

Applicability of logistics management to bank's branch operation

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ABSTRACT

The paper examines prospects of applying logistics management to branch operation in a typical commercial banking sector using the case of Nigeria Commercial Banks. The research design involves an evaluation of selected study variables which are regressed to determine the impact of operational cost control on bank profit. On the basis of findings the study undertakes the development of improvement models. The study thus recommends the master plan and supply chain iterative processes, as operational improvement options for controlling bank logistic activities. The robustness of the master planning and continuous improvement models designed have the potentialities for enhancing the quality of bank operations whose functionality depend on resource flow across a typical head-office-branch network.

INTRODUCTION

Logistics management has always been an important preoccupation of military operations but paradoxically it was only recently that it is being accorded attention in the academic and business world (Obiora, 2008). Organizations particularly in the developing economies are known for making detailed planning for the management of financial, personnel and technology resources among others while the logistic aspects of other activities are left to the vagaries of circumstances. For instance several departments and units are created within a typical Nigerian industrial unit for the management of individual business resources with the assumption that once these are well managed optimal results will be accomplished. A common scenario is the obvious absence of coordinating departments saddled with logistic management in most of the organizations whether in the manufacturing or service industry constituting the Nigerian economic sectors.

Logistic according to Rushton and Osley (1991) is a concept based on total system view of the materials good and service flow activity from the source of supply through to the final point of consumption. The interconnectivity and interrelationship it provides in the production of manufacturing and merchandising business make it an essential tactical and strategic tool for manufacturing outfits and bulk-haulage firms.

In the service industry however many businesses especially Nigerian institutions have not recognized the impacts that commitment of reasonable resources into logistic management can make to the achievement of strategic goals. For instance cursory examination of annual reports and accounts of many Nigerian banks indicated significant financial commitment into

operational expenses such as marketing, information technology, personnel training and development.

Logistic functions in many of these banks are perceived merely as isolated acts concerned mainly with the movement of physical items from the point of conception to the point of consumption rather than all embracing acts of articulated planning and coordination associated with delivery of services to clients.

The significance of logistics management cannot be overemphasized as it influences not only the way resources are transferred between different production units/division in an organization but more significantly as a determinant for cost control in the Nigerian banking sector. Ojadi (2001) also submitted that no organization can operate efficiently without some elements of supply chain and logistic management; both of which are needed to tie-up loose-ends in productive activities. In a typical commercial bank branch-network, physical cash, stationery, equipment, furniture and personnel must inevitably be moved from certain sources to different destinations. Rising branch network and widespread adoption of information technologies rather than eliminate this has enhanced the requirement for careful- planning of resource-movements between points and reinforces the need for better arrangement that will ensure communication smoothing and seamless resource transfer between head-offices, branches and clients locations.

Empirical studies on the relationship between logistics planning and organizational efficiency abound especially in the developed nations of Europe and Americas (Peter et al 1991) Douglas et al (1998) and Siems (2005). Literatures also exist that undertake an

impact-analysis between resources, operations and cost efficiency in the Nigerian banking sector Osayameh (1983); Adam (2001) Teriba (2004) Adebola (2008) and Ogunbuka (2010). Most of these studies at best do not connect banking practices with logistics management. Operational costs involved in moving information and other resources through a supply – chain invariably determines an organisation 'bottom-line' performance. For cost control purposes; it is essential that cost structures are related to the quality of the supply – chain and by implication efficiency of the logistic arrangement designed for controlling operations in Nigerian service businesses like deposit – money banks. The needs for cost control using this approach has not been given the kind of attention it deserves. This paper explores the possibility of bridging this study gap.

Statement of the problem and study objective:

The expansion and growth trend in the Nigerian banking sector has resulted in the deployment of new technologies; equipment and other facilities to enhance operational efficiency. This has invariably been accompanied with growing need for control.

Ogunbuka (2010) while admitting the fact that banks like any other organization have their operating cost influenced by environmental forces, similar to that of any other organization, the peculiarity of their operations as service businesses emphasizes staff emoluments, and administration cost such as maintenance; rent/rates; travelling and branch-networking as preponderant. In particular deployment of technologies; stationery, equipment and cash has occupied the attention of Nigerian banks since the completion of the consolidation programme in 2005. According to Botha (2010), Nigeria is one of the largest cash based economies in the world accounting for circulation of over five billion notes during 2010 with 800 armoured trucks against only 900million notes in South Africa. An estimated One trillion naira (N1 trillion) was reported as volume of cash in circulation outside the banking system while the bank-vault cash accounted for N5.4trillion in March 2009 with about 87% in key commercial centres like Lagos Kano, Onitsha and Abuja. Apart from other resources, Nigerian banks handle for its routine activities the supply-chain of its cash resources either in transit or in-situ (Sorting) operations all of which are influenced by the efficiency of its logistics management. Without distinctive units charged with the responsibilities for the movement of its resources one is tempted to enquire how effective is the process of logistics management designed to mobilize such resources and facilities from

the points of origin to the points of usage. Generally overhead costs associated with resource-movement from the sources to their areas/ destinations of needs will have effects on a firm's 'bottom-line'. The extent of such influence will depend largely on the effectiveness of the organization's logistics management and the quality of the supply chain system. In essence the study examines the impacts such logistics management practices can have on banks operational costs. The paper also explores what logistics tools can be employed to enhance bank operating performance.

Conceptual Framework: The Council for logistic Management (CLM) cited in Obiora (2008) defines logistics as that part of the supply chain process that plans, implements and control the efficient, effective flow and storage of goods and services as well as related information from the point of origin to the point of consumption to meet customer requirements. The imperatives of logistic management, according to Rafele (2004) are that it makes available the right product, in the right quantity to the right customers at the right place and at the right time and cost. Resource acquisition and channelling are integral aspects in bank operational planning as it influences the quality of service (output) and branch efficiency. Movement of resources for banks' various activities depend on the quality of supply-chain system and interface between operational requirement and service delivery; a time, place and utility interaction. Reporting relationship within an organization will determine the quality of communication flow as well as resources deployment. This study therefore reviews previous academic postulations as regard the nature of organizational structure that prevails within the Nigeria commercial banking system.

Efficiency of resource movement between component units of a bank has implications on its operational cost. Attempts are further made to investigate among others; the cost implications occasioned by resource channelling within a bank structural network what improvement models are available as means for enhancing logistic management of resources within this structure.

Organizational Structure of the Nigerian Commercial Banking System:

The Nigerian commercial banking system is structured on a system whereby a set of individual banks operate through a network of branches controlled largely by policies, standards and directives from the head office, Adekanye (1985) Henderson (1988) and Yom (2005). A branch banking organization according to Yom (2005) and Peter and Sylvia (2008) offers a full range

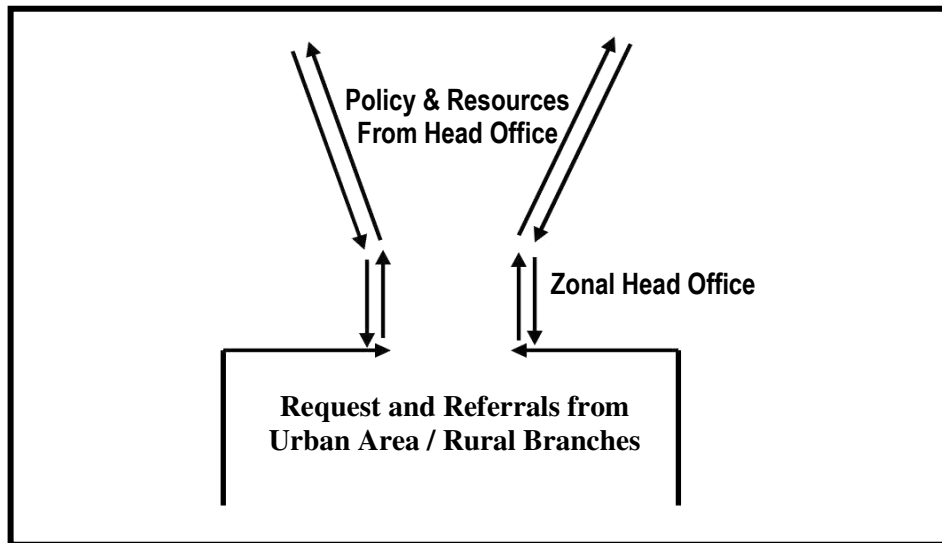
of banking services from several locations including a head office and one or more full-service branch office(s). Since December 2005 Nigerian commercial banks have exhibited universal outlook combining core banking with complimentary financial services characterized by increased application of computer for customer services such as account opening, self-service tellers/outline ATMs for cash, electronic banking, account mandate and other real-time capabilities.

A typical branch has a manager at the helm of its affairs assisted by a management team having limited

authority to make decisions on customer loan application, asset acquisition, recruitment and other facets of bank operations. Usually, operations especially granting of loan request of specific magnitude are referred to the head offices for final decisions. The arrangement creates a system of referral and facilities requisitions between the remotest branches say in a rural area to head office. While such system is designed to afford efficient remittances of facilities and prevents duplication of efforts; the operational cost involved is likely to be sub-optimal without a carefully designed supply-chain system workable logistics management.

Fig. 1.0

Channel of information, decision and resources exchange in a typical – Nigerian Commercial Banking Organisation.



Source: Author's Design

Figure 1.0 describes channel of information; movement of facilities, requests and referrals between head or main offices and branches of banks in a typical commercial bank – branching system. The essence of information and facility movement is to aid decision making and enhance operational efficiency; a target achievable based on timeliness, cost control and effective delivery system.

The funnel – shaped diagram indicate possibility of ‘a bottle-neck’ effect if appropriate logistics management schemes are not in place to smoothen movement and delivery of the needed resources.

Bank Service Delivery, Cost Implications and Logistics Management: Fierce competition in today's market is making investment in supply chain management an integral aspect of every physical good or service organization, Obiora (2008). Logistic planning as a component of supply chain management presupposes that facility acquisition impacts on cost and need to be integrated into the planning process.

Apart from the coordinating influence it exerts on productive capabilities of an organization the quality of logistic process used in operation, leverages on several internal factors like management style or culture; human resource- technology interface and by implication cost-profit relationship and performance quality. Banking operations by their nature are

designed to satisfy clients demand for security of deposits, access to funds, payment facilities and information. Efficient delivery of these services relies on assemblage of various facilities, personnel mobilization and technology acquisition all of which require coordination in order to ensure process synthesis in service offering; Drury and Tayles (2006).

Assemblage is one thing; promptness of resources supply to satisfy branch demand is another. The quality of a bank supply chain management will determine its ability to harmonize request – usage cycle and the extent operational variables are harnessed towards timely service delivery, customer satisfaction and cost control.

According to Ogubunka (2010) banks in Nigeria incur two broad categories of costs. These include interest costs; otherwise described as interest expenses which are incidental to deposit mobilization and bank lending activities. A variant of the cost are those incidental to operational activities including administrative; staff facilities maintenance; travelling and other charges relating to logistic activities.

Apart from the inefficiency of public infrastructures that most businesses in Nigeria are exposed to; effectiveness of plans relating to the movement of cash; equipment, furniture; stationery and kindred facilities constitute a significant components in bank operational costs; Klee and Fabio (2004); Al-Omiri and Drury (2007) and Tarhan (2009). In particular the logistic planning design by a bank influences its technical efficiency, resource availability for its operational needs and cost of doing business in its branches.

Components of Logistics Planning: Bower (2005) identifies four major components of a good logistic plan to include; information management, inventory control, warehousing and transportation. Nigerian banks as service organizations are particularly concerned with logistic management of its billion (currency) stock; information technology; inventory management of its stationery and equipment as well as transportation of its personnel and other facilities.

Information Technology: In every areas of production, order processing, demand forecasting and customer demand functions are interrelated; Johnson and Wood (1996). A

bank as a service enterprise also faces order processing in kindred transactions like foreign exchange, standing order and money transfer services. Delay in processing or errors in filling necessary document can result in lower customer services levels and higher cost to clients. Similar effects arise when a bank cannot accurately forecast customer demand for cash say in its banking halls or at its ATM points or service counters within a branch premise. A bank that integrate elements of demand forecasting, order processing and transit time-management will maximize the beneficial effect of applying information technology through improved customer services.

Inventory Control: The emphasis of inventory control centres on materials requirement planning and service level decision with a view to employing minimum quantities, consistent with desired delivery capability and total cost expenditure. The amount and location of a bank inventory both materials (stationary), facilities/cash affect the size of capital tied up, transportation cost incurred and the level of customer services provided. Application of logistic planning to such inventory management will ensure a selective deployment program that considers customer/users location, production centre, product qualities, transport integration and performance.

Transportation and Traffic: The spatial location of branches relative to the head office requires strategic planning for transportation activities by Nigerian banks.

According to West worth (1992) such activities as carrier selection and negotiations, rate analysis, freight claims processing and documentation are typical transportation process. A logistic plan is required in establishing a process of moving material, and staff between branches and head offices as well as from their homes to office. A bank can appoint a transport manager to either maintain a private fleet of vehicles (purchased/leased) or manage specific contract with transport firm that provide exclusive (contract service) or manage relationship with a transport company that offers point-to-point transfer at specified charges. The needs for a specialist manager borders on cost, speed and consistency of service. Furthermore the needs for planning the mode of selection; service assurance negotiations, regulatory matters, budgeting annual requirements,

information-management and executive development have grown beyond the application of the rule of thumb.

RESEARCH METHODOLOGY

The study to an extent can be said to be descriptive and exploratory. The explorative and descriptive nature of the study centres on its attempt to examine the relevance of in-depth coordination of resource mobilization as a means of enhancing efficiency in bank service delivery. Furthermore not many studies abound that attempt a linkage between resource deployment in service organizations like a bank and physical science of distributions through a supply chain as involved in logistics management. The analytical aspect involves an action research design which traces the causality between resource-mobilization management within a bank network of branches, operational efficiency and cost of doing business.

Data employed are mainly secondary whereby five commercial banks constituting about twenty percent of the entire Nigerian deposit – money banking population are purposively selected to constitute the sample. Mean operational metrics for five years 2005 – 2009 such as operating expense as percentage of total earnings (X₁), Non-financial expenditure as a proportion of operating income (X₂), Interest Expense as proportion of gross earnings (X₃), Interest Expenses as percentage of total business expenses (X) provide surrogate for logistics management efficiency. The selection of data for just five years borders on availability and the constraints that the study variables focus on the post consolidation era of 2005-2010.

The operating costs indicators related to operating income (Y) in the study period are presented in model 1 below:

Model 1: $Y = f(X_1 +, X_2, + X_4, + X_5, + e)$

Where in Y = Operational Income

X₁=Operating expenditure as a proportion/percentage

of total Earnings.

X₂= operating overheads as a proportion/percentage of operating income

X₃ = interest Expense as proportion or percentage of bank Gross Earnings

X₄= Interest Expense as a proportion or percentage of bank total interest income

X₅ = Total cost of operation as a proportion of total expense

Furthermore, in order to achieve other study objectives, identified variables are related using regression equations whereby operating income (Y) is related to each of the selected banks' operational expenditure and expenses to determine level of causality between the variables. Relationship between operating cost, income and earnings are initially determined using simple percentages to determine trends in operational cost changes. Two hypotheses are also tested on the assumptions that a decreasing relationship exist between operational income (surrogate for logistics management efficiency) and total cost of operation (resource movement).

HO1: There is a decreasing relationship between total operational income and expenditures for selected banks.

HO2: There is a decreasing relationship between each component operational expenditure and income the selected banks.

DISCUSSION OF FINDINGS

Relationship between Banks Operating Costs; Income and Earnings: Collected data are analyzed to examine trends in operational cost changes (relationship between selected banks operating cost, income and earnings) over a five year period 2004 and 2009 on the one hand and causality between operating income and expenditure for selected banks, on the other. Findings are presented in section 4.1 below

4.1 Relationship between Nigerian Banks Operating cost, Income and Earnings

Year	Operating Expenditure (Nbillions)	Operating Income	Gross Earnings	Operational Loss/Profit	Operating Expense as % of Gross Earnings
2004	326.23	194.16	794.99	-132.07	41%
2005	402.64	215.33	864.58	-187.31	46.6%
2006	367.67	233.02	717.41	-134.65	51.35%
2007	891.33	585.09	2088.24	-306.24	42.68%
2008	1025.99	656.81	2423.68	-369.18	42.33%
2009	1250.60	720.35	2600.50	-530.25	48.10%

Source: Authors' Analysis of Selected Bank Operational Costs, Income and Earnings

According to table 4.1 above operating losses of the Nigerian banking sector exhibited a rising trend from N132.07b. to N530.25billion (about 400%) in the six year period. Relationship between operating expenditure and Gross earnings also indicated a relatively high percentage level of about 45.3% yearly average. Apart from facilities maintenance and personnel overhead; facilities movement according to Botha (2010) constitute a significant component of Nigeria Deposit bank cost structure. These findings indicated that banks underestimate the needs for

better cost controls of its operations and the necessity for optimizing its resource distribution supply- chain model.

Relationship between Operating Income and Expenditure: Two models developed to test the efficacy of logistics cost control with respect to bank income found a high causality between operating income and logistic expenditure represented by total expenditure; interest and operating expenditure for the sampled banks.

Fig 4.4: Model Summary

Model R	R-Square	Adjusted	Std Error
10.861	0.742	0.691	2.320E7

ANOVA

Model	Sum of squares	df	Mean Square	F	Sig
Regression	3.098E16	4	7.745E15	14.391.00	
Residual	1.076E16	20	5.382E14		
Total	4.17E16	24			

Predictors: (Constant) Total Expenditure interest Expenditure, total cost and Operation **Expenditure**
Dependent variable: Operating Income.

Source: Output from an SPSS Computation of analysed variable. Authors' Compilation (2011).

The multiple coefficient of correlation $R = 0.861$ while multiple coefficient of determination R_2 which measures

the goodness of fit of the regression and the proportion of the total variation sampled banks income explained by logistic expenditure (explanatory variables) X_1, \dots, X_n is 0.742. When these values are adjusted for the degree of freedom associated with the sums of square, our adjusted $R_2 = 0.691$.

The implication of these findings is that high levels of

operating expenditure in the sampled bank influence the size of the income. This finding is in line with the finding of Ogunbuka (2010) which found a high incidence of operating cost for Nigeria Commercial banks relative to operating income.

Banks in Nigeria according to the findings in 4.1 and 4.2 generally incurred increasing cost in the study period 2004-2009: an indication that operating costs have not been effectively controlled and by implication the target variable; that is efficiency of logistic management is in doubt. On the average, operating losses were sustained when operating income and expenditures were compared in isolation of other incomes.

Obiora (2008) opined that in a situation where corporate entities are exposed to fierce competition and business survival is premised on efficient operations for creating value; there is the need for making investment in and focus on a good system of supply management. This is needed as a means for ensuring survival whether the organization deals primarily with physical goods or it is a service organization like commercial banks.

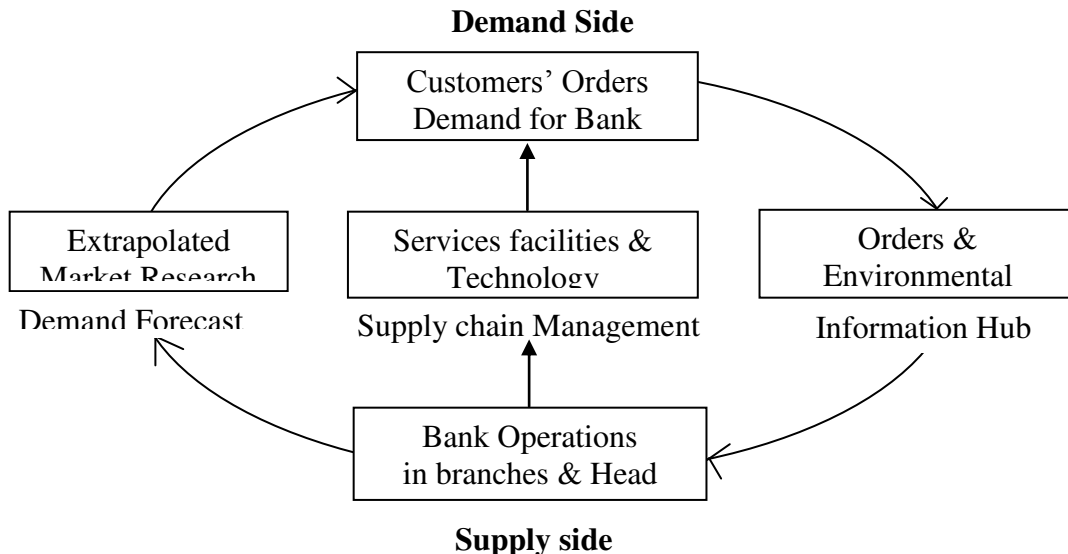
Apart from integrating every operating entities within the supply-chain, management, the logistic process will leverage several internal factors like management style, man-machine interface and by implication ensure

continuous performance improvement.

Banking operations by their nature are designed to satisfy customers' demand for security of savings, ease of access to funds (credit), payment facilities as well as enhanced returns on owner's investments. Efforts to synchronize the supply of various facilities and consumable for seamless operation, within the Nigerian banks should explore the possibilities of employing process synthesis encapsulated in 'Master planning' and 'Continuous Improvement Model. The two models when applied are expected to synthesize both bank operation and service offering.

RECOMMENDATIONS: Findings from the study indicating rising operating cost relative to income underscore the needs for Nigerian Commercial banks to put into place a workable programme of cost control. Such cost control can be affected among others through an optimization of individual bank logistic process. An efficient logistic management of resource and facilities movement between bank branches will leverage several internal factors like management style, culture, human resources, technology and by implication improve performance. The use of master planning and continuous improvement models will ensure operational cost minimization and improved service offering.

Fig. 5.0 System Application of Master Planning Model to Bank



Source: Lapide L. (2004) Sales and Operation Planning Journal of Forecasting Methods,

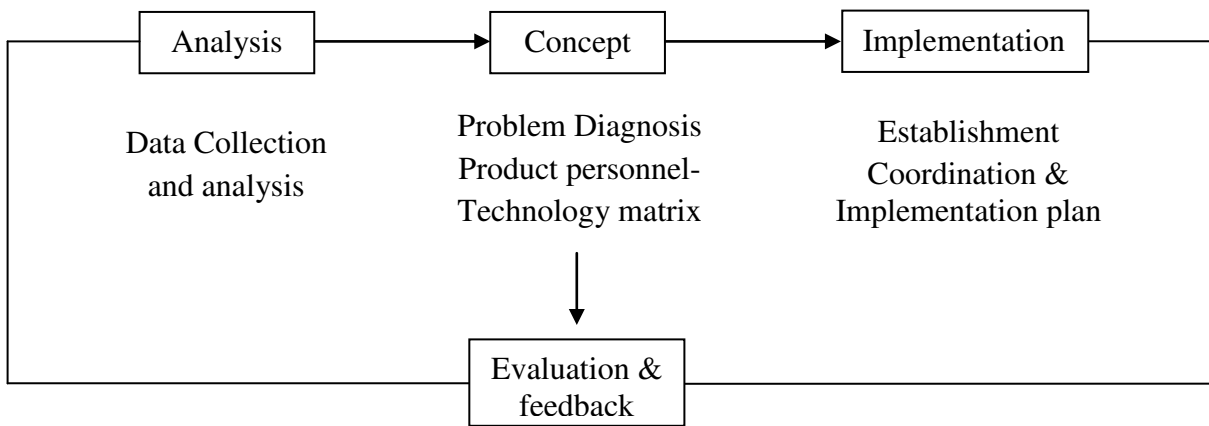
Master plan model according to Bower (2005) and Lapide (2004) can be partitioned into two basic procedures viz-master planning and supply chain management. The model provide a veritable tool for facilitating the process of forecasting customers' demand for bank services and afford a perfect information flow between the supply and demand side. i.e it co-joins both the operation and method of service. The needs for such synthesis are more enhanced in a service industry like banks where services are expected to be standardized and conform to practices from one branch to another.

It seeks the most efficient way to fulfil customer demand through a process of medium term forecast as well as (Stedler, 2005) Facilitate finer level planning of such bank operational activities and service procurement, through the acquisition of relevant technology, personnel, material and related facilities. Demand planning as a component of a master plan is concerned with the customer-demand side of the

organization which extrapolate demand within the prevailing market condition and other demand influencing activities e.g influx of customer towards month/week ends/festive periods or promotional campaigns with bank supply activities; Chen, Chen and Leu (2006); Van Landeg Lem and Vanmache (2002) The emphasis of such planning exercise is to reduce the incidence of under capacity, low resource utilities as well as managing pressure on bank resources at peak peril.

A Continuous Improvement Model (CIM) According to Hatherall (2005) as cited in Waters (2005) places emphasis on the need for logistic planning of activities through coordination in order to minimize cost and ensure efficient service delivery. When applied to bank operations in a dynamic environment, it ensures the need for constant review and reorganization of the interface between resource-utility need within a supply chain system add an edge to an organizations competitive drive and profitability.

Fig 5.1 Continuous Improvement Model (CIM)



Source: Global Strategy in Logistic and Distribution Donald W (2005) Planning Strategies for Management 4th Edition Kogan Ltd U.K. London.

A perfect match between resources; operations and customer satisfaction will require a regular analysis of the enterprise data base, product responsibilities, functional competency and potentials. This analysis will assist in developing a problem solving concept; map out solution strategy and implementation plan. A significant aspect of the improvement plan is the evaluation-feedback-control chain it affords for measuring the extent of customer satisfaction.

SUMMARY AND CONCLUSION

The growth in bank operational cost informed the need to examine the pattern of supply chain and management of logistic processes in the Nigerian banking system in the last five years. Rising branch network, widespread adoption of information technology has not been effective as tools for the management of facilities movement cash; and other operating inventories; within the Nigeria banking system. This

inform the need to enquire about the efficiency of logistic management designed for mobilizing these resources and the influences logistic process have on operational cost. Findings indicate rising operational cost for the selected Nigeria banks in the period and high causality between these costs and operating income. On the basis of negative impacts that rising operational cost can have on bank income the paper recommends logistic processes like the master planning and continuous improvement model.

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