

# Analysis of the different terminal productivity measures management essay

[Business](#), [Management](#)



## CHAPTER 4

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### 4. 0 Introduction

This chapter deals with the analysis and discussions of findings in order to have an insight view on the factors that affect productivity and port performance at the MCT. It represents data collected from 100 respondents which are terminal employees and responses from management unit.

### 4. 1 SECTION A: Analysis of the different terminal productivity measures

4. 1. 1 (EMPLOYEES) Figure 4. 1. 1 Figure 4. 1. 1 shows that 38 % of the respondents totally understand the concept of productivity while 68% are aware how it is achieved. They understand that as per (Bjorkman, 1991), productivity is achieved through the effective use of material, human resource, capital and technology. 4. 1. 2 Figure 4. 1. 2 Figure 4. 1. 2 shows the response rate of terminal employees about the way productivity is being measured. 44 % are satisfied with the actual calculation while 56 % of respondents are not satisfied. Most of them disagree on the fact that delays such as heavy rainfall, breakdown of STS cranes, RTGs, reach stackers and other handling equipment are not deducted from effective working hours while calculating overall productivity. Furthermore, some respondent believe that it should be calculated on a progressive scale whereby every additional increase above 20 TEU must be considered while some insist that the rate of productivity must be a fixed basis rate instead of calculation it upon salary basis scheme. The respondents also noted that some section of the

operation process such as yard and gate are excluded. 4. 1. 3Figure 4. 1. 3It is essential to know how employees perceive these factors other than crane in calculating productivity. (Beskovnic, 2008) stated that these 5 five factors are instrumental in brining efficiency. As expected 70 % consider crane as the most important factor since the principal task in the operation chain is the number of containers loaded/unloaded. 71% agree that berth must be included in the productivity measurement since factors such as number of cranes allocated is important. 34% consider the yard factor as a very important tool in calculating productivity while 29% consider gate as the least important factor in productivity achievement. 38% consider gang (different labour unit) as important in productivity measurement. According to majority of the respondents, the level of productivity is satisfactory but there is still room for improvement. First of all, some argue that the company's resources are not properly utilised thus leading to constant decline in the level of productivity at important point of time. Employees perceive that they normally meet the target of average 20 TEU in a shift but if 25 TEUS is achieved, productivity bonus should be paid accordingly thus encouraging them for further improvement. Some respondents noticed that there is fluctuation in the level of productivity due to vessel's variation and structure and also due to minimal participation of management team in operation process. 4. 1. 4Figure 4. 1. 4According to figure 4. 1. 4, only 4% of respondents disagree on berth being an important factor in productivity measurement. Most of respondents strongly agree on crane having the biggest impact on productivity rate (82%) while 51% strongly agree that yard which comprises layout, planning of containers, housekeeping and so

on are essential in the operation process and productivity measurement. The gate or reception work unit does not have a big impact in the operation process according to 25% of the respondents. 49% agrees that labour turnover is important in calculating productivity since each category of employees has their role to play in the operation chain which is in line with Bešković (2008) who says that all different operators skills has an impact on productivity.

## **4. 2 SECTION B: Performance Evaluation at MCT**

4. 2. 1Figure 4. 2. 1Findings from the survey shows that 54% of respondents agree on the fact that the ratio of containers loaded against unloaded ones affect the level of productivity. If the volume of containers discharged is higher, it requires more space in the yard to stack these containers. As the stacking yard is limited at the MCT, containers have to be transferred to the other terminal and this causes delays in operation process when these containers have to be loaded. As shown in figure 4. 2. 1, 66% agree on unproductive moves such as shifting of containers upon vessels to facilitate smooth flow of work while 52 % strongly agree that STS cranes need to have the right position and supervised on a regular basis to avoid clashes with neighbouring cranes. Moreover, 52% agree that the handling of special containers such as reefers, out of gauge, liquid and hazardous cargos need to be placed in specific areas for safety reasons. Consequently, this reduces the operation flow. 47 % agree on decline of productivity level due to handling of overheight cargos while 28% strongly disagree as they consider it as part of the operation process. 32 % of respondents agree and 23 %

strongly agree that the supervisors or ship planners have the ability to optimize the gantry crane working sequence. However, there are 50 % of respondents who disagree that the stacking of containers is done properly while 46 % agree. 34% of respondents are neutral in their decision about the quick availability of loading containers while 36% agree. According to (Fourgeaud, 2000), container terminal performances depend mainly on these above factors mentioned. However respondent's opinion varies due to different job positions. 4. 2. 2Figure 4. 2. 2According to figure 4. 2. 2, 14% thinks that MCT has the necessary equipment to handle all kind of vessels, be it STS cranes, RTGS, or even modern trailers. However, 86% says MCT need to acquire new STS cranes to be able to manage bigger vessels. Most of the respondents strongly believe that the overall performance of the operation process is at its best when everyone shows their level of consideration. If everyone performs as expected, the productivity level should improve. There is continous mismanagement that leads to poor performance in some key operation area. Some respondents suggest the port should be well equipped with latest technology, modern equipment, effective maintenance team, competent logistic personnel to keep pace with the modern world of business. 77 % agrees on the lack of control in container handling within the terminal and from ship-to-shore operations.

### **4. 3 SECTION C: DETERMINANTS OF PRODUCTIVITY**

4. 3. 1Figure 4. 3. 1Figure 4. 3. 1 represents the percentage of respondents who is connected with the information tools that are used at the MCT. 78% are not satisfied with communication tools and container terminal operating

system. 4. 3. 2Figure 4. 3. 2As depicted in figure 4. 3. 2, 37% agree that the IT system provides accurate and accessible information to different stakeholders at the MCT while 53% agrees that the IT tools help in monitoring faster unloading and loading of containers. It should be noted that for nearly all the variables in figure 4. 3. 2, respondents were highly neutral about their decision. This may be because they agreed that the current system is a reliable one, however, they feel that these IT tools should be accessible to everyone during the operation process so that information could be available quickly and used efficiently to avoid disruption in the smooth loading process. 4. 3. 3Figure 4. 3. 3As depicted in figure 4. 3. 3, 36% of respondents agree that repair of equipment is done after failure and stoppage while 35 % disagree. 29% are ignorant whether it is being done or not. (Stevenson, 2009) mentions that it is important to make repairs when equipment break down, so that the system can perform as planned. As per (Pramod et al, 2006), there should proper maintenance strategies to preserve facilities and equipment in good conditions. 54% disagree on the fact that daily maintenance scheduling is assigned to the maintenance team while 53% disagree that there is an effective management of a work order system. As per Levitt (2009), preventive maintenance is done to preserve facilities by replacing worn components before they fail and is vital for higher productivity achievement. 78 % of respondents strongly disagree that there is constant preventive maintenance done for the terminal equipment. 4. 3. 4Figure 4. 3. 4According to figure 4. 3. 4, 85% of respondents agree that new handling equipment is required to boost up the operation process and manage both the emergence of bigger vessels and growing container

traffics. Equipment in all layouts of operation from crane to yard section is required. New RTGS, modern STS cranes, trailers, mafis are needed to supplement the operation process. There should be twin spreaders on every STS cranes inorder to accelerate the loading Or unloading process. New range of Reach stackers is needed. (see appendix B)

#### **4. 4 SECTION D: HRM FACTORS THAT AFFECT PRODUCTIVITY**

Figure 4. 4According to figure 4. 4, 62% strongly agrees that they are stressed and tired due to the accumulation of the work shifts specially the night shift. 71 % of respondents disagree on the fact that they are appraised if they have performed excellently. 62% disagree on the effective communication during the operation process. 67 % disagree that there is management commitment in boosting the performance of employees while 57 % disagree that there is a good working condition. According to (Wells, 2000) workplace satisfaction has lead to job satisfaction. Moreover, 58% agree that they feel comfortable working in their respective teams. 58% of respondents disagree on additional incentives provided by the company. 45 % disagree that they are motivated to work hard while 43% agree to work hard. It is due to the financial gap that exists between employees. 80 % agrees to work for higher productivity due to the monthly productivity bonus awarded.

#### **4. 5 SECTION E: DEMOGRAPHIC PROFILE**

4. 5. 1Figure 4. 5. 1Figure 4. 5. 1 represents the percentage of respondents by their range of age. The majority of respondents are between 20-29 years

old. This shows that MCT has a dynamic and young workforce. 4. 5. 2Figure 4. 5. 2 shows that the majority of the respondents were terminal assistants, that is, 61% who have a greater contribution in the loading and unloading process. 4. 5. 3Figure 4. 5. 3 shows that most of the respondents have at least 5-10 years experience in the operation field.

#### **4. 6 SECTION A: Analysis of different terminal Productivity Measures (Managers)**

4. 6. 1 Different Productivity measuresFigure 4. 6. 1According to figure 4. 6. 1, Managers strongly agree (66%) that the most important measure of productivity is the STS cranes. The volume of containers loaded or unloaded is determined by the operator's skills while all respondents are neutral on yard being a productivity measure. 62% disagree that gate and gang are essential factors in determining productivity. However, as (Beskovnic, 2008) mentions that all 5 factors have an immense contribution in the achievement of productivity; the MCT management disagree on gate and gang being essential factor in the operation process. Therefore, they are excluded from measuring productivity. 4. 6. 2 Factors Impacting on Productivity RateFigure 4. 6. 2The figure 4. 6. 2 shows that all respondents agree on crane (100%) being the most obvious factor to affect the level of productivity. 66. 7% of the respondents are neutral to decide if labour affect productivity. The same percentage is neutral for yard being effective on productivity. However, 66. 7% strongly disagree that Gate has any effect on productivity.



## 4. 7 SECTION B: Performance Evaluation at the MCT

4. 7. 1 Factors affecting operation process Figure 4. 7. 1 Figure 4. 7. 1 shows the performance evaluation at MCT. 66. 7% of the respondents are neutral to decide whether the ratio of containers loaded and unloaded has any effect on operation process. While the remainder, that is, 33. 3% agree that it affects operation process. 100% disagree that unproductive moves affect operation process, in the sense that this form part of the loading and unloading process and provision should be made by terminal supervisors to anticipate the preparation of these port conveniences. 100% of the respondents agreed that rightly positioned cranes avoid clashes with neighboring cranes affect productivity in the sense that is slows flow of work.

4. 7. 2 MCT has latest equipment to handle all kind of vessels? Figure 4. 7. 2 According to the managers, MCT has the necessary equipment to handle all kind of vessels. 67% agrees that the STS cranes and yard equipment are efficient in the handling of containers. But when compared to the equipment shown in appendix B, MCT's machinery is old and need to be refurbished.

## 4. 8 SECTION C: Productivity Determinants

4. 8. 1 Figure 4. 8. 1 According to figure 4. 8. 1, all respondents are satisfied with the IT tools used at the MCT. This shows a different view when compared to employees statistics as 78% of them were not satisfied. 4. 8.

2 Figure 4. 8. 2 Figure 4. 8. 2 shows different technologies available in international port. 66. 7% of the respondents are aware of them while 33. 3% are unaware. According to one of the respondent, the barcode scanner which is capable of scanning and providing quick information to the terminal

personnel was already in use when containers are unloaded. 4. 8. 3Figure 4. 8. 3Figure 4. 8. 3 shows management's perception on the above mention technologies contribution to productivity. 66. 7% of the respondents agreed that VRT and barcode scanner can contribute to improve productivity while 100% are neutral to decide if microwave technology can contribute to productivity if implemented at MCT. According to world cargo news (1997), few international ports have taken maximum benefits of existing devices to improve operational efficiency, increase productivity, reduce port congestion and secure a fully integrated system. The MCT's management must consider that these tools are important and need to be implemented in the operation process.

#### **4. 9**

Figure 4. 9Figure 4. 9 shows actual maintenance strategies adopted at MCT. As it can be seen that all respondents agreed on the fact that repair of equipment is done after failure and stoppage. However when compared to the opinions of employees, 36 % agree that it is done effectively while 35 % disagree on it. All respondents agree that daily maintenance scheduling assigned to individuals while 54% of employee's respondents disagree. 100% of respondents agree that there is an effective management of work order system and there is a regular maintenance to keep equipment in good condition.

## 4. 10

Figure 4. 10 Both managers and employees agreed on the fact that new equipment are required to boost up the operation process. According to the respondents, 6 new Reach stackers, 3 RTGS, 3 STS cranes will be needed.

## SECTION D: HRM FACTORS

4. 11 Figure 4. 11 Management is neutral (100%) to decide whether management support, appropriate pay strategies and motivating the working contribute to productivity. (Ali, 2003) mentions that the main concerns of managers is to have a highly motivated workforce in order to be more productive. The MCT's management is only concerned with a target of 20 TEU p/hr on an average basis but at the time does not consider how to motivate its workforce. However they agree completely that extensive training program will boost up productivity. Views are shared by managers (33. 3%) that employees' commitment contributes to productivity. Tubbs and Hain (1979) mentions that communication and productivity provide consistent and strong support while being taken together for the assumption that management communication behaviors do have a significant part detracting from or contributing to total organizational effectiveness." 62 % of the respondents agree that there is effective communication between different operations areas while 61 % of employees respondents disagree on this.

## SECTION E: DEMOGRAPHIC PROFILE

4. 12 Figure 4. 12 Figure shows that 66. 7% of management age group is 40-49 age while 33. 3% are of 50-59 age. 4. 13 Figure 4. 13 the post of

respondents is shared as the management department comprise of 6 members where each one occupied a single post. 4. 14Figure 4. 14The data above shows that the management of MCT is highly experienced being 66. 7% who has above 15 years. 16. 7% has 10-15 years and 5-10 years respectively.

## 4. 15 HYPOTHESIS TESTING

The hypothesis tests were developed to find out if a positive or negative or null relationship exists between questions 13(c) (i) in section D and question 5(v) in section A in the questionnaire and between 13(b) and question 5(v) in section A as well. Pearson Correlation was used for this analysis. Note that a value of Pearson Correlation more than 0. 5 would show a strong positive relationship while below 0. 5 will show a weak relationship.

### HYPOTHESIS 1

This hypothesis analyse the relationship between motivation and productivity. The null and alternative hypotheses were presented as follows: H0: There is a negative relationship between motivation and productivity at XYZ LTD. H1: There is a positive relationship between motivation and productivity at XYZ LTD. To find out whether or not there is a relationship between them, a Pearson Correlation was done and the result is as follows:

### Correlations

LabourMotivation to work hardLabourPearson Correlation1. 635\*\*Sig. (2-tailed). 000N100100Motivation to work hardPearson Correlation. 635\*\*1Sig. (2-tailed). 000N100100\*\*. Correlation is significant at the 0. 01 level (2-

tailed). Referring to table , the value of the Pearson Correlation is 0. 635 which means that the relationship between the two variables is strongly correlated. Therefore, the null hypothesis was rejected and the alternative one was accepted. Therefore, it might be deducted that that the more MCT motivates its employees, the more they will be productive.

## **HYPOTHESIS 2**

This hypothesis analyses the relationship between on the job training and productivity. The null and alternative hypotheses were presented as follows:

H0: There is a negative relationship between on the job training and productivity at MCT. H2: There is a positive relationship between on the job training and productivity at MCT. To find out whether or not there is a relationship between them, a Pearson Correlation was done and the result is as follows:]

## **Correlations**

On the Job trainingLabourOn the Job trainingPearson Correlation1. 607\*\*Sig. (2-tailed). 000N100100LabourPearson Correlation. 607\*\*1Sig. (2-tailed). 000N100100\*\*. Correlation is significant at the 0. 01level (2-tailed). Referring to table , the value of the Pearson Correlation is 0. 607 which means that the relationship between the two variables is strongly correlated. Therefore, the null hypothesis was rejected and the alternative one was accepted. Therefore, it might be deducted that that the more MCT provides on the job training to its employees when required, the more they will be productive.