

# OUTBOUND LOGISTICS MANAGEMENT IN MANUFACTURING COMPANIES IN GHANA

Kwame Owusu Kwateng, Kwame Nkrumah University of Science & Technology

John Frimpong Manso, Kwame Nkrumah University of Science & Technology

Richard Osei-Mensah, Pioneer Food Cannery Limited

## ABSTRACT

*The optimization of outbound logistics operations through consolidation and collaboration using a third party logistics provider has potential to contribute to the profitability of an organization by lowering the cost of warehousing and transportation. The purpose of this paper is to assess outbound logistics of a manufacturing company (Guinness Ghana Breweries Limited) using the services of a third party logistics provider (DHL). Empirical research was employed to explore outbound logistics performance of the manufacturing company. Structured questionnaires were used to capture the perception of staff of GGBL regarding outbound logistics performance of the services of the third party logistics provider. The study revealed there was not much significant change in the supply chain performance measure of outbound logistics activities for the services of DHL to GGBL. Suggestions for improving the issues captured are provided. The performance measurement construct obtained from the study can be used by management of GGBL to perform routine assessment and evaluation of outbound logistics activities to improve supply chain performance of the organisation.*

**JEL:** M12, O32

**KEYWORDS:** Supply Chain Management, Outbound Logistics System, Supply Chain Operations Reference Model (SCOR Model), Guinness Ghana Breweries Limited

## INTRODUCTION

Emerging global competition has made it possible for logistics companies to improve their warehousing and distribution services. Most organizations have made it clear by designing and operating a customized warehousing and distribution service that deliver great benefits. There has been more focus on operational excellence which implies you must consistently deliver quality service across all operations. Many manufacturing companies are now outsourcing their outbound logistics, because they cannot do it themselves and remain competitive. They began to look to third party specialist to perform activities that were not a part of their core competency (Grant et al., 2006). A company like DHL global has the know-how and experience necessary to design and manage warehouse and distribution processes, so product flows are optimized and supply cost are driven down. Customers can reduce their stockholding and increase service levels, while maintaining the flexibility required for meeting fast-changing market demands. Brewery has a long supply chain management processes from inbound, operations and outbound logistics activities. Most third party logistics providers in Ghana specialize in warehousing and distribution as their core business. Being motivated by the rapid increase in warehousing and distribution services in Ghana and worldwide, the research seeks to identify how this is managed in a third party logistics company. The logistics provider restructures warehousing activities as well as distribution network to gain a competitive advantage for itself and the outsourcing company.

Most third party logistics company like DHL have experienced some challenges managing warehousing and distribution services in some manufacturing companies like breweries. It is necessary to study challenges in the outbound logistics of a manufacturing company and develop strategies to overcome challenges. Most manufacturing companies have not been able to successfully maximize their potential in

outbound logistics in terms of warehousing and distribution. They have not critically assessed the performance of their outbound logistics efficiency. It is essential to conduct scientific research to identify how warehousing and distribution is managed and also understand all associated challenges and how they are resolved. It is important to know whether manufacturing companies benefit when they engage third party logistics in their warehousing and distribution activities.

The study examined how DHL manages the warehousing and distribution of a brewery like Guinness Ghana Breweries Limited (GGBL). In May 2011, GGBL outsourced the outbound logistics activities to DHL. It is essential to know how these activities have impacted the business performance of GGBL. The paper begins with an overview of the brewery supply chain system and the unique problem that it presents in Ghana. A review of the literature regarding supply chain will then follow. The paper then presents the data and methodology for the study. The results and the discussion section follow with analyses of the data. The conclusion and recommendation section follows respectively.

## LITERATURE REVIEW

### Overview of Logistics and Supply Chain Management

The term supply chain management (SCM) was introduced in the early 1980's and subsequently attracted a great deal of attention. The council of supply chain management professionals defines supply chain management as encompassing, the planning and management of all activities involved in sourcing and procurement, conversion and all logistics management activities. According to Gunasekaran et al. (2004), supply chain management has been a major component of competitive strategies to enhance organizational productivity and profitability. Supply chain management includes coordination and collaboration with channel partners, which could be suppliers, intermediaries, third party service providers, customers (Lambert et. al., 2006). Within the organization, supply chain management refers to a wide range of functional areas. These include supply chain management-related such as inbound and outbound transportation, warehousing, and inventory control. Sourcing, procurement, and supply management also fall under the supply chain umbrella. Forecasting, production planning and scheduling, order processing and customer service all are part of the process as well. It also embodies the information systems necessary to monitor these activities. Simply stated, "the supply chain encompasses all of those activities associated with moving goods from the raw materials stage through to the end user" (Zigiaris, 2000).

Generally, in the brewery industry, the supply chain process starts from sourcing, procuring and receiving the raw materials from the suppliers into the warehouses. Raw materials are then transported to the brew house for the brewing process. After brewing, the product is transferred to be packaged and transported with forklifts into various warehouses. Finished products are transported and distributed to the various key distributors who are managed by DHL as a third party logistics provider. The supply chain processes includes, inventory management, quality management, maintenance management, production planning and scheduling, and customer service management, Order processing, purchasing management, information systems (using ERP as SAP & Warehouse management systems). The SAP is used to manage the supply chain processes from raw materials to finished product as well as distribution to key distributors.

Logistics management is the governance of supply chain functions. Logistics management activities typically include inbound and outbound transportation management, fleet management, warehousing, materials handling, order fulfillment, logistics network design, inventory management, supply/demand planning, and management of third party logistics services providers. To various degrees, the logistics function also includes customer service, sourcing and procurement, production planning and scheduling, packaging and assembly. Logistics management is part of all levels of planning and execution: strategic,

operational and tactical. It is an integrating function that coordinates all logistics activities. It also integrates logistics activities with other functions including marketing, sales manufacturing, finance, and information technology. The definition includes the flow of materials and services in the manufacturing and services sectors. (Lambert et. al., 2006)

### Outbound Logistics Systems – Physical Distribution

We focus our attention upon physical distribution or outbound logistics systems. Physical distribution management is an attempt to systematically manage a set of interrelated activities including transportation, distribution, warehousing, finished goods, inventory levels, packaging and materials handling, to assure the efficiency of delivery of finished goods to customers. The focus of physical distribution management is to manage finished goods distribution in a way that meets customer expectations at the lowest possible cost. In addition to transportation, physical distribution management involves close liaison with production planning, purchasing, order processing, material control and warehousing. All these areas must be managed so they can interact with each other to provide the level of services that the customer demands and at a cost that the company could afford. The distribution process begins when a supplier receives an order from a customer.

### Transportation

Transportation physically moves product from where they are produced to where they are needed. This movement across space or distance adds value to products. This value is often referred to as place utility. Transportation is also a factor in time utility, it determines how fast and consistently a product moves from one point to another (Lambert et al, 1998). According to Chopra et al (2007), we can think of a transportation network as a collection of nodes and links. Transportation originates and ends at nodes and travels on links. For most modes of transportation, infrastructure such as ports, roads, waterways, and airports are required as a good throughout the world. It is important that infrastructure be managed in such a way that monies are available for maintenance and investment in capacity needs. Transportation is the most significant area of logistics because of the impact on customer service level and cost structure. In general or profession terms, transport involves covering distances or changing the location of cargo through the use of transportation. A distinction must be made here between internal transport within an operation and external transport. For instance, internal transport takes place from one production line to another in a factory or between different departments in a warehouse. External transport, on the other hand, is a shipment from the supplier to the customer, between various factories or between warehouses of a company. External transport consists of the cargo, the means of transport and the transport process.

### Warehousing

Warehousing is an integral part of every logistics system. There are almost one million warehouse facilities worldwide, including state of the art, professionally managed warehouses, as well as company stockrooms, garages, self-store facilities and even garden sheds. Warehousing plays a vital role in providing a desired level of customer service at the lowest possible total cost. Warehousing activities are an important link between the producer and the customer. Over the years, warehousing has developed from a relatively minor facet of a firm's logistics system to one of its most important functions (Grant et al, 2006). Grant et al (2006) define warehousing as that part of a firm's logistics system that stores products (raw materials, parts, goods – in- progress, and finished goods) at and between point of origin and point of consumption, and provides status information to management. A warehouse, for example, can also be used to redirect goods to other routes within the network, even without having to store any goods at all. Various warehouses have been designed to support these functions. Blanchard (2004) also notes that, the basic function of a warehouse is the movement, storage and information transfer. A major objective is to provide an ideal product flow and acceptable level of service between the producer and the

customer by providing warehouses at designated locations with various inventory level based on local demand.

Generally speaking, a warehouse is a hub in a logistics network where goods are temporarily stored or rerouted to a different channel in the network. A basic distinction can be made among supply, handling and distribution warehouses. However, mixed forms may also be used. Supply warehouses are usually part of the production operation and are used to store raw materials, auxiliary supplies and other resources needed for production as well as semi-finished products and finished goods used during particular seasons. Transshipment warehouses house goods for short periods between their transfers from one means of transportation to another. They are frequently operated by logistics providers and retail companies. With cross-docking, manufacturers send goods that have been pre-picked for particular retail outlets to the retailer's warehouse. Here, shipments from various manufacturers for the respective retail outlet are batched and then delivered together. This dispenses with the need to pick goods bound for separate retail outlets in the retailer's central warehouse.

The composition of the flow of goods is changed in the distribution warehouse. Distribution warehouses are classified into central, regional and local distribution warehouses depending on the area it serves. Central distribution warehouses are generally referred to as central warehouses, while decentralized regional or local distribution warehouses are called supply or delivery warehouses. In supply warehouses, goods from various suppliers are collected and distributed to one or more production or retail operations. In delivery warehouses, goods from production are stored before being delivered to customers. Thousands of the different types and forms of goods could be stored simultaneously in the same warehouse. To optimally use this costly space and enable a specific item to be retrieved quickly, a clear, coordinated organization of storage space is necessary. This is the only way to economically and efficiently operate a warehouse. Storage space can basically be organized in two different ways: fixed storage space allocation and completely free or random space allocation.

### Logistics Outsourcing

During the 1980's, many organization began to recognize that they could not effectively and efficiently do it all themselves and still remain competitive. They began to look at third- party specialists to perform activities that were not part of their core competency. This engagement is known as outsourcing, in which an organization hires an outside organization to provide a good service that it had traditionally provided itself, because this third party is an expert in efficiently providing this services or goods while the organization itself may not (Grant et al, 2006). Outsourcing is the subcontracting of a company's non-core function such as product design of manufacturing company to a third-party company. It is the activity that involved mainly two parties. The clients company who outsource logistics activities and the outsourcing service provider who performed the outsource activities. The decision to outsource is often made in the interest of lowering a firms cost and conserving energy directed towards the core functions of the firm , in other to make more efficient use of labor, capital , technology and resources (Vallespir and Kleinhans, 2001; Quinn and Hilmer, 1994).

Outsourcing has been an area of growing interest and activity since the early 1990s. It often involves third party warehouses and use of public or contract transportation carriers. Outsourcing offers the opportunity for organization to use the best 3<sup>rd</sup> party logistics (third party logistics) service providers available to meet their needs (Lambert et al, 2006). According to Harrison et al. (2002), the importance of outsourcing becomes particularly evident when companies look critically at their internal structure and resources. Outsourcing provides companies with greater capacity for flexibility especially in the purchase of rapidly developing new technologies. By outsourcing logistics activities, firms can save on capital investment, and thus reduce financial risks. Investment on logistics assets, such as physical distribution centers or information networks, usually needs large lump sum of money, which involved high financial risk.

Managers in a firm are accepting the concept of partnering or establishing close, long-term working relationships with suppliers of goods or services, customers and third party providers.

### The Brewery Industry Outbound Logistics –Opportunities and Challenges

According to Fchuki (2006), modern technology continues to offer the distributor new and sophisticated solutions to overcome even the worst logistics problems. As industry territories expand as a result of consolidation and distribution systems are bogged down with an increasing number of products, daily operations run more and more ineffectively. The problems cropping up in industries are numerous and include: 1.) Many operations can't get all of their trucks loaded on time every day, 2.) Finding drivers willing to handle product and deal with customers is increasingly difficult, 3.) Employing technology to give the sales and distribution system a competitive edge is foreign to most distributor operations, and 4.) Increasingly large territories increase the drive times and reduce the capacities of delivery drivers. Many wholesalers are adding routes just to cover longer miles.

The brewery industry could benefit from other food and beverage direct store delivery industries that have already experienced consolidation, geographic expansion, and SKU explosions and have figured out how to effectively get products to retail over vast territories while retaining high quality of service and product. The standard Monday-through-Friday sales and delivery schedules are finally being abandoned in favor of more innovative schedules with opportunities to improve customer service, reduce distribution costs, and improve overall logistics costs. Innovations include but are not limited to: 1.) Expanding order cycles for "next day / 24-hour" to everything from "same day" to "next scheduled delivery day," and 2.) Using merchandisers to manage inventories and write orders in large bulk stops (including Sundays to build Monday delivery volumes).

Distributors should consider carefully using route-management technology to control the consistency of driver-retailer relationships, squeezing unnecessary wasted capacity out of the route distribution system, and holding sales reps accountable for adhering to well-designed customer service schedules. Consolidation offers an opportunity to increase the geographic area serviced by each warehouse in the system. The brewery industry's relatively dense warehousing network now can contribute to logistics cost savings by: 1.) Centralizing inventory in fewer locations and reducing inventory investment, stocks-outs, and freshness quality problems, 2.) Reducing delivery driver "long-haul" time. This makes it possible to increase the hours, and therefore the capacity, a driver has in the market to make additional stops. Cross-docking pro-picked side bay loads from a centralized warehouse via transport and shuttling "double-bottom" side-bay trailers to drivers are methods of accomplishing more delivery capacity per unit despite an increased amount of territory covered.

### The Key Indicators of Efficient Warehousing Management

Operating figures are needed to evaluate a warehouse's efficiency and effectiveness. In the process, quantitative indicators for both capacity utilization and movement processes must be used. Expenditures include the warehouse's capital costs, equipment and payroll. The tasks of a warehouse can be divided into time-bridging processes when the goods are stored and movement processes associated with storage. These must be depicted in a system of key indicators to determine efficiency and effectiveness. The resulting efficiency indicators are storage capacity, the number of available storage positions and stock movements. On the input side, they are matched by performance measures of warehousing costs, that are divided into personnel costs and operating costs.

### Supply Chain Operations Reference Model (SCOR Model)

The supply chain council has developed the supply chain operations reference (SCOR) model, which considers the performance requirements of the partner firms in the supply chain (Stewart, 1995). The SCOR-model has been developed to describe the business activities associated with all phases of satisfying a customer's demand. The model itself contains several sections and is organized around five primary management processes of Plan, Source, Make, Deliver and Return. Each component has its own measurement criteria on; 1) Reliability 2) Responsiveness/flexibility 3) Costs and 4) Asset. The model has been able to successfully describe and provided a basis for supply chain improvement for global projects as well as site-specific projects. However, the SCOR model was developed to focus on manufacturing processes. The model is far from readily applicable for measuring the supply chain performance in the context of outbound logistics services as warehousing and transportation. Furthermore, research has not examined logistics performance measurement in the industry. This research focuses on this area by reporting the results of study of the effects of outbound logistics in the industry.

### Empirical Review

The case study organization GGBL has three sites of operations. These are Kaasi and Ahinsan site in Kumasi and Achimota site in Accra. The study focuses on the assessment of outbound logistics for all three sites. GGBL has its depots in all the ten regions in Ghana. Finished products are shipped from the brewery warehouses to various key distributor locations. The choice of GGBL was justified by the fact that it has currently engaged DHL as a third party Logistics Company to manage its outbound logistics activities which was necessary in addressing the main objective of this research study. Many manufacturing companies are engaging third party logistics companies to manage their logistics activities as a management strategy and also using the supply chain performance measurement for improving performance. It is therefore prudent to assess the outbound logistics performance of GGBL who have engaged DHL as a third party Logistics Company. The target population comprises the managers, assistant managers and staff of production, logistics, finance and procurement departments of GGBL because they were the key stakeholders involved in the outbound logistics activities with DHL. These populations were targeted because they possessed the required knowledge and experience of the logistics performance activities pertinent to the research study

## **DATA AND METHODOLOGY**

The target population comprised of managers, assistant managers and staff of production, logistics, and finance and procurement departments of GGBL. The sample population was selected by both convenience and purposive sampling techniques i.e. without any prior criteria except that the person should be a manager, assistant manager or junior staff of the company and also ensuring heads of departments was included.

Data for the study was obtained from interviews and questionnaires as well as secondary sources like GGBL reports, journals, books and the internet. Questionnaires and interviews were developed based on the outlined objectives and served as the main instruments for data collection. Primary data were obtained using questionnaires, personal observations and interviews with the management of the four departments of GGBL and the third party logistics provider. The method used for data collection was a self-administered questionnaire. This helped collate information on the performance of GGBL with regard to outbound logistics when they engaged the services of the third party logistics. The questionnaire was structured such that it contained both closed and opened questions. This then focuses on the assessment of outbound logistics of GGBL and how it can be improved.

All the measurement items of supply chain performance (adopted from the Supply Chain Operations Research (SCOR) Model) for assessing the outbound logistics of GGBL, included in the questionnaire were assessed on five point likert scale rating from 1- more worse than previous, 2- worse than previous, 3- same as previous, 4- better than previous and 5- much better than previous. Having tested and modified the questionnaire, they were then sent to collect the data. Data collection was undertaken for all GGBL sites. The entire data collection, which was cross-sectional, lasted for ten working days. The data for the study was collected in April 2012 by the researcher.

## RESULTS AND DISCUSSION

It was revealed that GGBL in implementing service efficiency for perfect order fulfilment, their outbound logistics is better than previous engagements. This reveals that order fulfilment is not best experienced with GGBL in relation to DHL. Service efficiency in relation to full order delivery at GGBL from the study revealed that it has not changed. Also, service efficiency relating to delivery performance to customer commit dates indicated that an outbound logistics operation does not affect this factor. For delivery in perfect conditions, the enumerated respondents indicated that it was same as prior to implementation by majority of the respondents. However, a few indicated that there has been improvement in delivery conditions with respect to the condition of the items. Reliability in service effectiveness relating to documentation accuracy at GGBL to DHL was revealed to be better than previous operations. Hence, it could be said that reliability of service effectiveness in GGBL in their outbound relationship with DHL is quite remarkable. However, there is the need to facilitate strong communication links so as to make their operations much better and more effective and reliable.

The results show that GGBL, in implementing responsive service effectiveness in terms of delivery fulfilment cycle time, produced the same outbound logistics as previous operations. In similar context, responsive service efficiency in relation to loading truck cycle time at GGBL it is the same as previous operations. The same response was given when they were asked about responsive service efficiency in picking product cycle time. Again, with respect to reducing order management costs, service efficiency was not responsive as most of the respondents stated that GGBL's relation to DHL is worse than previous operations. In addition, responsive service efficiency was examined using order delivery cost as a metric if it could be reduced in GGBL outbound logistics operations with DHL. The study revealed that it was worse than previous operations.

The results show that reduction in order management cost is worse than previous operations. Order delivery cost reduction, was same as previous operations. In a similar context, cost reduction associated with facility/equipment /manpower at GGBL is better than previous engagements. Reduction in warehousing cost is much worse than previous operations as indicated by majority of the respondents. However, a few opined that it is better than previous operations. From the study, cost reduction in relation to logistics administration cost indicated that outbound logistics operations is same as previous engagements. Reduction in transportation cost was the same as the previous commitment.

It was revealed that improvement in the cash to cash cycle time is the same as previous arrangements with DHL. This means that cash to cash cycle time in GGBL outbound logistics with DHL has not really changed and they could put measures in place to improve performance. With respect to improvement in the rate of utilization of facilities, equipment and labour, the study revealed that it was same as previous operations. Similarly, cost reduction associated with facility/equipment /manpower at GGBL from the study revealed that it is same as previous engagements. Improvement on net asset returns did not change as indicated by majority of the respondents. It is clear that there has not been any major improvement on net asset returns.

Inquiry into improvement on inventory days of supply for finished goods indicated that outbound logistics operations has either remained the same or has been better than previous operations. With regard to improvement on excess inventory, the respondents indicated that it was either same as or worse than the previous situation. Finally, asset dimension operational efficiency of key distributors of GGBL to DHL in terms of improvement on defective inventory was mostly the same as the previous as indicated by a sizeable number of the respondents.

### Service Effectiveness – Satisfaction

Satisfaction shows the extent of third party logistics firms meeting expectations has been the same as previous engagements. This shows GGBL has much to do to improve upon the efficiency of relationship with third party logistics to promote satisfaction among all parties involved. In addition, with respect to the level of satisfaction with third party logistics firms as a whole, there was divided opinion as a number of them indicated that it has been the same as previously done and the same percentage of respondents also opined that there is more satisfaction than previously. This shows there is the need for GGBL to foster a good relationship between DHL and other third party logistics firms

### **CONCLUSION**

Outbound logistics performance as well as other types of performance in supply chain operations requires assessment and evaluation models which will reveal opportunities to improve the performance of an organisation. This study identifies how a third party logistics company could support the outbound logistic of a manufacturing company effectively and efficiently. We identify how a third part Logistics Company could help a manufacturing company reduce its cost of goods sold and identify whether there is evidence to suggest the hiring of a third party logistics is economically efficient. Finally we provide recommendations that will guide the choice and appointment of a third party logistics provider in the manufacturing industry. The method used for the data collection was a self-administered questionnaire. This was analyzed using the supply chain operations reference (SCOR). With respect to reducing order management cost, service efficiency was not much responsive as most of the respondents stated that GGBL's relation to DHL is worse than previous.

In addition, responsive service efficiency was inquired using order delivery cost as a metric if it could be reduced in GGBL outbound logistics operations with DHL. The study revealed that it was worse than previous operations. Similarly, it was revealed that improvement in the cash to cash cycle time is same as previous arrangements with DHL. This means that cash to cash cycle time in GGBL outbound logistics with DHL has not really changed and they could put measures in place to improve performance. In terms of satisfaction, the extent of third party logistics firms meeting expectations equals previous engagements as indicated by majority of respondents. This shows GGBL has much to do to improve upon the efficiency of its relationship with third party logistics to promote satisfaction among all parties involved.

The results show that GGBL in implementing service efficiency for perfect order fulfillment, their outbound logistics is better than previous engagements. This reveals that order fulfillment is not best experienced with GGBL's relation to DHL. Service efficiency in relation to full order delivery at GGBL from the study revealed that it is the same as previous operations. As a result, the study has enabled us identify and validate the criteria in the context of the SCOR model which are important in the assessment of the outbound logistics activities of GGBL with the services of DHL as the third party logistics provider. The results will serve as a basis and initial benchmark of reference for any manufacturing company in their attempt to assess the outbound logistics operations which will improve supply chain performance. The study also reveals some challenges which the third party logistics provider was encountering which has an impact on GGBL outbound logistics operations. Some of these challenges were noted as; 1.) Intermittent issues on forklift availability for outbound logistics operations which have



impact on loading of trucks as well as causing production downtimes, 2.) There were also clear issues on capability of staff not having in-depth knowledge on the GGBL operations and ways of work, 3.) Intermittent issues on truck availability of the outbound logistics operations affecting turnaround time, 4.) Warehousing capacity and storage of product outside has also been a big challenge during lean seasons, 5.) There were issues of traceability which makes it difficult to trace product when there are quality problems. 6.) Pilfering was also noted as one of the challenges encountered by the third party logistics provider.

However, regardless of the third party logistics providers taking up the challenge to enhance the outbound logistics performance or not, the management of GGBL must be aware of these factors that they can use to monitor and measure the performance of the supply chain operations which will then improve the company's performance and profitability.

## RECOMMENDATION

The performance measurement construct obtained from the study can be used by the management of GGBL to perform routine assessment and evaluation of their outbound logistics activities to improve the supply chain performance of the organisation. Addressing the issues of forklift availability should be important for the third party logistics provider because of its impact on the loading and warehousing. Third party logistics providers should ensure that there are enough spares to repair any broken down forklifts. Also forklift mechanics should be stationed on site to ensure quick response to all issues. There should be more than enough forklifts on standby to avoid delays.

Concerns regarding capabilities of the staff of the third party logistics provider were also on the radar and efforts should be made to address this situation. There should be proper induction and training plans for all the staff. This should involve, understanding the operations of GGBL and ways of work to gain alignment. Also, experienced staff that were working for GGBL and have been made redundant can be employed by the third party logistics provider to help improve operations efficiently.

Occasional issues on truck availability and delays have to be reviewed because this has affected the truck turnaround time in term of responsiveness. There should be a good strategy in place to manage the maintenance of trucks as well as replacement. Also, there should be enough trucks to avoid any delays. Warehousing capacity and storing of product outside has always been a challenge during the lean season. It is important for GGBL to build new warehouses at the Ahinsan brewery site since there is enough land and space to resolve this situation.

It was difficult to trace product when there is quality problems. This was because the length of chain in the SAP system is longer than before. GGBL should ensure that the dispatch note is always included in all batch details. Quality assurance in GGBL must train the staff of the third part logistics provider on what is critical to track and trace the entire finished product.

Arresting pilfering was also important in the outbound logistics activities. This normally happens during loading and distribution to the key distributors. There should be CCTV cameras located clearly at all loading points to capture and arrest any act of pilfering. Supervisors should be extra vigilant to ensure effective loading of trucks. Also, installing Vehicle Telematics Systems (VTS) on all trucks will help monitor the movement of these trucks.

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## BIOGRAPHY

Kwame Owusu Kwateng has been teaching undergraduate courses in Information Systems and Logistics as well as postgraduate course in Management Information Systems since 2009 in the department of Information Systems and Decision Sciences, Kwame Nkrumah University of Science and Technology, Kumasi. He also worked with the Serwah Ampem Aids Foundation for Children in the early 2000's. He is a member of the Chartered Institute of Logistics and Transport, Ghana. He can be reached at Department of Information Systems and Decision Sciences, KNUST School of Business, Kwame Nkrumah University of Science & Technology, Ghana kowusukwateng@yahoo.com +233-203288888

John Frimpong Manso is a professional teacher by training and has had sixteen years teaching experience, of which three years has been at the tertiary level. I have also provided a number of consultancy and business advisory services to SMEs. He has personal interest for research and writing of books. Currently he has written three books which are yet to be published have conducted a number of researches, some are ongoing and others are nearing publication. He has served and still serving on a number of committees and boards in various organizations. He is currently a part-time lecturer of KNUST School of Business, Department of Information System and Decision Sciences. You can reach him at Department of Information Systems and Decision Sciences, KNUST School of Business, Kwame Nkrumah University of Science & Technology, Ghana m\_frimpongk@yahoo.com +233-205123344

Richard Osei-Mensah holds a Bachelor of Science (Mechanical Engineering) and Master in Business Administration (Logistics and Supply Chain Management) degrees from the Kwame Nkrumah University of Science and Technology. Currently he is the Plant Maintenance Manager for Pioneer Food Cannery Limited. He has also worked in similar capacities for Guinness Ghana Breweries and Logs & Lumber Limited in Kumasi. You can reach him on [oseimensahr@yahoo.com](mailto:oseimensahr@yahoo.com) +233-244333304