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Evaluating the Effect of Lead Time on Quality Service Delivery in the Banking Industry in Kumasi Metropolis of Ghana

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ABSTRACT

Customers are becoming more attracted to quality service delivery and are being impatient and unsatisfied when they had to be delayed or wait for longer times before they are served. Hence, Quality Service Delivery is of utmost importance to every service organisation especially financial industry. Most financial institutions focus attention on product innovation at the expense of lead time management which is a major factor in ensuring service quality and customer satisfaction. Consequently, this research looks at evaluating the effect of lead time on quality service delivery in the Banking Industry in Kumasi Metropolis of Ghana. The study relied on Primary data collected through questionnaires, observation and interview instruments, administered to staff and customers of some selected branches of a commercial bank in the study area. The data was analysed qualitatively. The researchers realised that despite the immense importance of lead time on quality service delivery, little attention is given to the concept. It was revealed that, customers were dissatisfied with the commercial bank's services as a result of the unnecessary delays and queuing at the bank premises. The long lead time was found to be attributable to plant/system failure, skill gap on the part of employees, ATM underutilization and frequent breakdowns, among others. This has consequently resulted into long lead time, waiting, queuing and unnecessary delay at the banking hall. It is recommended that Tellers should be provided with electronic card readers for verification of customer's data and processing to be faster.

Keywords: Kumasi metropolis, lead time, Ghana, quality service, service delivery.

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1.0 Introduction

Time is a fundamental unit of measurement in life. It measures an event or process in seconds, minutes, hours, days, weeks, months or years. Time is therefore a basic and a key measurement of efficiency in almost every organization. The understanding of time by mankind makes it a common unit of measurement and a key performance indicator in all spheres of life. The above attributes of time is believed to be behind [Harrison and Van Hoek \(2008\)](#) suggestion of time as a key performance indicator in an organization before cost and quality. This consequently signifies the significant of lead time or the total order cycle time in organizations nowadays. Total order cycle time often known as order to delivery cycle time has been explained by various authors to mean the time existed from when a customer order is received until the delivery of such customer order ([Christopher 2010](#); [Gunasekaran et al, 2004](#)). The customer order in question can be a service or finished goods or raw material or works.

[Cotteleer & Bendoly \(2006\)](#) define lead-time as simply the time between order placement and receipt of the shipment, while [Heikkilä \(2002\)](#) gives more detail explanation of lead-time to contain the time involve in customer order preparation by the customer, sending/ order communication or placement, order receipt by supplier or provider, order preparation by supplier or provider, shipment, Customer receipt and verification of the receipt as against the placement. In relating Walters definition to the commercial bank, lead time can be said to consists of the time a customer prepares and place a request for a service at the bank, the time spent by the officer of the bank in working on the request, the checks and balances time spent by both the officer and the customer, and the time spent on any other activity to get the customer request delivered. The request at the bank could be account opening, cheque or cash withdrawal, application for loan, balance enquiry, among others.

Although various authors paid little attention to lead time reduction in just- in- time (JIT) and lean literature ([Chandler, 2007](#); [Holweg, 2007](#); [Lampinen, 2013](#); [Schonberger, 2008](#)), consciousness of lead time reduction was initially enthused by JIT production and lean thinking. These two concepts place emphasis on waste elimination which have a consequential effect on time and non-value adding activity elimination or reduction. Non-value added activities (NVA) are referred to as “waste” in JIT ([Blackburn, 1991](#)). According to [Harrison and Van Hoek, \(2008\)](#) the best definition for competing on time is “the timely responsiveness to customer needs”. The emphasis is on ‘timely’. This means responding to customers’ needs (quality, variety and price) on time.

The suggestion is that organizations that are into commercial banking must concentrate on speed (responsiveness) whilst paying close attention to its consequential effects as the basis of competitive advantage. This is so because organizations’ innovation, variety and price without responsiveness may not necessarily satisfy customers as many services are time dependent.

In the banking sector, a typical customer service may include how long it takes to process cash and cheque payments, process a customer loan request (overdraft, fixed term loan, revolving term loan, etc.), account opening, and dealing with customer queries, estimates and complaints.

Some authors have placed emphases on quality service and price as a means of gaining competitive advantage ([Bharadwaj, et al, 1993](#); [Clow & Vorhies, 1993](#); [Woodruff, 1997](#)). However, as competition has become more global and more intense, many organizations together with service organizations and commercial banks have realized that they cannot compete on price and quality alone but time as well. Consequently, some of these organizations have developed strategies based on time to differentiate their product and service offerings from that of their competitors.

[Hoek \(2011\)](#) indicated that when a company sincerely manages time with continued improvement in service or product quality motive, the principal advantage is mostly shorter cycle time’s reduction and faster inventory or service times. Lower overhead cost usually follows, as the cost of dealing with

breakdown and delays begins to go down. The consequential effect of lead time management can be rewarding in a form of time reduction, cost reduction and product or service quality.

Despite the growing merits of management of lead time in achieving service and product quality in manufacturing and make-to-stock organization, very little studies have been made to evaluate the concept among the financial institutions. The ignorance and less-attention of the concept of lead time management have resulted in excessive waiting and queuing times, unnecessary motion, bureaucratic processes, which have eventually led to customer dissatisfaction and poor quality services in the service industry. It has become clear that most financial institutions place more emphasis on product innovation and quality of service while little attention is given to lead time management which is rather means to service quality.

Consequently, the difficulties encountered in the implementation of lead time on service quality and less importance placed on the concept in the service industry with the financial institution being no exception motivated the researchers to evaluate the effect of lead time on quality service delivery using the banking sector in Kumasi Metropolis, Ghana. Specifically, the study sought to analyse the lead time of Receipt and Payment (R&PP) and account opening processes (AOP) in the banking sector, determine value adding (VA), non-value adding but necessary (NVABN) and non-value adding activities (NVA) in the two processes and to determine causes and effects of NVA/Waste in the two processes. The rest of the study is organised after the introduction stage as follows, the related studies, methodology, result and discussions, conclusion and recommendations.

2.0 Related studies

2.01 The concept of time

As the competitive milieu of business continues to change, generating new complexities and concerns for many organization and states alike (Christopher, 2010); it has to be recognized that the effect of lead time management on service quality can be considerable. Undeniably, of the many strategic issues that provoke the business organization containing commercial banks today, perhaps the most challenging, are the areas of responsiveness (Time) and quality service delivery (Harrison and Hoek, 2008). This has therefore placed much emphasis on the need for improvement with respect to time-based resource management.

Time measures how long a customer has to wait in order to receive a given product or service. That is, the time it takes from the moment a customer places a request at the front desk of the bank or by other telecommunication devices to the moment that customer receives the services requested for. Such time is normally referred to as the customer to customer lead time (Harrison & Van Hoek, 2008). Such lead times can vary from zero (that is, if the service is immediately available. A typical example is exchange rate on display on an electronic board at the premises of the bank) to days, weeks or months (such as Loans request, account opening, etc.). Competing on such time has been suggested to be about survival of the fastest (Harrison & Van Hoek, 2008).

Time is a constant and a fix factor of production that is simultaneously present with other factors of production. Time is cheap but can be costly, fixed, not renewable, irreplaceable nor replenishable. Any organization that places a lot of emphasis on the importance and the above attributes of time stands the chance of gaining competitive advantage with "time". In order for Commercial banks to take advantage of these competitive attributes of time, they must allocate critical resources into distinct competencies necessary for effective utilization of time (Rushton et al., 2010). Harrison & Van Hoek (2008) suggested three meanings of time concepts: Delivery time, Time as an indicator of resource utilization and Time as a resource.

2.1.1 Delivery time

Delivery time refers to the time a customer waits between placing an order and receiving the order. As a consequence, delivery time concept can be said to be connected to performance as perceived by the customer (Parasuraman, 1990; Chan, 2003; Gunasekaran et al, 2001; Harrison & Van Hoek, 2008). This can therefore said to be the time a customer place a request at the enquiry desk of the bank, teller or customer consultant and the time the customer is served. In this case all the activities and the processes the customer and the officer go through up to the provision of the request is deemed necessary. The request may be payment, deposit, transfer, or information about product or service, etc. The components of the delivery time are therefore made up of the activities performed by the customer, the officer of the bank and that of the enablers.

2.1.2 Time as an indicator of resource utilization

Time can also be seen as a measure of resources that run the process (Uzawa, 1969). Time can be estimated as the effective use of equipment and labour measured in machine hours and man hours respectively (Caplice & Sheffi, 1994; Christopher, 2010). Time has also been suggested to be related to resource saturation when likened with the overall resource availability (Harrison and Van Hoek, 2008). Organizations are therefore cautioned to minimize the idle times in their operation as a way of improving productivity of available resources

2.1.3 Time as a resource

Time can also be described as a resource consumed by processes and other factors of production. Harrison and Van Hoek (2008) describe attribute of time as lead time of a particular process. They suggested the computation as the lapse from the time every inputs of the first activity of the process are available to the delivery of the outputs (P, 56). An understanding of this characteristic of time can be well appreciated when there is an activity of object passing through a process. Thus, lead time strictly depends on the previous identification of the process (Gupta, 2011).

Whereas the delivery time relates to external performance, the resource-related time and the process lead time concepts can be seen as operating conditions. Two of these time features may coincide and a typical example can be seen in make-to-order manufacturing where the delivery time equivalents the lead time. In certain situations a parameter can be considered as an operating condition and an external performance altogether. For instance, in service operations, the opening hours can said to be related to the operating conditions of the employees and the external performances perceived by customers (Christopher, 2010).

2.02 Lead time concept

In recent times, major changes in competition rules have modified the position that managers assign to the above time concept. The traditional focus of these time concepts has been on delivery time and resource utilization time. However, major changes in competition in recent years have shifted the focus to the time as a resource which is defined by Harrison and Van Hoek (2008) as lead-time of a process. Its significance has been suggested as a major trade-off shifter between some performances traditionally regarded as antithetical. It has the ability to displace the delivery time and the resource utilization time when attacked for reduction purposes.

Lead time (LT) is the time which elapses from the time a customer identifies the need until the products or services requested are delivered and satisfies the customer specification (Bartezzaghi et al, 1994; De Toni & Meneghetti, 2000). Most frequently, many organizations including the banking industry calculate lead time from the time the customer enters into their premises until he/she is served. Harrison & Van Hoek (2008) believes such calculation is not true in a real world situation. They therefore

suggested the computation to commence from customer needs identification time. That is to say if we consider the commercial banks for example, the lead-time ought to be the time such customer identified that he has to come to the branch. The authors believe this will then suggest a need to consider the factor of location in the marketing mix management of the organization. This therefore admonishes organizations to strategically locate premises and sensitizing customer demand through demand chain management techniques (Anning et al, 2013).

Lead time is one of the main competitive factors among companies. The ability to deliver quickly influences customers positively hence revenue generation capabilities of a firm (Walters, & Lancaster, 1999; Rigby & Ledingham, 2004; Harrison & Van Hoek, 2008). Firm's ability to deliver quickly can be guided by the reduction of Information lead times, Order lead times or both (Chen et al, 2000). Cutting-edge communication system and efficient supply chain management techniques can be used in reducing Information and order lead time respectively.

2.2.1 Lead time reduction

Lead time reduction has attracted significant attention in recent years, as a result the rise of continuous improvement philosophies. Certain activities and its associated time under the continued improvement philosophies are regarded as waste hence are ought to be eliminated or reduced. While there is consensus on undesirability of wasted time (Cotteleer & Bendoly, 2006; Stalk, 1988; Tersine & Hummingbird, 1995), what constitutes wasted time is far from unanimous. For instance whilst Wildings believes a process constitute about 1% and 99% of value adding and non-value adding respectively, Harrison and Van Hoek believes that the value constituent of a process is about 5% .

High speed has been suggested not to be same as effective use of time; however the elimination of delays habitually enhances throughput, quality and customer services (Tersine & Hummingbird, 1995). Eliminating delays and improving the flow of product or service requires ingenuity, specific skills in lean thinking, dedication, behavioral change and sometimes capital investments. That is to say very often significant improvements can be attained with relatively little or no capital investment. Elimination of delays as a form of waste in a process requires a clear definition of what constitutes value from customers' perspective. Lead time reduction therefore involves a clear identification of the total lead time, its components, value adding and non-value adding time.

2.2.2 Value adding and non-value adding time/activity

Non-value adding time is said to be the time spent on any activity that does not add value from customer perspective. However, what constitutes value-adding or non-value-adding may differ significantly from one process, organization or discipline to another. Value added is seen in economics as the difference between the purchase cost of materials and sales revenue (Koskela, 2000). In supply chain management, value adding and non-value adding is said to be determined by customer (Harrison & Van Hoek, 2008). Convey (1991) explained value-adding to mean any activity that has significant influence on customer perceived value of a product or service. Although there is a significant improvement in Convey's definition as it looks at value creation from customers perspective, a clear definition of the constituent of customer value was absent in his definition. Womack and Jones (1996) defined non-value-added activity as "an activity that consume resources but create no value".

The classification of what constitute value and Non-value adding time or activity lies in the areas between the extreme points of complete value. Value-adding is said to be characterized by the physical change of a service or product resulting from unrepeated process (done right first time) which a customer is willing to pay for (Wilding, 2003). Surprisingly, Wildings indicates that it is not uncommon for the time spent actually "adding value" i.e. doing things that a customer is willing to pay for, to be as little as one tenth 1% (Wilding, 2003). He therefore categories Non-value adding activity into: queuing time, rework time and wasted time.

In JIT philosophy, non-value –added activities are also called “waste” (Blackburn, 1991). Waste has been cited in JIT to include; Overproduction beyond what is needed to satisfy immediate demand, Waiting time such as customer and/or officers waiting before an activity is commenced or work-in-progress, customer or officer travelling through or within a facility, waste in work techniques resulting in unnecessary motion and activity by customers or officer and waste in form of defects, rework, scrap, warranty, etc. A time-based and value stream map has been suggested by various authors as an effective tool used to gain transparency of the value adding and non-value adding activities. Hence were used as tools by the authors to evaluate lead time of account opening and receipt and payment process of the case bank thereby identifying value and non-value adding activities (waste).

3.0 Material and methods

The study adopted case study strategy. McCutcheon and Meredith, (1993), indicated that case study as a methodology is more suitable for new theories or ideas development, theories testing and refinement in operations management. Also a case study as a methodology has been suggested to enrich both the theory under examination (study) and the examiner (researcher) (Voss et al., 2002). The above reasons and identification of several innovative concepts and theories in operations management having developed or tested from a case study motivated the researchers to consider a case study as a research strategy for the study.

The study used primary data collected through questionnaires, observations and interviews. Four branches of the same commercial bank (name withheld for ethical reasons) in the Kumasi Metropolis, located in Adum, Kejetia Lorry Park, Suame Magazine and Kwame Nkrumah University of Science and Technology were purposively selected for the study. The basis of their selection was informed by their locations which represent the major commercially concentrated areas in the metropolis. Five (5) operational staff including the operations manager from each of the branches were randomly selected. These were interviewed and observed while performing their activities and critical incidents noted from the observations.

In addition, eighty (80) customers; consisting twenty (20) from each of the banks under the study were also selected randomly, making for a total sample size of one hundred (100). Questionnaires were distributed to a total of eighty (80) customers of the selected banks to collect data from them on their perception of the operational efficiency of their respective banks.

As suggested by Rother and Shook, (1998) the five employees from each branch constituted a special team with specific roles in the selected processes of the case banks. Each process had value stream facilitators. The operations managers were appointed as facilitators for their respective teams. The facilitators were assigned with the provisioning of necessary data and information.

The researchers guided the team and provided technical training to the team. Nevertheless, the researchers did not intervene on the team’s decisions on what constitute value adding and non-value adding as suggests by Yin, (1993) on case study research.

The team selected the key activities and processes of their operations using Pareto rule of 80/20 (Rushton et al., 2010). Account opening, receipt and payment, and balance enquiry were noted to constitute about 80% of the work load at the bank; hence were targeted. In order to gain visibility for subsequent waste in lead time, value stream maps and time base process map for the selected processes were developed after collecting the relevant data.

The value stream and time base process map was then analysed for the identification of Value adding, non-value adding but necessary and non-value adding activities/ time. This subsequently followed with the causes and effect analysis of Value adding, non-value adding but necessary and non-value adding activities using Fish bone model by Ishikawa (Rushton et al, 2010).

4.0 Results and discussions

4.01 Lead time of cash withdrawal and account opening processes

In order to analyse the lead time of the two processes stated above, the researchers needed to understand the various process very well. In so doing the two processes were mapped using flow chart, time based map and value stream mapping (fig. 4.1). The aim of the process mapping was to make things clear and to provide insight into the cash withdrawal/cheque payment and account opening processes. These eventually enabled the researcher to determine the lead times of the two processes, taking into account run time, Set-up Time, Queue Time, Wait-to-Move Time, Synchronise Time, and Problem-solving Time (Hoppet al, 1991).

4.02 Flow charts of cash withdrawal or cheque payment and account opening processes

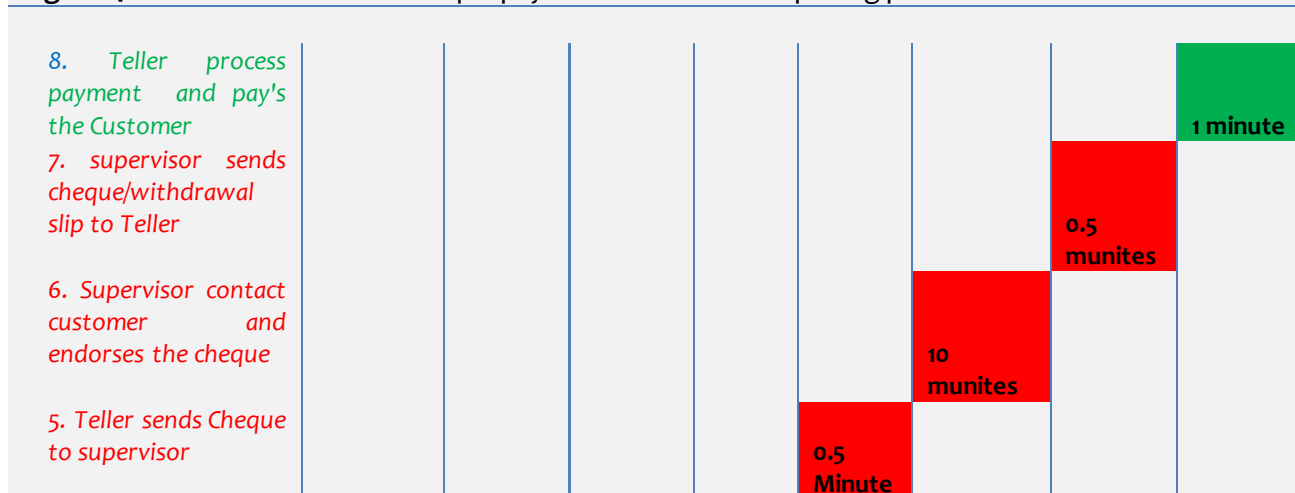
Flow charts are easy-to-understand diagrams showing how steps in a process fit together. This makes it a useful tool for communicating how cash withdrawal or cheque payment and account opening processes work, and for clearly documenting how cash withdrawal or cheque payment and account opening are done. Furthermore, the act of mapping out the cash withdrawal or cheque payment and account opening processes in flow chart format helped the clarification of the processes, and also helped the researchers to know how the processes can be improved. A flow chart therefore was used to:

- Define and analyze cash withdrawal or cheque payment and account opening processes.
- Build a step-by-step picture of the two processes for analysis, discussion, or communication with staffs and customers of the bank alike.
- Define, standardize or find areas for improvement in the processes.

In drawing the flow chart, the processes task were brainstormed, and listed in the order they occurred. Questions such as "What really happens next in the process?" and "Does a decision need to be made before the next step?" or "What approvals are required before moving on to the next task?" were asked. The two processes were worked through, showing actions and decisions appropriately in the order they occur, and linking these together using arrows to show the flow of the process. Where a decision needs to be made the researcher drew arrows leaving the decision diamond for each possible outcome, and labels them with the outcome. The end of the process was shown using an elongated circle labelled.

The researchers, challenged their flow chart by working from step to step asking if there is a correct representation actions in sequence of actions and decisions involved in the process.

Figure 4.1: Cash withdrawal or cheque payment and Account opening process Flow chart.



4. Teller does enquiry and Checks of Accuracy				1 minute				
3. Customer sends cheque/withdrawal Slip to Teller			0.5 minute					
2. Customer Joins a queue		8 minutes						
1. Customer Fills Withdrawal Slip/ Endorses Cheque	2 minutes							
SCALE (WORKING HOURS)	0							23.5
Key		Lead Time						
Non value Adding Activities		19						
Non value Adding Activities But Necessary Activity		3.5						
Value Adding Activities		1						
Lead time		23.5						

Source: Researchers' field work (2015)

4.03 Time based process and value stream Map (TBPM) of payment and account opening processes.

After the flow chart, the two processes were mapped using time based and value stream mapping techniques. In using TBPM, appropriate level data was chosen, the relevant data were identified and extracted, simple flow of the selective activities processes were sketched, time value information were added for subsequent collation of information for the construction of TBPM.

After the construction of the TBPM, time scale were plotted and in- process, drawn. Parallel processes were linked and split off; process bars were segmented into value, non-value adding, activity and non-value adding but necessary time.

4.04 Time based process and value stream map of payment process

The time based process map showed a total lead time of 23.5 minutes of the payment process. Only 1 minute of the total lead time of 23.5 minutes constitute value adding. With non-value adding but necessary and non-value adding time recording 3.5 minutes' and 19 minutes respectively. The factor that causes non value adding time was mainly queuing and confirmation of payment by the supervisor which the customers deem as non-value adding. With total customer respondents of 80, a whopping 72 constituting 90% indicated dissatisfaction and their desire to avoid queuing and confirmation of payment by supervisor. A further discussion and observation also indicated that the filling of the withdrawal slip if possible would be avoided.

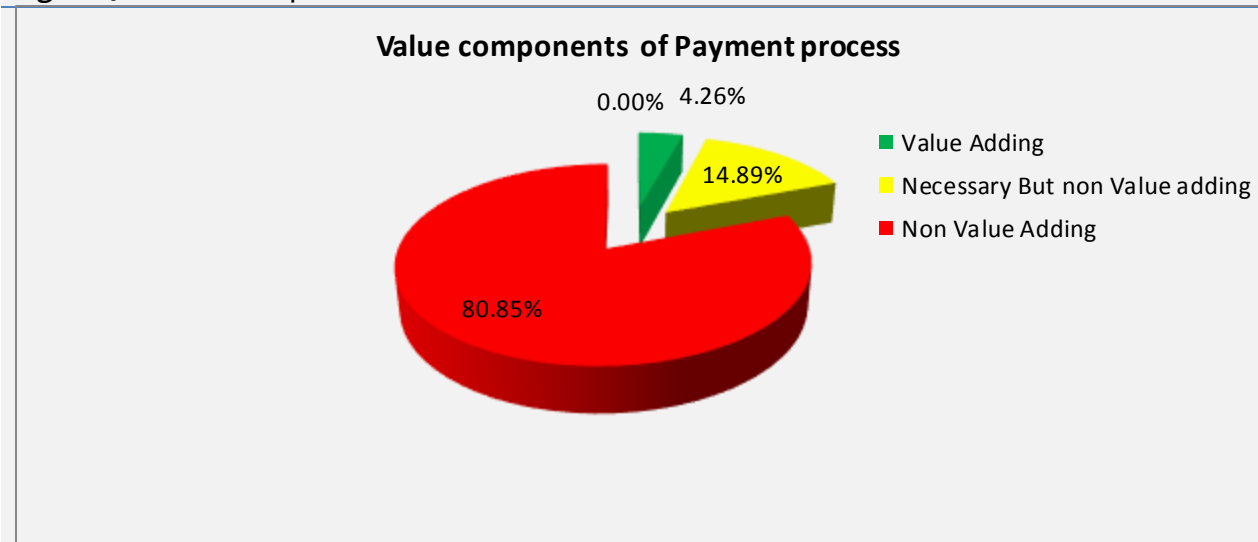
4.05 Value adding, non -value adding but necessary and non -value adding activities

According to Christopher, 2010 value adding time is the time spent doing something that creates a benefit for which the customer is willing to pay for. The old adage "the right product/ Activity at the right time, in the right place summarize the idea of customer value activity. Thus any activity that

contributes to the achievement of that goal could be classified as value adding. Conversely, non-value adding activities are any activity whose elimination would lead to no reduction of the benefit to the customer.

From the time based process map a percentage component of value adding, necessary but non-value adding and non-value adding time were deduced. Figure 4.2 shows that 80.85%, 14.9% and 4.26% constitute non-value adding, necessary but non-value adding and value adding time respectively. This affirms what Wilding, 2003 echoed that it is not unusual for the time spent actually “adding value” i.e. doing things that a customer is willing to pay for, to be as little as one tenth of 1%. It is therefore of no surprise that value adding activities in the payment process at the various banks averagely constitute just 4.26% of the whole value component.

Figure 4.2: Value components



Sources: Researcher's Field work (2015).

4.5.1 Causes and effects of non value adding, non-value adding but necessary activity

A Cause-and-Effect of non-Value adding and non-value adding but necessary activities is plotted using Ishikawa diagrams, Fig.4.5 The diagram helped to identify, sort, and display possible causes of a specific problem or quality characteristic. It graphically illustrates the relationship between wasted time/ activities and what customers are not prepared to pay for (Non Value Adding and non-Value adding but necessary Activity). The Causes of Non Value Adding, non-Value adding but necessary activities were grouped into major categories to identify the causes of longer lead time and waste in the two processes. The 4P's categories made up of Policies, Procedures, People and Plant was used.

4.5.2 Causes and effect of waste in the two processes

In determining the causes and effect of waste and longer lead times in the payment and account opening processes, the researcher constructed causes and effect diagram in Figure 4.5 using the Ishikawa fishbone analysis which helped in determining the root causes of waste and longer lead time. The root causes are therefore linked to Taiichi Ohno Seven sources of waste commonly found in industry (Askin and Goldbergs, 2002.)

4.5.3 Procedures

Some of the procedures of the bank were seen as sources of waste and longer lead time in the payment processes. Among these were;

- Excessive lead time emanating from queuing and payment confirmation by teller's supervisor.

- unnecessary motion that comes as a result of poor office layout and inadequate directional maps
- Bureaucratic process resulting from Id verification, cheques and withdrawal slips endorsement, duplication of signature and balance confirmation by teller's supervisor.

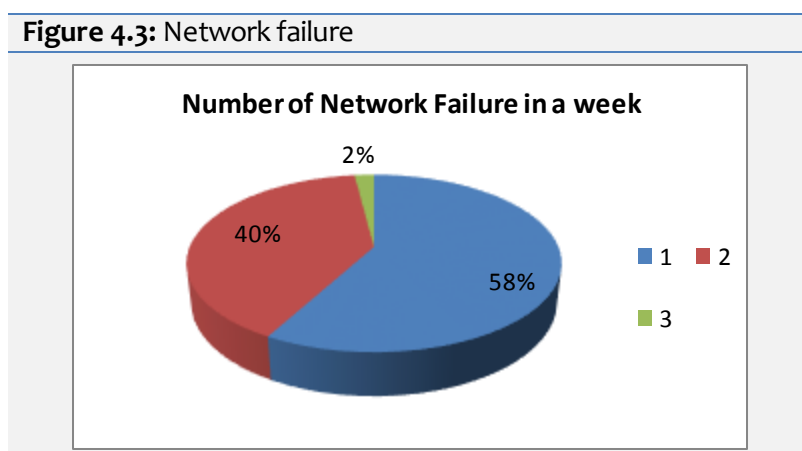
Waiting as a form of waste was identified in the payment process. Waiting was due to different reasons such as waiting for correct information, a customer request waiting to be processed, and machines waiting for inputs to arrive (LEIS 1999). One such common type of waste is waiting associated with queuing and confirmation of payment by the teller's supervisor when the amount exceeds GH 5000.00. Other forms of waiting were queuing associated with network failure, id verification, and the bureaucratic nature of the payment process. Processing time, throughput times, set-up times, etc., were also seen as form of waiting in the payment process.

Again poor office layout, inadequate directional maps, confirmation of payment and endorsement when the amount exceeds GhC5000.00 by the supervisor, Id card verification, photo copying of customer Id etc. are all forms of waste that were noted to have led to unnecessary motion at the work place.

4.5.4 Plant

Network failure, under-utilization and intermittent break down of ATM, and obsolete software and applications were identified as causes of waste and longer lead time under the plant categorization.

About the network failure all the respondents were asked to indicate network failures they experienced on a three -point scale, with a score of 1 indicating "not frequent " and a score of 3 indicating "very frequent. The percentage rating for all respondents is represented in Figure 4.3 below.



Sources: Researchers' Field work (2015).

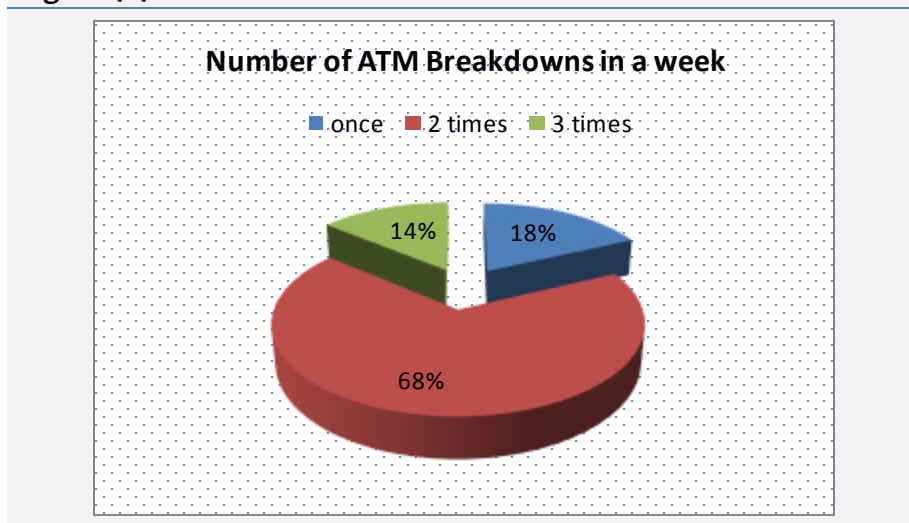
As many as 58% of the respondent made up of officers and customers of the bank indicated that they experienced network failure once in a week, following closely was an experience of network failure twice in a week which recorded a response rate of 40%. 2% of the respondents indicated three times. It was noted that the network break down leads to longer lead time and queues, and its consequent customer dissatisfaction.

Concerning under-utilization and intermittent break down of ATM, it was noted through the interview process and discussion that the ATM can perform other functions which are not even known to some members of staff of the bank. Among such functions are; inter account transfer within the bank (even between two different branches), mini statement printing, purchase of mobile top ups and bill payment.

It was also noted that the ATM can accept deposits but this function is not activated by the bank as management ruminates it to lead to frequent break down of the ATM. The bank also thinks it will be difficult to encourage and educate customers to perform such task. Management also considers the cash deposit function to be too risky for the customers as they may be targeted by robbers at the point of performing such function. Lack of trust and transparency was also seen as one of the basics reasons for non-activation of cash deposit function of the ATM.

As presented in the figure 4.4 below, Respondents were asked to rate the frequency with which ATM breaks down in a week on a three point scale with a score of 1 indicating “not frequent ” and a score of 3 indicating “very frequent. 68% of the respondents indicated that the ATM machine breaks down two times in a week whereas 14% and 18% indicated once and three times weekly. The breakdown of the ATM leads to an increase in queuing at the banking hall. The breakdown of the ATM can be attributed to the work load and the usage of the Machine.

Figure 4.4: ATM breakdowns



Source: Researchers' Field work (2015).

The software and applications used by the bank when compared to other international banks was also noted to be outmoded, rigid and inflexible. This makes it difficult for the officers of the bank to perform their task with ease, flexibility, speed and accuracy. This consequently leads to longer lead and waiting times resulting into customers' dissatisfaction.

4.5.5 People and Policies

Inadequate service interaction and speed were also observed to be contributory factors to longer lead time and waste in the payment and account opening processes under the people categorization. For instance in the account opening process, some of the customers indicated that the sales officers do not take their time to explain to them what was required from them when opening an account. This affected the account opening lead time as the customer would be advised to make available the requirements that they were not aware of on their next visit. In fact this is the point at which the customer is sometimes educated on the account opening requirements. The lack of adequate explanation to customer was noted to be as result of work load and to the targets given to sale officers as they are always in haste to open more accounts than satisfying a single customer.

Manual writing (writing of withdrawal slips and application forms), duplication of signatures by customers when opening an account, unrealistic requirements on account opening process, and confirmation from domicile branches were noted as some of the causes of longer lead times and therefore waste in the two processes. About 60% of the officers and customers who responded to the questionnaires and interviews registered their dissatisfaction with the writing of withdrawal slips and

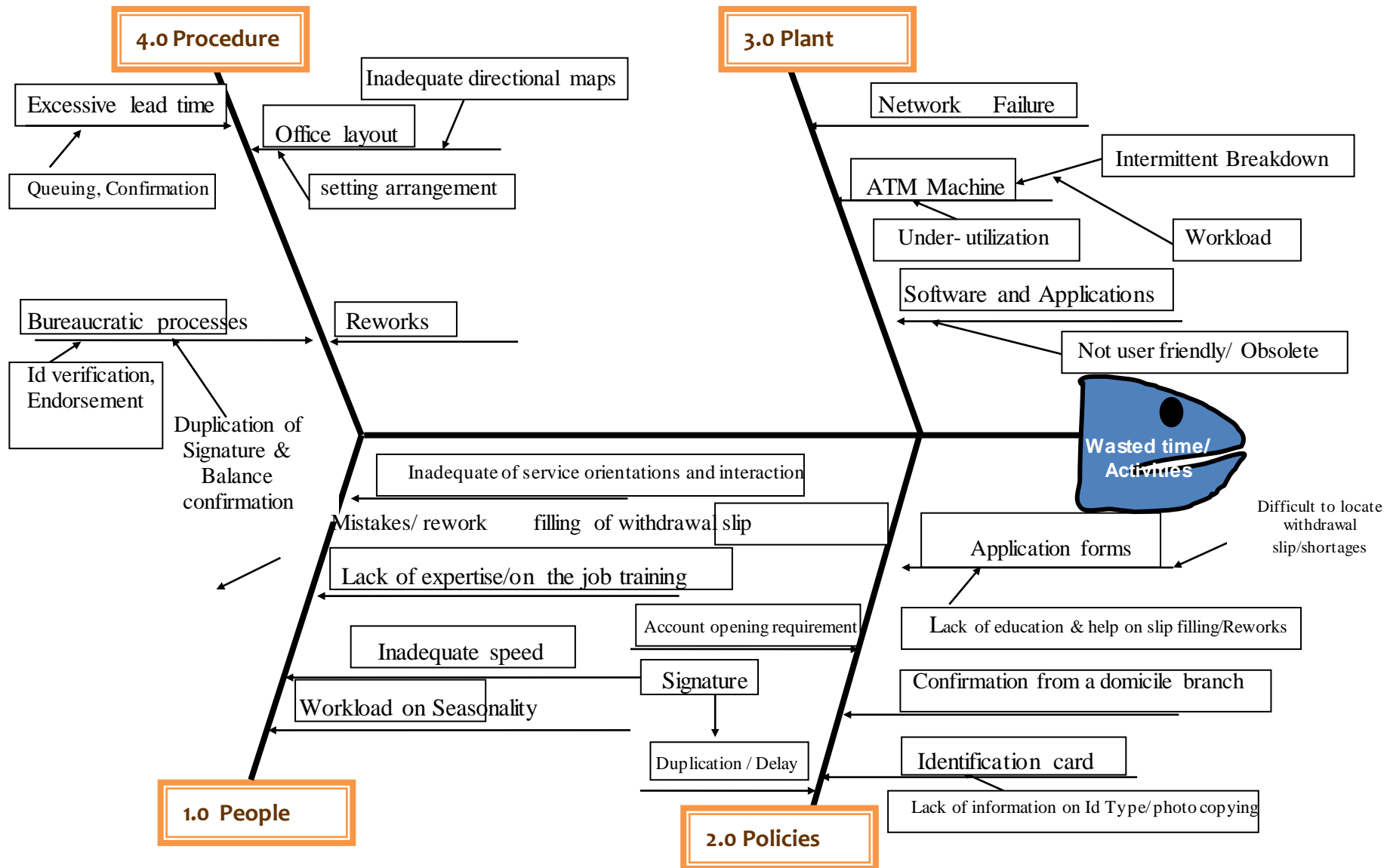
account opening application form. They further indicated that they would prefer to avoid the writing of withdrawal and the application form if possible. It was observed that, withdrawal slips, application forms as well as signature cards are sometimes shredded due to reworks that come as a result of mistakes in writing these forms.

The business account holders during the interview expressed their dissatisfaction about the number of signatures they are made to sign when opening account at the bank. Further investigation indicated that such customers are required to sign 12 signatures when opening a single account at the bank.

The customers also indicated that the requirements are sometimes too many and unrealistic. For instance customers are of the opinion that utility bill as a proof of address is not realistic as this does not necessary serve that purpose. What this means is that the provision of utility bills or any other document as a proof of address in itself does not necessary guarantee a proof of address as branches. This expectation of the customers is sometimes this document can easily be borrowed from a friend or taken from somewhere.

With the help of the bank software application and networking, customers who hold an account with other branches are expected to perform transaction as swift and easy at any branch as they would at their own affected by the policy of the bank which requires that a withdrawal of over GHc 5000 needs to be approved by the domicile branch. What this means is that, the paying branch would be required to seek payment approval from the customers branch (domicile branch) through email or telephone call when there is a note on the account “refer all debits to the relationship manager”. This sometimes takes longer than expected as it may be difficult getting in touch with the customer’s relationship manager hence the delay in payment. The relationship manager during interview asserted that customers often forget that a note was placed on their respective accounts in consultation with them. The significance of the note is to regulate fraud and also to instill sound financial discipline on the part of customers.

Fig 4.5: Causes and Effect Analysis of payment and Account opening process at some selected branches of a commercial bank in Ghana



Source: Adapted from Ishikawa model cited Rushton et al, (2010)

5.0 Conclusion and Policy Implication

From the study, the time based process map indicated that, out of an average total lead time of 23.5 minutes of the payment process, only 1 minute of the time constitute value adding. Again, non-value adding but necessary constituted 3.5 minutes whilst the non-value adding time took an average of 19 minutes. Also, it was revealed that 80.85%, 14.9% and 4.26% constituted non-value adding, necessary but non-value adding, and value adding times of processes respectively. This affirms what Wilding(2003) and Harrison and Van Hoek (2008) value adding process, i.e. doing things that a customer is willing to pay for, constitutes only an average of between 1% - 5% of transaction times.

The root causes of Non Value Adding activities were therefore identified to be linked to Taiichi Ohno Seven sources of waste commonly found in industry (Askin and Goldbergs, 2002). This includes, among others, **Procedures related** (unnecessary motion that comes as a result of poor office layout and inadequate directional maps, bureaucratic process resulting from Id verification), **Policy related** (Manual writing of withdrawal slips and application forms, duplication of signatures, unrealistic requirements on account opening process, and confirmation from domicile branches), **Plant related** (Network failure, under-utilization and intermittent break down of ATM, and obsolete software and applications) and **People related** (Inadequate service interaction and speed) were also observed to be contributory factors to longer lead time and waste in the payment and account opening processes. This consequently affected operational performance in terms of long waiting time and queuing, resulted in customer dissatisfaction and switching to competing banks.

It was evident from the study that the selected case banks in the Kumasi Metropolis of Ghana in their quest to increase their market share, mostly focus on growth strategies, product innovations and aggressive marketing for new customers at the expense of lead time management. The implication is that such approach to business may lead to increase in customer base in the short term but at the long run, the hard won customers may switch to other competitive service providers upon realising that they spend unnecessarily long period of time queuing before being served. Thus, innovation and aggressive marketing may, undoubtedly, be worthy exercises that lead to increased market share, but with time, the gains made from such strategies may be eroded by customer dissatisfaction arising from poor lead time management.

One of the root causes of customer's switch in the banking sector has been the fact that little attention is given to lead time management which is a key factor to quality service, customer's satisfaction and retention. Thus for the commercial banks to ensure customers retention and loyalty as well as increasing their market share and profitability, policy decision on business operations should not only focus on innovation, product and market development, but also lead time management since most customers are increasingly becoming time sensitive in the turbulent and dynamic business environment.

The focus to satisfy the customer through quality service would help maintain existing customers. It is undeniable fact, yet commonly ignored by some strategic managers and business planners, particularly in the banking industry that, keeping existing customers is cheaper than to win new ones. Besides cost reduction benefit accruals from satisfying and maintaining existing customers through responsiveness and reliability, such customers also act as agents of winning new customers for the organisation by way of testimonies. This makes it even more imperative for business executives and analysts to devote the needed attention to lead time management concepts and practices.

6.0 Recommendation

Based on the outcome of the study, we recommend that all tellers should be given electronic card reader so that customer will insert their card into the electronic reader which can easily read their data within a second as this will reduce processing and verification time.

Again, the number of ATM and the minimum amount within which a customer can cash from the ATM should be increased as this will reduce queuing and unnecessary delay at the bank.

Furthermore, all cash withdrawals less than Ghc500.00 by account holders should be done at the ATM. This can be done by educating account holders on ATM usage to encourage its enforcement.

Finally, there should be incentives such as charges free to motivate customers to transact from the ATM whilst ensuring the reliability and adequacy of the ATMs.

References

- Bartezzaghi, E., Spina, G., & Verganti, R. (1994). Lead-time models of business processes. *International Journal of Operations & Production Management*, 14(5), 5-20.
- Becker, B., & Gerhart, B. (1996). The impact of human resource management on organizational performance: Progress and prospects. *Academy of management journal*, 39(4), 779-801.
- Bharadwaj, S. G., Varadarajan, P. R., & Fahy, J. (1993). Sustainable competitive advantage in service industries: a conceptual model and research propositions. *The Journal of Marketing*, 83-99.
- Caplice, C., & Sheffi, Y. (1994). A review and evaluation of logistics metrics. *International Journal of Logistics Management* 5 (2), 11-28.
- Chan, F. T. (2003). Performance measurement in a supply chain. *The International Journal of Advanced Manufacturing Technology* 21 (7), 534-548.
- Chandler, C. M. (2007). Formulation of Lean Six Sigma Critical Business Processes for Manufacturing Facilities. ProQuest
- Christopher, M. (2010). *Logistics and supply chain management*. Financial Times/Prentice Hall.
- Collier, D. A. (1994). The service/quality solution: Using service management to gain competitive advantage. Milwaukee, WI: ASQC Quality Press.
- Cotteleer, M. J., & Bendoly, E. (2006). Order lead-time improvement following enterprise information technology implementation: an empirical study. *MIS Quarterly*, 643-660.
- Clow, K. E., & Vorhies, D. W. (1993). Building a competitive advantage for service firms: measurement of consumer expectations of service quality. *Journal of services marketing*, 7(1), 22-32.
- De Toni, A., & Meneghetti, A. (2000). Traditional and innovative paths towards time-based competition. *International Journal of Production Economics*, 66(3), 255-268.
- Gunasekaran, A., Patel, C., & McGaughey, R. E. (2004). A framework for supply chain performance measurement. *International journal of production economics*, 87(3), 333-347.
- Gunasekaran, A., Patel, C., & Tirtiroglu, E. (2001). Performance measures and metrics in a supply chain environment. *International journal of operations & production Management*, 21(1/2), 71-87.
- Harrison, A., and Van Hoek, R. (2008). *Logistics Management and Strategy- Competing Through the Supply Chain*, 3rd Edn., UK: F.T. Prentice Hall
- Heikkilä, J. (2002). From supply to demand chain management: efficiency and customer satisfaction. *Journal of Operations Management*, 20(6), 747-767.
- Hervani, A. A., Helms, M. M., & Sarkis, J. (2005). Performance measurement for green supply chain management. *Benchmarking: An International Journal*, 12(4), 330-353.
- Holmberg, S. (2000). A systems perspective on supply chain measurements. *International Journal of Physical Distribution & Logistics Management*, 30(10), 847-868.
- Holweg, M. (2007). The genealogy of lean production. *Journal of Operations Management*, k225(2), 420-437.
- Kaplan, R. S. (1983). Measuring manufacturing performance: a new challenge for managerial accounting research. *Accounting Review*, 686-705.
- Keegan, D. P., Eiler, R. G., & Jones, C. R. (1989). Are your performance measures obsolete? *Management accounting*, 70(12), 45-50.
- Lampinen, K. (2013). A Method for reducing throughput-time in industrial electronics

- Parasuraman, A. A. (1990). *Delivering quality service: Balancing customer perceptions and expectations*. SimonandSchuster.com.
- Rigby, D. K., & Ledingham, D. (2004). CRM done right. *Harvard business review*, 82(11), 118-130.
- Rushton, A., Croucher, P., Baker, P. (2010). *The Handbook of Logistics and Distribution Management*, 4th edn., London: Kogan Page Limited.
- Schonberger, R. J. (2008). *Best practices in Lean Six Sigma process improvement*. John Wiley & Sons.
- Shepherd, C., & Günter, H. (2006). Measuring supply chain performance: current research and future directions. *International Journal of Productivity and Performance Management*, 55(3/4), 242-258.
- Stalk, G. (1988). Time--the next source of competitive advantage.
- Tersine, R. J., & Hummingbird, E. A. (1995). Lead-time reduction: the search for competitive advantage. *International Journal of Operations & Production Management*, 15(2), 8-18.
- Walters, D., & Lancaster, G. (1999). Value-based marketing and its usefulness to customers. *Management Decision*, 37(9), 697-708.
- Woodruff, R. B. (1997). Customer value: the next source for competitive advantage. *Journal of the academy of marketing science*, 25(2), 139-153.