top decision-maker. Because the decision making has to follow a long process before it reaches the top, decisions tend to be slower. These structures tend to be found in government-owned enterprises. Professional bureaucracy combines standardization with decentralization. It occurs in organisations that require specialist help. It works best in organizations that rely heavily upon professionals to perform the main functions of the organization but nevertheless still require a certain amount of routine procedures to be performed. Examples would be solicitors, accountants, architects, brokers. The divisional structure occurs when companies operate within large areas. Each department has to report to a regional office that in turn reports to a select group of managers before information is passed to the top decision-maker. This structure can be best seen in the municipal ports of the UK and the port societies of Columbia. These divisional structures tend to operate where there are joint public/private enterprises or where conglomerates own the port. The adhocracy has no formal rules for dealing with problems, no standardization and no complex chain of command. It therefore has a very wide base. It usually exists for only a short time and its role is to perform a particular task. It is seen in the film industry where the goal is simply to produce a film or, in a computer company to design a one-off piece of software. Its employees are mainly professional who need no supervision.

As far as ports are concerned only three of these structures seem to fit into the modern day port structure, viz. simple structure, machine bureaucracy and divisional. The adhocracy does not fit into the structure of any port because of its lack of rigidity. Ports require careful planning and development based upon what may be needed 10 or 20 years into the future.
Without the rigidity of a formal structure each element in the chain would not know the whole picture, only the person at the top may see everything. Likewise the professional bureaucracy is not suitable in a port because of the routine and repetitive tasks that are commonplace within a port's day to day service. The professional bureaucracy is typical of industries that require highly professional people to perform routine tasks in an unsupervised manner such as solicitors and accountants. Whilst professional people are required in certain areas and qualified personnel needed to operate expensive and dangerous machinery, a professional bureaucracy would not be appropriate.

As the literature review has demonstrated the term 'structure' is broadly defined, yet for purposes of this study a generally accepted and widely used definition of structure is: an entity made up of more or less interdependent elements and having a definite organizational pattern (Johansson, 1997). From a qualitative perspective, structure goes beyond the elements (vehicles, personnel, performance measures etc.) that make up the Port Organization. Structure embodies constructs such as rules and regulations that govern the operation of the industry. These involve fiscal, financial, environmental and other guidelines, government interaction with the port agencies, managerial skills of transit managers, the provision of services such as training, healthcare, daycare centers and security for employees and support staff. All of these constructs and their interdependencies can jointly determine the performance of transit agencies.

From the conclusions of the literature it is expected that organizational structure should have a relationship to efficiency whereas ownership and location may have only a negligible relationship.
3.0 Introduction

Methodology refers to the overall approach to the research process, from the theoretical underpinning to the collection and analysis of the data; Collis and Hussey (2003) identify two main research paradigms, namely the positivistic paradigm and the phenomenological paradigm. The positivistic approach attempts to explain social phenomena by establishing a relation between variables which is information converted into numbers. The phenomenological paradigm suggests that social reality lies within the unit of research, and that the act of investigating the reality has an effect on that reality. This paradigm pays considerable regard to the subjective state of the individual.

According to Leedy and Ormrod (2005:196), face-to-face interviews yield the highest response rate and allow the researcher to clarify ambiguous answers. However, they may not be practical in terms of prohibitive time and expense factors if the respondents are spread over a large geographical area. For the findings of any research project to have any meaning, they have to be based on sound research principles. That is, the research methodology employed must adhere to accepted standards. The goal of this chapter is to elucidate the research methodology chosen for this project, as well as the theory upon which the chosen methodology is based. A well-planned research project, scientifically executed, will provide valid data upon which to base appropriate conclusions. Leedy (1997:3) defines research as, "The systematic process of collecting and analysing information (data) in order to increase
our understanding of the phenomenon with which we are concerned or interested.” This chapter will provide an overview and discussion of the methods and techniques employed to collect the research data.

3.1 Research Paradigm

The qualitative research paradigm was used so that the study could be done at the Takoradi Port natural setting where employees are at their workplace and where the communication flow occurs. The qualitative approach was most suitable for explaining the participant’s perceptions. Notwithstanding, Creswell (2003:191) postulated that the objective of qualitative research is to understand a particular social situation, event, role, group or interaction. Consequently, this researcher adopted the qualitative research to analyze the organizational activities at the Takoradi Port in order to gain an understanding of the process and its shortcomings with the view of improving the organizational phenomenon. Wimmer & Dominick (2000:43) described qualitative research as several methods of data collection which include focus groups, field observation, in-depth interviews and case studies. Creswell (2003:181) postulated that the natural setting enables the researcher to develop a level of detail about the individual or place and to be highly involved in actual experiences of participants.

The qualitative method is flexible in that the questions can be refined during the study. For instance, there were questions which were not applicable to the Takoradi Port management group which were later refined to fit the need. With the qualitative method it is possible to look at the holistic response of the Takoradi Port participants. Furthermore, the researcher could look at the environment, the verbal and non-verbal interpretations. Creswell (2003:181) opined that the more complex interactive and encompassing the narrative, the better the
qualitative study. Objectivity is seen as a challenge in the qualitative method. In this study, this was addressed through employing an independent facilitator to be part of the focus groups and be a scribe. Being a scribe, gave the independent facilitator an opportunity to do quality checks.

3.2 Sampling Procedure

3.2.1 Population

The population of interest is called the target population. Data should only be gathered from objects in the population of interest. Properly defining the target population is a crucial step in the design of the research project (Crask, et al., 1995:176). The sampling population was defined as management and staff of the Takoradi Port. The port operations department and marine operations department constituted the sample frame. A record from the Takoradi Port indicates that port operations department has a workforce of 94 and that of marine operations department is 127. This includes managers, senior officers and junior staff. The number of workforce for the identified sub-groups of the study adds up to 221.

3.2.2 Sample Size

In order to have a representative sample and outcomes which can be applicable to the organization stratified sampling was used. A representative sample (target population) was drawn among the 221GPHA employees. Subgroups called strata were included in the sample in virtually the same proportion as they occur in the population. Wimmer and Dominick (2000:68) postulated that stratified sampling ensures that a sample is drawn from a homogeneous subset of the population.
For example since the port operations department has a workforce of 94 which represent about 43% of the 221 total study population 40% of that stratum was selected through a simple random technique which constituted 36 target respondents. Similarly, 52% of the 127 employees at the marine operations department representing about 65 target respondents were also selected. Du Plooy (1997:59) argues that disproportionate stratified sampling can be used when one stratum is particularly more important in which case that stratum is over represented or over sampled. This was done to conform to Struwig and Stead’s (2001:119) postulations that if the sampling process has been correctly followed then sample sizes of 100 to 200 can provide an acceptable reflection of the population and indeed the sum of the two stratum makes a strata of 101 targeted respondents. Indeed Wimmer and Dominick (2000:73) also confirmed that the sample size is always controlled by cost and time.

Meanwhile four (4) managers in the port operations department and two senior officers in the marine operations department were also interviewed. Two officials from the human Resources Department were also contacted for interviewing. It must however be noted that the four officials from the port operations department and the two from the marine operations department were not included in the computations in the random sample drawn for the strata. Race, ethnicity and religion have not been considered because they deem to be irrelevant to the study. In all the total sample size was set at N=107 respondents.

3.3 Data Collection

3.3.1 Interviews
Data was collected via interviews which were conducted through focus groups. Creswell (2003:188) postulated that in interviews, the researcher conducts face to face interviews with
participants or engages in focus groups. Individual employees were contacted at the Takoradi Port during lunch periods for eight weeks. The interviews consisted of structured questions which were meant to elicit employees' opinion on organizational activities. The interviews lasted between ten to fifteen minutes on average. Open ended questions were used with the objective of allowing participants to respond freely. Controls over the responses were ensured through the guidance of this researcher. Questions were posed in simple and unambiguous language. Open ended questions were used to obtain the information in order to critically analyze the relationship between organizational structure and efficiency. The open ended questions enabled respondents to express views without being restricted. Du Plooy (1997:133) opined that open ended questions allow respondents to answer the question in their own words and encourage respondents to express their attitudes and opinions. Closed ended questions were used because they are quicker to respond to and provide specific responses.

In formulating the questions, the following was taken into consideration and avoided, viz.: double barrel questions, loaded language, leading questions, incomplete questions and vague questions. The lengths of the questions were also considered when the questions were formulated. Wimmer & Dominick (1994:138) postulated that the questions be worded such that they ensure accurate transmission of respondents responses to researchers. They should un-ambiguously communicate the desired information to the respondent.

The respondents were briefed of the objective of the survey, that is, to critically analyze the relationship between organizational structure and efficiency of GPHA. This involved identifying the shortcomings of organizational activities and to address them. They were also informed that the interview would be shorter than fifteen minutes. The following ground rules were clearly articulated, viz.:
• The respondents and their responses will remain anonymous.

• There are no correct or incorrect answers.

• Respondents can speak freely.

A number of control procedures advised by Du Plooy (2002:182) include selection of a setting which is conducive to the topic and population parameters. The ethical implications and the importance of debriefing must also be considered.

3.3.2 Ethical Consideration

Creswell (2003:201) believes that ethical consideration should include the researcher’s obligation to respect the rights, needs, values and desires of respondents. The employees at the GPHA were informed that their responses will be treated with anonymity.

3.3.3 Data Reliability and Validity

According to Collis and Hussey (2003:186), reliability is concerned with the findings of the research. The findings can be considered reliable if (you or anyone else) repeated the study/research and obtain similar results. Whilst validity is concerned with the extent to which the research findings accurately represent what is happening in the situation, the data collected can also be perceived as a true picture of what is being studied. The challenge with the positivist view is that the data might not reveal what it intended to draw due to various reasons such as ambiguous questions and respondents being bored. The questions for this study were made simple and clear. Collis & Hussey (2003:58) asserted that validity is the extent to which the research findings accurately represent what is actually taking place in the situation. An effect or a test is valid if it demonstrates or measures what the researcher thinks
or claims it does. Collis & Hussey (2003:58) posited that research errors such as faulty research procedures, poor samples and inaccurate or misleading measurements can undermine validity. Creswell (2003:196) suggests that the use of an external auditor to review the entire project can be used as a strategy to check the accuracy of the study.

In critically analyzing the relationship between organizational structure and port efficiency for this study, the validity was ensured by following the questions and procedures correctly. According to Collis & Hussey (2003:59), there are various ways to address the challenge of validity, that is, the most common is face validity which involves ensuring tests and measures used by the researcher do actually measure or represent what they are supposed to measure or represent. Du Plooy (2002:125) states that face validity, which is sometimes called content validity, is determined by the quality of an item.

In view of that a pilot test was conducted with a randomly selected sample of two (2) experts in HR and port operations and five (5) port employees and this helped establish the validity and reliability of the questionnaire. No major changes were made to the questionnaire after pilot testing.

3.4 Data Analysis

The data analysis process was designed to draw logical references from the text or image data collected. Creswell (2003:191) postulated that there are various generic steps involved in data analysis which involves organizing and preparing the data for analysis, reading through all the data and putting it into categories. The process generates description of the setting or themes/ categories of people for analysis. The final step involves drawing inferences or interpretation of the data where it captures the lessons learnt. The data analysis for this study
followed the abovementioned. Firstly, the data was organized and prepared by recording the data from the field and sorting out the questionnaires according to different strata. Secondly, all the data had to be read to get a general sense of the information and compile notes on the general thoughts. The third step involved commencing with a detailed analysis of the categorization process. The information was categorized into different themes and patterns from the various responses. The fourth step was to use the categorized data to generate a description of the setting, giving themes to the different strata. Fifthly, a decision was taken on how the description and themes will be presented, that is, a narrative passage to convey the findings of the analysis. Finally, the sixth step involved interpretation of the data.

Quantitative data analysis was done by the use of Microsoft word 2007- integrated package on a personal computer and the SPSS (Version 16) software. The technique for quantitative data analysis was the frequency distribution and percentages, which were used to determine the proportion of respondents choosing the various responses.

3.5 Generalization

Generalization is concerned with the application of research results to cases or situations beyond those examined in the study. It is the extent to which the researcher can draw conclusions about aspects based on information about another. In the study, a sample was drawn from the population. From the sample, generalized conclusions will be drawn from the data collected. For example, the results of the study will present the opinion of all GPHA employees of the Takoradi Port. This was done for each group of items relating to the research questions. Tables, charts and graphs were also used to ensure easy understanding of the analyses.
3.5.1 Limitations

Collection of data in Africa in general and Ghana in particular is very difficult. Problems such as the swearing of an oath of secrecy and indifference on the part of interviewees and respondents were limitations to the study. The absence or inaccessibility of reliable records and reports on GPHA activities within the past ten years also limited the research investigation. Further a sample of the population was studied, consequently there is the possibility of sampling error occurring. The research was done in the Port of Takoradi alone therefore it may not be possible to generalize the results of this study to all ports in Ghana.

3.5.2 Delimitations

The study was limited to the Takoradi Metropolitan Area. The reasons for this are:

Ghana is too large for the researcher to travel all over the country. The Takoradi Port is the premier port in Ghana and has a heterogeneous population which ensures a wide spread of potential respondents to the study. The cost and time required to conduct the study was lower because the study was limited to a restricted geographic area.
CHAPTER FOUR

PRESENTATION OF RESULTS AND DISCUSSION

4.1 Introduction

The purpose of this chapter is to examine the methods used for data collection and analysis within this study. Data and information found in this study were analyzed and discussed in accordance with the research objectives introduced in chapter one. As discussed in the research methodology, the data was analyzed using descriptive statistics, that is, frequencies and percentages. The general objective of this research is to find out the impact of organizational structure on port efficiency in Ghana. The chapter starts by presenting the demographic profile of the respondents. It moves to the analysis of the questions asked in the questionnaire and the interviews.

4.2 Demographic Characteristics of Respondents

The gender distribution of respondents is presented in table (4.1) below. According to the data a higher proportion, about 72% of the respondents representing 73 employees are males whilst 28% of them are females. Margosian and Vendrzyk (1994) seems to corroborate this by their assertion that a woman's gender, reproductive capability, and sexuality sets her apart from their male peers and often prevents their acceptance as full members of an organization. But the researcher does not seem to imply from the statistical revelation of the male-female ratio of the port as the true reflection of the entire population of the study area especially so when there is no evidence to that effect. Indeed the issue may be as a result of the time, place and sampling regime, as well as the type of organization and industry being studied and the situation of data collection.
Table 4.1: Gender Distribution of Respondents

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>73</td>
<td>72.3</td>
</tr>
<tr>
<td>Female</td>
<td>28</td>
<td>27.7</td>
</tr>
</tbody>
</table>

Total 101 100

Source: Field Data; October, 2012

The age distribution of respondents is presented in table 4.2 below and the highest distribution falls within the 30-39 year group with a frequency of 41 respondents representing about 41% of the people and that is followed by the 20-29 year group representing about 14% of the people with a frequency of 14. It is however significant to note that the least recorded respondent group is those within the 60 years and above category with a frequency of 7 people representing about 7% of the respondents. This implies a youthful workforce.

It is relevant to note that the empirical evidence from this study is corroborated in the literature which is exemplified in a study by the U.S. Department of Labor (1957) which compared the output between individuals of different ages. It was revealed in the study that job performance increases until the age of 35 and steadily decline thereafter. It is also important to note however, that the slope of the decline was not steep especially when productivity declined by only 14% in the men’s footwear industry, and 17% in the household furniture industry. The implication of this empirical finding to the entity under study is that management of all organizations ought to take into consideration the age distribution of their employees regardless of the industry being study. Especially so when this researcher asserts
(to the best of her knowledge) that there is an inverse relationship between the age of an individual and her productivity in a turbulent competitive environment like the port and shipping industry.

Table 4.2: Age Distribution of Respondents

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-29</td>
<td>14</td>
<td>13.9</td>
</tr>
<tr>
<td>30-39</td>
<td>41</td>
<td>40.6</td>
</tr>
<tr>
<td>40-49</td>
<td>23</td>
<td>22.8</td>
</tr>
<tr>
<td>50-59</td>
<td>16</td>
<td>15.8</td>
</tr>
<tr>
<td>60&gt;</td>
<td>7</td>
<td>6.9</td>
</tr>
<tr>
<td>Total</td>
<td>101</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Field Data; October, 2012

Figure 4.1: Age Distribution of Respondents
Source: Field Data; October, 2012
Table 4.3 below reveals the educational level of respondents and the highest frequency (35) representing about 35% have HND/Diploma qualification and the least category of respondents were those with post graduate and professional degrees with relative frequencies of 9 respondents representing about 9% respectively.

Table 4.3: Educational Level

<table>
<thead>
<tr>
<th>Educational Level</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCE 'O'/A' Level/SHS</td>
<td>29</td>
<td>28.7</td>
</tr>
<tr>
<td>HND/Diploma</td>
<td>35</td>
<td>34.7</td>
</tr>
<tr>
<td>University first degree</td>
<td>19</td>
<td>18.8</td>
</tr>
<tr>
<td>Post graduate degree</td>
<td>9</td>
<td>8.9</td>
</tr>
<tr>
<td>Professional degree</td>
<td>9</td>
<td>8.9</td>
</tr>
<tr>
<td>Total</td>
<td>101</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Field Data; October, 2012

Table 4.4 depicts data on the number of years respondents have worked at the Takoradi Port and the data reveals that the highest frequency of respondents is 35 representing about 35% within the categories of 10-14 years and it is followed by those within the 5-9 years with a frequency of 22 representing about 22%. Twelve people representing about 12% have worked above 25 years, with about the same percentage point (12%) working less than 4 years. The finding implies a workforce who has worked longer in the organization and that may reflect in the productivity of the employees since they are supposed to be experienced. The literature, especially Skirbekk (2003) seems to corroborate this empirical finding by postulating that job experience improves productivity for several years, but there does come a
point at which further experience no longer has an effect. Ericsson and Lehmann (1996) also argued that experience increases individual productivity up to a given duration, and thereafter cognitive declines can decrease performance on the job.

Table 4.4: Number of Years in the Organization

<table>
<thead>
<tr>
<th>YEARS</th>
<th>FREQUENCY</th>
<th>PERCENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 4 years</td>
<td>11</td>
<td>10.9</td>
</tr>
<tr>
<td>5 - 9 years</td>
<td>22</td>
<td>21.8</td>
</tr>
<tr>
<td>10 - 14 years</td>
<td>35</td>
<td>34.7</td>
</tr>
<tr>
<td>20 - 24 years</td>
<td>21</td>
<td>20.8</td>
</tr>
<tr>
<td>Above 25 years</td>
<td>12</td>
<td>11.8</td>
</tr>
<tr>
<td>Total</td>
<td>101</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Field Data; May, 2012

One of the objectives of the study was to assess the perception of the employees of the organization and the researcher sought the views of the respondents on certain characteristics or attributes of the port. The findings are presented in table 4.5 below. The table reveals that slightly more than half of the respondents 57 % agreed that management of the port quickly shifts priorities and resources to manage dynamic and evolving issues that crop up in the day to day administration of the port. This implies that over 50% of the employees contacted agreed that the agility of the port is not in doubt. It is also revealing from the finding in the table that a substantial higher number of respondents, 63% also agreed that management of the port engage in timely reaction to environmental changes to meet its objectives. However, a greater number of respondents, 73% agreed to management's flexibility strategize in
adjusting to changing challenges and opportunities that may arise in the environment. Another equally greater percentage of respondents, 74% agreed that management can quickly adapt strategies to meet rapidly changing demands and challenges.

It is however interesting to reveal that there was a mix reaction by the respondents as to the innovativeness of management. Whilst 40% of the respondents disagreed, 49% of the employees contacted agreed with 11% of them staying neutral. This new dimension of respondents’ perception is interestingly revealing, especially so when greater number of the respondents agreed to the capability of the management of being flexible and adaptable to changing conditions. And more importantly when innovation has to do with doing things differently (and hopefully better) (Heskett, 1986; Sundbo, 2009; Voss & Zomerdijk, 2007). Schumpeter (1934) also argued that an innovator is a person that brings about change by means of new processes and/or products. Indeed the definitions of innovation postulated by the literature above implies flexibility and adaptability and if the same management are characteristically flexible and adaptable but not innovative then there seem to be some inconsistencies in the reasoning.
adjusting to changing challenges and opportunities that may arise in the environment. Another equally greater percentage of respondents, 74% agreed that management can quickly adapt strategies to meet rapidly changing demands and challenges.

It is however interesting to reveal that there was a mix reaction by the respondents as to the innovativeness of management. Whilst 40% of the respondents disagreed, 49% of the employees contacted agreed with 11% of them staying neutral. This new dimension of respondents’ perception is interestingly revealing, especially so when greater number of the respondents agreed to the capability of the management of being flexible and adaptable to changing conditions. And more importantly when innovation has to do with doing things differently (and hopefully better) (Heskett, 1986; Sundbo, 2009; Voss & Zomerdijk, 2007). Schumpeter (1934) also argued that an innovator is a person that brings about change by means of new processes and/or products. Indeed the definitions of innovation postulated by the literature above implies flexibility and adaptability and if the same management are characteristically flexible and adaptable but not innovative then there seem to be some inconsistencies in the reasoning.
Table 4.5: Employees’ Ratings on the Port’s Attributes

Please indicate your ratings for the following attributes of the Takoradi Port (1) Strongly Agree, (2) Agree, (3) Neither Agree or Disagree (4) Disagree, (5) Strongly Disagree

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Strongly Agree (%)</th>
<th>Agree (%)</th>
<th>Neither Agree nor Disagree (%)</th>
<th>Disagree (%)</th>
<th>Strongly Disagree (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agility: The organization quickly shifts priorities and resources to manage dynamic and evolving environments.</td>
<td>25</td>
<td>32</td>
<td>12</td>
<td>15</td>
<td>16</td>
</tr>
<tr>
<td>Responsiveness: The organization responds to and exploits emerging and unexpected opportunities to meet its objectives. Responsiveness implies a timely reaction to environmental change.</td>
<td>23</td>
<td>40</td>
<td>11</td>
<td>17</td>
<td>9</td>
</tr>
<tr>
<td>Flexibility: The organization can and does change strategies, tactics and even team composition to adjust to changing domains.</td>
<td>40</td>
<td>33</td>
<td>10</td>
<td>11</td>
<td>6</td>
</tr>
<tr>
<td>Adaptability: The organization modifies tactics to meet rapidly changing demands and challenges.</td>
<td>45</td>
<td>29</td>
<td>9</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>Innovation: The organization uses novel techniques, technologies and resources to meet objectives, which implies either something new or something old, but achieved in</td>
<td>26</td>
<td>23</td>
<td>11</td>
<td>24</td>
<td>16</td>
</tr>
</tbody>
</table>
In assessing the perception of the employees of the port the researcher further sought the views of the respondents on effectiveness of the management activities of the port. The findings are presented in table 4.6 below. The table reveals that a very greater number of respondents 80% that the objectives of the operations of the organization are reasonably met. There were however, mixed feelings as to the quality of decisions made by management. Whilst slightly more than half of the respondents, 55% agreed that the decisions of leadership lead to positive outcomes, 35% of the employees contacted disagreed to that, with 10% refusing to comment on that.

There was also non-consensus of the perception of respondents as to the alacrity with which information is divulged. Whilst 46% of the employees contacted disagreed that the speed of information flow meets the demands of the dynamic and complex environment, 41% of the respondents agreed to that assertion with 13% staying neutral. However, a substantial number of respondents, 61% agreed to the quality and accuracy of information they receive and that contributes to overall performance. Meanwhile, slightly over half of the employees contacted, 53% agreed that information is quickly converted into action in support of operational objectives, but quite a number, 36% disagreed to that assertion. A higher percent of the respondents, 61% agreed that organizational learning is realized and common operating picture is felt, but 30% of the employees contacted disagreed to that.
### Table 4.6: Employees’ Perception of the Port’s Effectiveness

Please indicate your perception of the organization’ effectiveness using the following criteria:

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Strongly Agree (%)</th>
<th>Agree (%)</th>
<th>Neither Agree nor Disagree (%)</th>
<th>Disagree (%)</th>
<th>Strongly Disagree (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mission Objectives—the objectives of the operations are reasonably met.</td>
<td>46</td>
<td>34</td>
<td>5</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Decision Quality—the decisions of leadership lead to positive outcomes.</td>
<td>30</td>
<td>25</td>
<td>10</td>
<td>23</td>
<td>12</td>
</tr>
<tr>
<td>Information Speed—the speed of information flow meets the demands of the dynamic and complex environment.</td>
<td>22</td>
<td>19</td>
<td>13</td>
<td>27</td>
<td>19</td>
</tr>
<tr>
<td>Information Quality—the information accurate and adds to overall performance.</td>
<td>32</td>
<td>29</td>
<td>8</td>
<td>17</td>
<td>14</td>
</tr>
<tr>
<td>Convert Information to Action—information is quickly converted into action in support of operational objectives.</td>
<td>30</td>
<td>23</td>
<td>11</td>
<td>21</td>
<td>15</td>
</tr>
<tr>
<td>Organizational Learning—organizational learning occurs and common operating picture is felt.</td>
<td>28</td>
<td>33</td>
<td>9</td>
<td>17</td>
<td>13</td>
</tr>
</tbody>
</table>

The researcher sought the views of the respondents on organizational elements that contribute to the design of the structure of the port. The findings are presented in table 4.7 below. From
the table we observe that a greater percentage of the employees contacted, 87% agreed that power and control of the activities of the port are concentrated within a central command structure. An equally greater proportion of the respondents, 76% also agreed that division of labor as well as delegation is utilized by management of the port to accomplish their goals, and this implies that management encourages specialization of individual employees.

The table depicts another higher percentage number of respondents, 78% who agreed that the organization practices a formalized system of management in which work is formally defined through written manuals or procedures. There were however some mixed feelings about management’s ability to plan and control situations in advance. Whilst 55% of respondents agreed to that assertion, 35% of the employees contacted disagreed with 10% staying neutral. Meanwhile, quite a substantial number of respondents, 69% also agreed to the assertion that the organization values emergent leadership in which subordinate leaders, individuals or specialized teams are allowed to take the lead to address a particular problem set or challenging aspect of the environment.
Table 4.7 Employees Perception of Organizational Elements That Contribute To the Design of the Structure

Please indicate your perception of the following organizational elements that contribute to the design of the organogram of the port.

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Strongly Agree (%)</th>
<th>Agree (%)</th>
<th>Neither Agree nor Disagree (%)</th>
<th>Disagree (%)</th>
<th>Strongly Disagree (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centralization—The degree to which power and control are concentrated within a central command structure.</td>
<td>48</td>
<td>39</td>
<td>4</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Specialization—The degree to which division of labour is utilized to accomplish goals (including delegation).</td>
<td>39</td>
<td>37</td>
<td>5</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>Formalization—The degree that work is formally defined through written manuals or procedures.</td>
<td>41</td>
<td>37</td>
<td>8</td>
<td>11</td>
<td>3</td>
</tr>
</tbody>
</table>
Planning and Control Systems—
The degree to which planning and control are predetermined specifically or guided by intent and outcome.

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>32</td>
<td>23</td>
<td>10</td>
<td>21</td>
<td>14</td>
</tr>
</tbody>
</table>

Emergent Leadership—The degree to which subordinate leaders, individuals or specialized teams are allowed to take the lead to address a particular problem set or challenging aspect of the environment.

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>39</td>
<td>9</td>
<td>10</td>
<td>12</td>
</tr>
</tbody>
</table>

4.3 General Comments by Employees

A greater proportion of the respondents revealed that the organization engages in job and refresher training and the training methods, plans, lessons, and trainers are selected as the situation demands and that training activities are largely not evaluated. Indeed it was revealed sponsorships for further studies (career development) are minimal and there is no career progression projection, nor training and development projections for individual employees. This led many of the respondents to conclude, they are not being fairly treated in so far as their progression in life is concerned.

Respondents do not feel motivated by the training offered, and indeed many have even never participated in training and development activities. It was also established that the respondents do not feel training has offered them opportunity to identify potentials for further development. Clearly also, an overwhelming majority of respondents do believe training have
had no impact on their performance and further indicted that training indeed had no impact on their job skills. The results also revealed that employees sponsored themselves to acquire new skills, knowledge and abilities through formal education programs. These employees are however not promoted or upgraded because most the time their programs are seen as being unapproved by Management and therefore irrelevant to GPHA’s work.

The general impression from the respondents is that the managers are doing their best under the existing situation but they feel that their best is not enough. There also seem to be a semblance of low morale on the part of some of the employees.

4.4 Data of Management

4.3.1 Demographic Characteristics of Managers

![Figure 4.2 Gender Distributions of Respondents](image)

Figure 4.2 Gender Distributions of Respondents
Figure 4.2 above indicate that 75% of the managers representing a frequency of six managers were males with only two females representing 25% of the respondents.

Table 4.8: Age Distribution of Managers

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-39</td>
<td>4</td>
<td>50.0</td>
</tr>
<tr>
<td>40-49</td>
<td>3</td>
<td>37.5</td>
</tr>
<tr>
<td>50-59</td>
<td>1</td>
<td>12.5</td>
</tr>
</tbody>
</table>

Total 8 100

Source: Field Data; October, 2012

The table above (4.8) depicts that four of the managers representing 50% are within the age frequency of 30-39 years and only one respondent representing 12.5% fell within the age category of 50-59 years.
Figure 4.3: Education Level of Managers

Figure 4.3 above presents findings about the educational background of respondents and the empirical results indicate that all of the managers representing 100% have had a first degree; four of them, representing 50% have had a post graduate education with two of them representing 25% of the managers being professionals.

Table 4.9: Length of Years at GPHA

<table>
<thead>
<tr>
<th>Years</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-20</td>
<td>3</td>
<td>37.5</td>
</tr>
<tr>
<td>21-30</td>
<td>5</td>
<td>62.5</td>
</tr>
<tr>
<td>Total</td>
<td>8</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Field Data; October, 2012
Table 4.9 above presents findings about the length of years managers have worked at GPHA and the empirical results indicate that about 38% of the respondents representing 3 managers of the port have worked between 11-20 years. Meanwhile a greater number of respondents, about 63% of them representing 5 persons have also worked between 21-30 years at the port. This implies that the organization has a blend of experienced and young professionals who require constant refresher training and development to update their skills and perform on the job.

4.5 Comments of Managers from Interviews

All the managers, 100% representing the 8 respondents were unanimous that the growth in traffic through Takoradi Port has been far greater than earlier anticipated, and according to them it is becoming more mandatory for a host of new infrastructural projects to be carried out over the next couple of years to meet the increment in traffic growth. They revealed that because of the discovery of oil and gas offshore of Ghana’s Western Region in recent times and the inadequate facilities at the port, undue delays at the Port have compelled oil service providers supporting operations on the Jubilee Field to redirect their vessels to neighbouring countries. Indeed supply vessels at the port compete with cargo vessels for space and the anchorage of the port is inundated with supply vessels and other vessels trying to enter the port. The deepest part of the port has been allocated for the discharge of bulk cargo and, therefore, other vessels have to wait at the anchorage at a great cost to shippers.

According to the respondents (managers) the Port currently has seven berth spaces – four multipurpose and one each specifically for manganese, bauxite and another has been leased to the lead operators among the Jubilee partners. Draughts range from nine to 10 metres. The
port has a covered storage area of 140,000 square metres, 250,000 square metres of open storage space and container-holding capacity of 5,000 TEUs. The port also runs a fishing harbour at the neighbouring twin city of Sekondi.

The managers unanimously acknowledged the fact that the current berth spaces at the port could not contain the flow of traffic. One of the managers revealed to this researcher that ‘the port authority realises that since the oil find, supply vessels that called at the Takoradi Port had increased without a corresponding increase in the berth space for them’. He opined that a permanent and best solution to the problem would be to expand the port, and he is aware that that had been part of the authority’s agenda for sometime now. He said the port authorities were very much aware of the need for not only more berth space but also deeper berth place to contain the flow of traffic.

4.5.1 Services

The Port offers unmatched customer service and the security network has been further strengthened with the instalment of closed circuit televisions (CCTVs) covering gates, peripheral fences, and all major port facilities. The clearance of goods is also undertaken using the security-friendly computer-based GCNET system. The Takoradi port is ISPS-code compliant at a basic level. With accurate documentation, it is possible to clear goods through the Port within a couple of days. In addition, there is in place an attractive and flexible tariff and as well transit operators are further given additional incentives. Other competitive advantages of the port include efficient cargo handling, good road linkages and trucks.

It was revealed that container traffic at the port over the past years continues to increase, without a corresponding increase in the facilities at the port. Records indicate that container
traffic at the port increased from 47,828 in 2009 to 53,041 in 2010 and 56,595 in 2011. In the case of vessels, traffic at the port increased from 956 in 2009 to 1,798 in 2011.

The port, the study revealed also handled 53,041 TEUs in 2010 up 9% from 47,828 TEUs in 2009. Container imports totalled 24,127 TEUs and exports 28,914 TEUs. Vessel movements jumped 33.6% to 1,277 in 2010 from 956 the previous year. Ship turnaround time in 2010 averaged 2.1 days, down from 3.3 days in 2006. Total cargo traffic rose 19% to 4.01m tons in 2010, up from 3.37m tons in 2009. Imports totalled 1.72m tons and exports 2.29m tons in 2010 up from 1.26m tons and 2.11m tons respectively in 2009.
CHAPTER FIVE
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter of the study summarises what the study sought to do, the results obtained and the conclusions that could be drawn from these results. Policy recommendations based on these results are given together with suggestions for further research.

5.1 Summary

This study sought to assess the impact of organizational structure on port operational efficiency in Ghana with the port of Takoradi as the reference point. To achieve this main objective, descriptive statistics was used to describe the socioeconomic characteristics of the respondents and the results shows that the demographic age profile of the study participants shows that the organization is dominated by youthful population, about 63% representing 63 employees fell within the 30 and 49 years age bracket. The data also shows that the males outnumber the female respondents, 73 males representing about 72% and 28 females representing about 28% of the employees.

With education, the highest frequencies of respondents had HND/Diploma qualification and the least category of respondents was those with post graduate and professional degrees. It was also revealed that a greater number of respondents have worked in the organization for between 10-14 years and it is followed by those within the 5-9 years category.

The findings revealed that slightly more than half of the respondents agreed that management of the port quickly shifts priorities and resources to manage dynamic and evolving issues that
crop up in the day to day administration of the port implying that the agility of the port is not in doubt. A substantial higher number of respondents agreed that management of the port engage in timely reaction to environmental changes to meet its objectives. Further, a greater number of respondents agreed that the managers of the port are flexible and adaptable to changing challenges and opportunities that may arise in the environment.

However, the respondents paradoxically and interestingly did not unanimously agree to the assertion that the managers are innovative, after virtually unanimously agreeing to the flexible and adaptable skills (which are hallmarks of innovation anyway) of the managers. Indeed that paradox might stem from different definitional perspectives of the word innovation by individual respondents, especially so when the researcher failed to give any one objective definition. A very greater number of respondents agreed that the objectives of the operations of the organization are reasonably met. There were however, mixed feelings as to the quality of decisions made by management.

These notwithstanding, there were mixed responses with the speed and alacrity with which managers divulge information across. However, a substantial number of respondents, agreed to the quality and accuracy of information they receive and that contributes to overall performance. Meanwhile, slightly over half of the employees contacted agreed that information is quickly converted into action in support of operational objectives, but quite a number disagreed to that assertion. A higher percentage of the respondents agreed that organizational learning is realized and common operating picture is felt.

The findings revealed that a greater percentage of the employees contacted agreed that power and control of the activities of the port are concentrated within a central command structure. An equally greater proportion of the respondents also agreed that division of labour as well as
delegation is utilized by management of the port to accomplish their goals, and this implies that management encourages specialization of individual employees.

It was revealed that a higher percentage of respondents agreed that the organization practices a formalized system of management in which work is formally defined through written manuals or procedures. There were however some mixed feelings about management's ability to plan and control situations in advance. Meanwhile, quite a substantial number of respondents also agreed to the assertion that the organization values emergent leadership in which subordinate leaders, individuals or specialized teams are allowed to take the lead to address a particular problem set or challenging aspect of the environment. This seems to contradict the revelation by respondents that there is no formalized development (career projections) in the organization. Indeed that could be explained away from the admitted inability of the researcher to contextualize the definition of emergent leadership. For instance, when you look at it from the definitional differentiation of delegation and organizational learning.

A greater proportion of the respondents revealed that the organization engages in job and refresher training and the training methods, plans, lessons, and trainers are selected as the situation demands and that training activities are largely not evaluated. This is an implication that there are no documented planned training activities in the organization. Indeed it was revealed that sponsorships for further studies (career development) are minimal and there is no career progression, nor training and development projections for individual employees. This led many of the respondents to conclude, and rightly so, that training in the organization is unplanned and unsystematic.

The results also revealed that employees sponsored themselves to acquire new skills, knowledge and abilities through formal education programs. These employees are however
not promoted or upgraded because most the time their programs are seen as being unapproved by Management and therefore irrelevant to GPHA’s work. The general impression from the respondents is that the managers are doing their best under the existing situation but they feel that their best is not enough. This implies that the prevailing working conditions of the port must be looked at and as well, management must also work on their effectiveness so as to achieve productivity of the port. There also seem to be some semblance of low morale on the part of some of the employees and this can lead to apathy and disgruntlement on the part of those employees.

All the managers were unanimous that the growth in traffic through Takoradi Port has been far greater than earlier anticipated. It was revealed that there is a mismatch between the prospects of the discovery of oil and gas offshore of Ghana’s Western Region and the facilities at the port. As a result supply vessels at the port compete with cargo vessels for space and the anchorage of the port is inundated with supply vessels and other vessels trying to enter the port. It was also revealed that the managers unanimously acknowledged the fact that the current berth spaces at the port could not contain the flow of traffic.

With accurate documentation, it is possible to clear goods through the Port within a couple of days. In addition, there is in place an attractive and flexible tariff and as well transit operators are further given additional incentives. Other competitive advantages of the port include efficient cargo handling, good road linkages and trucks. It is important to note that cargo handling efficiency alone would not assuage the menace of the congestion at the port. Indeed especially so when empirical evidence revealed that container traffic at the port over the past years continues to increase, without a corresponding increase in the facilities at the port. Respondents revealed that increase in facilities was beyond them but they are managing what
they can control to manage what they don’t have control over. This implies expeditious governmental intervention.

Records indicate that container traffic at the port increased from 47,828 in 2009 to 53,041 in 2010 and 56,595 in 2011. Traffic at the port increased from 956 in 2009 to 1,798 in 2011 for vessels. The port, the study revealed also handled 53,041 TEUs in 2010 up 9% from 47,828 TEUs in 2009. Container imports totalled 24,127 TEUs and exports 28,914 TEUs. Vessel movements jumped 33.6% to 1,277 in 2010 from 956 the previous year. Ship turnaround time in 2010 averaged 2.1 days, down from 3.3 days in 2006. Total cargo traffic rose from 19% to 4.01m tons in 2010, up from 3.37m tons in 2009. Imports totalled 1.72m tons and exports 2.29m tons in 2010 up from 1.26m tons and 2.11m tons respectively in 2009.

5.2 Conclusions

It is evident from the study that really there is an increase in the performance of the port over the years. It has also been established that the structure of the port’s organogram is such that power and control of the activities of the port are concentrated within a central command structure and also the organization practices a formalized system of management in which work is formally defined through written manuals or procedures. Further, division of labour as well as delegation is utilized by management of the port to accomplish their goals. All these are contributory factors of the performance of the port. This is formalized in Johari and Yahya (2009) when they postulated that organizational structure has been reported to affect various organizational outcomes, at different levels. Oram and Baker, (1971) also admonished port managers that turnaround time is one of the factors that should be included when measuring port performance; the other factors are material handling or labour productivity and berth occupancy.
The general impression from the employee respondents is that the managers are doing their best under the existing situation but they feel that their best is not enough. This is an implication for training needs assessment for the effective utilization of management as human resources.

There also seem to be a semblance of low morale on the part of some of the employees, which calls for management’s attention to address to avoid any apathetic and disgruntled behaviour on any minority group. It has also been established from interviews with management that the port utilizes Advanced Manufacturing Technology (AMT) like Computer Aided Design (CAD), Computer Aided Engineering (CAE), Computer Aided Process Planning (CAPP) as well as Just-In-Time (JIT) technologies. The port boasts of attractive and flexible tariff and additional incentive packages for transit operators. It also has a competitive and efficient cargo handling, good road linkages and trucks.

5.3 Recommendations
From the results of the study, it can be concluded that GPHA certainly had a well-established management structure which should be maintained and enhanced to meet contemporary modern management challenges and trends. It has also been established that the port has consistently performed better over the years. However, to perform beyond of what is prescribed in job descriptions requires effective organizational structure and job characteristics. It is suggested that in order to further improve employee job performance, the organization ought to scrutinize the effectiveness of the existing organizational structure and realign job characteristics to the structure so as to encourage employees to perform better than they are currently doing.
It is also imperative to ensure institutional strengthening and capacity building for effective planning; and as well, ensure the formulation of effective management policies for the port. This thus, demands that institutional core competencies and capacities are built for long term duration of the port.

The findings of this research also indicate that GPHA's nature of work depends mainly on high technological and sophisticated equipment. This makes continuous training and development of its human resource crucial and vital, taking into consideration the rapid technological advancement. This means that training programs should be planned within the context of the strategic agenda of the port. It thus implies that training must be organized from time to time for employees to update their knowledge, skills, aptitude and practices as well as their other characteristics to ensure that maximum efficiency exist in the port. Training needs assessment should be consistently carried out periodically to identify employees who need to be trained to meet the dynamic and turbulent competitive nature of current port industry. Employees who realized the need for change in attitude and want to develop themselves through formal education in order to be abreast with modern technological advances should be encouraged and sponsored and those who self-sponsored themselves to acquire these skills must be commended and acknowledged. There is also the need for evaluation on job performance. It is recommended that management ensure that proper performance management training be provided to all staff so that there are no misunderstandings amongst staff that they do not understand what performance management is. This is vital for the system to be understood in this context.

In addition, the gap between management and staff needs to be bridged, so that staff members could alter their attitude towards management. In turn management need to help staff to dispel their negative perceptions and attitude towards them, and to convert the system into a user-friendly system in the way it is managed. It is important that staff need to buy into the
system. It is expected of the management team to drive this process and to help staff to reflect positive attitudes towards the system and management.

Provide Specific information to employees
Information flow should be done effectively with alacrity. Performance appraisal information system which is used yearly at the GPHA to assess employees’ performance should provide specific information to employees about their performance problems and ways they can improve their performance. This assessment should provide a clear understanding of the differences between current and expected performance, identifying the causes of the performance discrepancies and develop action plans to improve performance of employees through training and development programs.

Create more Opportunities for training
Training needs should be considered on the basis of overall company objectives. The goals of the company should determine what training programs are to be organized for staff. Staff should be motivated to add value to themselves and to their lives.

Career Planning and development
Organizational career planning involves matching an individual’s career aspirations with the opportunities available in the organization. Career planning is the sequencing of the specific jobs that are associated with these opportunities. For career management to be successful in GPHA, both the Authority and employees must assume equal share of the responsibility for it. Employees must identify their aspirations and abilities, and through counselling recognize what training and development are required for a particular career information and training to its employees. Development and succession planning will also play a great role. Career progressions projection plans and training and development projections should be made available to each employee.
Develop employees through formal education
The GPHA could develop its employees through formal education which will give employees the opportunity to attend short courses offered by consultants or an executive MBA and university programs which normally involve lectures by experts, business games and simulations, adventure learning and meetings with customers.

Enrich job experience
Most employee development occurs through job experiences. Development is most likely to occur when there is a mismatch between the employee’s skills and past experiences, and the skills required for the job. To be successful in their job, employees in GPHA must stretch their skills. There are several ways that job experiences can be used for employee development in GPHA and these include the enlargement of current job, job rotation, transfers and promotion to positions with greater challenge.

Improve interpersonal relationships
An interpersonal relationship is another way for employees to develop skills, increase knowledge about the organization and its clients by interacting with a more experienced member. Interpersonal relationships can develop as part of a planned effort to bring together successful senior employees of the GPHA together with less experienced ones.

Motivation and Morale
Motivation generally seeks to boost employees’ morale to work hard and thus increase productivity. It is against this fact that the researcher wishes to recommend that in instituting proper training and development programs, GPHA should initiate a policy for motivation attached to training. Motivation include both extrinsic, such as more pay, allowance, fringe benefits, and intrinsic such as recognition, appreciation, acceptance by fellow workers, opportunities for promotion, career development and consultation for important matters.
Morale on the other hand increases productivity indirectly by reducing absenteeism, accidents, employee turnover and grievances. This means that the workforce can never develop in an organization where there is low morale and lack of motivation because motivation and morale leads to job satisfaction, which in turn leads to development.

The researcher believes that an Individual Development Programme needs to be implemented that should be linked with the Skills Development Plan. This will help to identify the needed training and development for all staff. Management should institute a development plan and help grow individuals. It is furthermore recommended that management budget more for staff development, because the majority of staff are in need to be developed. It is ultimately the responsibility of management to develop the staff for which they are responsible. Management should be seriously considering setting up a succession plan for the port's R&D. The study reveals that there is no succession planning in place and since there are management members close to retirement age, they need to be succeeded in a few years. The implementation of such a plan would help with the continuity of business and the transfer of skills to the possible ideal successors.

The complexity with regard to negative attitudes because of respondents' views about management not being transparent and that they are biased in terms of the system it is clear that specialists in the field of performance management systems need to be approached to help the management and staff to implement those recommendations discussed earlier. The researcher believes that it is important to implement this recommendation for the benefit of all at the company.

Another recommendation is that a special budget needs to be set up for rewards and recognition. Since it is important for staff to deliver at a level above than what is expected of them, this budget will be a help in instituting a rewards and recognition system. An annual
audit needs to be implemented to make sure the system is fair and unbiased and that it is managed ethically. The audit will help management to use the correct tools when managing the system.

The GPHA and other stakeholders of the port must also be encouraged to invest in modern equipments and logistics in order to attract the expected volume of cargoes. This, they can do by engaging in Public Private Partnership (PPP) agreement or by leasing out the deal to interested and credible investors. The port development agenda for the Port of Takoradi should cover major port infrastructure and superstructure development/expansion aimed at eliminating the inherent inefficiencies currently being experienced, such as draft limitations, double handling of bulk cargoes, narrow quay aprons, etc. and also to meet the emerging oil and gas cluster. The Project should include the extension of the main breakwater, new quay walls, construction of a jetty and platform for conveyor systems (dry bulk) and pipe corridors for petroleum products, oil berthing facility and substantial dredging and reclamation. In later phases, the main container terminals and more oil services bases should be developed.

Suggestions for Future Studies

The study was not exhaustive due to limitations of time and other logistic resources. It was also basically descriptive with tables, charts and graphs without any cross tabulation or quantitative analysis to statistically infer from primary information. It is therefore recommended to perform additional research which should ensure the following:

- That robust statistical analysis is made so as to make certain inferences of significance. For instance, the statistical significant relationship between reporting relationship and performance.
• That the study increases the percentage of face-to-face interactions with actors within the port industry in order to ensure that a fair judgement is made of the quality of primary data.

• That the study looks at the various specific variables that contribute to the performance of a port.

Further studies should be done on the impact of motivation on port performance.
REFRENCES


Modelling the port as an operational system. Economic Geography 52, 71-86.


APPENDIX

QUESTIONNAIRE
SECTION A
BASIC DEMOGRAPHIC DATA (PLEASE TICK WHERE APPROPRIATE)
(FOR MANAGERS)

1. How old are you? (Years)
   a) 18 - 25 ( ) b) 26 - 35 ( ) c) 36 - 45 ( ) d) 46 - 55 ( ) e) 56 - 59 ( )

2. Gender;
   a) Male ( ) b) Female ( )

3. Educational Background
   a) Higher National Diploma ( ) b) First Degree ( ) c) Masters Degree ( ) d) PhD ( ) e) Other (please specify)

4. What is your position in GPHA?

5. How long have you been working with GPHA?
   a) <1 year ( ) b) 1 – 10 years ( ) c) 11 – 20 years ( ) d) 21 – 30 years ( ) e) >31 years ( )

SECTION B

This section seeks information on environmental and technological changes in your business unit (department) over the past five years (2007-2012 inclusive).

1. Please indicate the extent to which you believe the competitive environment of your business unit has changed over the past 5 years.

   Please choose your response on a scale of 1-5, or N/A if the items are not applicable in your business unit. (Please note: 1= Less Significant and 5= More Significant)
Competitive Environment:

1 2 3 4 5 N/A

a) Price competition
b) Competition for new product development
c) Marketing/distribution channels competition
d) Competition for markets/revenue share
e) Competitors' action
f) Number of competitors in your market segments

2. Please indicate the extent to which the use of particular advanced technologies has changed in your business unit over the past 5 years.

Advanced Manufacturing Technology (AMT):

1 2 3 4 5 N/A

a) Robotics
b) Flexible manufacturing system (FMS)
c) Computer aided manufacturing (CAM)
d) Computer aided design (CAD)
e) Computer aided engineering (CAE)
f) Computer aided process planning (CAPP)
g) Testing machines
h) Just-in-time (JIT)
i) Direct numerical control

This section seeks information on organizational changes in your company over the past five years.
3. Please indicate the extent to which the use of a range of organizational design practices below has changed over the past 5 years.

Organizational Design Practices:

1 2 3 4 5 N/A

a) Multi-skilling of workforce
b) Worker training
c) Cross-functional teams
d) Establishing participative culture
e) Management training
f) Flattening of formal organizational structures
g) Work-based teams
h) Employee empowerment
i) Manufacturing cells

4. Please indicate the extent to which your business unit has changed its strategic emphasis for the following differentiation aspects, during the past 5 years.

Organizational Strategy:

1 2 3 4 5 N/A

a) Provide on time delivery
b) Make dependable delivery promises
c) Provide effective after sales service & support
d) Customize services to customer need

5. This section seeks information on changes in your company’s performance over the past five years.
Organizational Performance:

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<tr>
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<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>N/A</th>
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</thead>
<tbody>
<tr>
<td>a) Operating income</td>
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<tr>
<td>b) Sales growth</td>
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<tr>
<td>c) Return on investment</td>
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<tr>
<td>d) Cash flow from operations</td>
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<td>e) Market share</td>
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<td>f) Market development</td>
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<td>g) New product development</td>
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<tr>
<td>h) Research and development (R&amp;D)</td>
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<tr>
<td>i) Cost reduction programs/cost control</td>
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<tr>
<td>j) Personnel development</td>
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<td></td>
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<tr>
<td>k) Workplace relations</td>
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<tr>
<td>l) Employee health and safety</td>
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</tbody>
</table>

6. Please indicate the extent to which the following performance indicators are important to your business unit.

Organizational Performance:

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<th>3</th>
<th>4</th>
<th>5</th>
<th>N/A</th>
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</thead>
<tbody>
<tr>
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<td>b) Sales growth</td>
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<td>c) Return on investment</td>
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<td>d) Cash flow from operations</td>
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<td>f) Market development</td>
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<td>g) New product development</td>
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<tr>
<td>h) Research and development (R&amp;D)</td>
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</tr>
</tbody>
</table>
i) Cost reduction programmes/ cost control
j) Personnel development
k) Workplace relations
l) Employee health and safety

7. Workforce Placement Structure
The way the port places its human resources:

<table>
<thead>
<tr>
<th>Year</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Port Operations</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>2</td>
<td>Marine Operations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>No. of Employees</td>
<td></td>
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</table>

8. Total Throughput and Workforce Productivity:

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<thead>
<tr>
<th>Year</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ship calls</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>2</td>
<td>TEUs</td>
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<tr>
<td>3</td>
<td>Ton</td>
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</tr>
</tbody>
</table>

9. Workforce Productivity on Total Throughput

<table>
<thead>
<tr>
<th>Year</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Number of employees</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Production (TEUs)</td>
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<tr>
<td>3</td>
<td>Production/HR</td>
<td></td>
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</tbody>
</table>

10. Direct Workforce

<table>
<thead>
<tr>
<th>Year</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Boxes/Gang/Hr</td>
<td></td>
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<tr>
<td></td>
<td>Gangs/ship/shift</td>
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</tbody>
</table>
11. Time in Port (in hours)

<table>
<thead>
<tr>
<th>Year</th>
<th>Waiting Time (WT)</th>
<th>Service Time (ST)</th>
<th>Turn Round Time</th>
<th>Waiting Time/Service Time (WT/ST)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td></td>
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<tr>
<td>2008</td>
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<td>2011</td>
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<tr>
<td>2012</td>
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</tbody>
</table>

12. Facilities Utilization: Berth occupancy ratio (BOR) and Yard occupancy ratio (YOR)

<table>
<thead>
<tr>
<th>Year</th>
<th>BOR</th>
<th>YOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
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<td>2011</td>
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<tr>
<td>2012</td>
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</tbody>
</table>

If you have any comments or suggestion on the questionnaire, please provide it on the space below:

**COMMENTS/SUGGESTIONS:**

1) 
2) 
3) 
4) 
5) 

End of questionnaire; thank you very much for your precious time.
QUESTIONNAIRE
SECTION A

BASIC DEMOGRAPHIC DATA (PLEASE TICK WHERE APPROPRIATE)

(EMPLOYEES)

1. How old are you? (Years)
   a) 18 - 25 ( ) b) 26 - 35 ( ) c) 36 - 45 ( ) d) 46 - 55 ( ) e) 56 - 59 ( )

2. Gender;
   a) Male ( ) b) Female ( )

3. Educational Background
   a) Senior High School ( ) b) Ordinary Level ( ) c) Advance Level ( ) d) Higher National Diploma ( ) e) Others ( ) (please specify)

4. What is your position in GPHA?
   a) Machine Operator ( ) b) Accounts Clerk ( ) c) Secretary ( ) d) Driver ( )
   ( ) e) Office Clerk ( ) f) Computer Operator ( ) g) Junior Engineer ( ) h) Tally Clerk ( )

5. How long have you been working with GPHA?
   a) <1 year ( ) b) 1 - 10 years ( ) c) 11 - 20 years ( ) d) 21 - 30 years ( ) e) >31 years ( )
6. EMPLOYEES' RATINGS ON THE PORT'S ATTRIBUTES

Please indicate your ratings for the following attributes of the Takoradi Port (1) Strongly Agree, (2) Agree, (3) Neither Agree or Disagree (4) Disagree, (5) Strongly Disagree

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Strongly Agree (%)</th>
<th>Agree (%)</th>
<th>Neither Agree nor Disagree (%)</th>
<th>Disagree (%)</th>
<th>Strongly Disagree (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agility: The organization quickly shifts priorities and resources to manage dynamic and evolving environments.</td>
<td></td>
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<tr>
<td>Responsiveness: The organization responds to and exploits emerging and unexpected opportunities to meet its objectives. Responsiveness implies a timely reaction to environmental change.</td>
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<tr>
<td>Flexibility: The organization can and does change strategies, tactics and even team composition to adjust to changing domains.</td>
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<tr>
<td>Adaptability: The organization modifies tactics to meet rapidly changing demands and challenges.</td>
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<tr>
<td>Innovation: The organization uses novel techniques, technologies and resources to meet objectives, which implies either something new or something old, but achieved in some new way</td>
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</tbody>
</table>
### Employees' Perception of the Port’s Effectiveness

Please indicate your perception of the organization’s effectiveness using the following criteria:

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Strongly Agree (%)</th>
<th>Agree (%)</th>
<th>Neither Agree nor Disagree (%)</th>
<th>Disagree (%)</th>
<th>Strongly Disagree (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mission Objectives</strong>— the objectives of the operations are reasonably met.</td>
<td></td>
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<tr>
<td><strong>Decision Quality</strong>— the decisions of leadership lead to positive outcomes.</td>
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<tr>
<td><strong>Information Speed</strong>— the speed of information flow meets the demands of the dynamic and complex environment.</td>
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<tr>
<td><strong>Information Quality</strong>— the information accurate and adds to overall performance.</td>
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<tr>
<td><strong>Convert Information to Action</strong>— information is quickly converted into action in support of operational objectives.</td>
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<tr>
<td><strong>Organizational Learning</strong>— organizational learning occurs and common operating picture is felt.</td>
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</tbody>
</table>
8. Employees Perception of Organizational Elements That Contribute To the Design of the Structure

Please indicate the importance you attach to the following organizational elements that contribute to the design of the organogram of the port.

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Very Important (%)</th>
<th>Important (%)</th>
<th>Undecided (%)</th>
<th>Unimportant (%)</th>
<th>Very Unimportant (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centralization—The degree to which power and control are concentrated within a central command structure.</td>
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<td>Specialization—The degree to which division of labour is utilized to accomplish goals (including delegation).</td>
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<tr>
<td>Formalization—The degree that work is formally defined through written manuals or procedures.</td>
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<tr>
<td>Planning and Control Systems—The degree to which planning and control are predetermined specifically or guided by intent and outcome.</td>
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<tr>
<td>Emergent Leadership—The degree to which subordinate leaders, individuals or specialized teams are allowed to take the lead to address a particular problem set or challenging aspect of the environment.</td>
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<tr>
<td>Use of Liaison Devices—People or processes that create lateral linkage for horizontal interaction and communication.</td>
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</tbody>
</table>
SHIP TURN AROUND TIME FROM 1996 TO 2011 - TAKORADI PORT

YEAR


COMMERCIAL OFFSHORE TOTAL VESSELS
SHIP TURN AROUND TIME FROM 1996 TO 2011 - TAKORADI PORT

YEAR

AVG

DAYS


1.7
1.6
1.6
1.5
1.5
1.6
2.1
2.6
2.9
2.9
3.3
2.8
2.05
1.8
**VESSEL TRAFFIC FROM 1996 TO 2011 - TAKORADI PORT**

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<tbody>
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<td>406</td>
<td>454</td>
<td>484</td>
<td>512</td>
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<td>483</td>
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<td>527</td>
<td>486</td>
<td>481</td>
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<td>484</td>
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<td>594</td>
<td>615</td>
<td>956</td>
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**SHIP TURN AROUND TIME (AVERAGE DAYS) FROM 1996 TO 2011 - TAKORADI PORT**

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<tr>
<td>TOTAL VESSELS</td>
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</tbody>
</table>

**VESSEL TRAFFIC FROM 1996 TO 2011 - TAKORADI PORT**

- **Units**
  - Year 1996: 406
  - Year 1997: 454
  - Year 1998: 484
  - Year 1999: 512
  - Year 2000: 485
  - Year 2001: 493
  - Year 2002: 463
  - Year 2003: 494
  - Year 2004: 544
  - Year 2005: 699
  - Year 2006: 610
  - Year 2007: 594
  - Year 2008: 615
  - Year 2009: 956
  - Year 2010: 1,277
  - Year 2011: 1,798

- **Year**
  - 1996
  - 1997
  - 1998
  - 1999
  - 2000
  - 2001
  - 2002
  - 2003
  - 2004
  - 2005
  - 2006
  - 2007
  - 2008
  - 2009
  - 2010
  - 2011

105