Production Improvement Function and Corporate Operational Efficiency in the Nigerian Manufacturing Industry

G.I. Umoh[1*], Ify Harcourt Wokocha[2]
1.Management Department, Faculty of Management Sciences
University of Port Harcourt, Port Harcourt. Nigeria.
2.Office Technology and Management, School of Management Sciences
Rivers State College of Arts and Sciences, Rumuola Port Harcourt
[*]godaks5@yahoo.co.uk

Abstract

This paper investigates the extent to which Production Improvement Function, had affected the Corporate Operational Efficiency of the Nigerian manufacturing industry. Three hypotheses were formulated and questionnaire were distributed to eighty respondents in the eighty sampled manufacturing firms from the one hundred in the industry, quoted in the Stock Exchange(Fact Book 2009). Sixty two copies of the questionnaire were retrieved. These with the financial statements of the firms were used for the analysis. From its findings, the study revealed that production planning and control have significant impacts on operational efficiency of Nigerian manufacturing industry; while production scheduling has an insignificant and weak influence on operational efficiency alone. This finding implies that production improvement function significantly affects the operational efficiency of firms. Based on these, the study recommends among others, that the Nigerian manufacturing industry should efficiently and effectively operationalize the all embracing production improvement function, especially in the area of production scheduling, in order to restore the industry as the base of all development.

Keywords: Production Improvement Function, Corporate Operational Efficiency. Production Planning

1.0 Introduction

In the evolutionary thesis of man, production has been the major function directed at creating value and ther growing wealth in society (Bestwick and Lockyer, 2008; Mundel, 1983;). The historical discourse of Production Improvement Function (*PIF*) therefore revolves around Corporate Operational Efficiency (COE) (Corporate Cost Minimization Performance (*CCMP*)). This argument supports the assertion that there is a link between *PIF* and *CCMP*. This is because, *CCMP* has been of central importance and objective function to managers and researchers in all forms of formal business organisations, and it is acknowledged to be a crucial factor in organisational efficiency and effectiveness (Billington *et al,* 2003; Pineda, 2009). To this end, Brayton (1983) and Buffa (2001) argue that for business organisations to contribute to economic growth in society, they must ensure commitment in the exercise of *PIF*, and be passionate about their impact on *CCMP*. This lends support to Graig and Harris (1973) assertion and Kendrick and Creamer (2005) acknowledgement that, the theme of *PIF* and *CCMP* has been the subject of much theoretical and empirical effort in the field of production management and operations research. The subject of *PIF* and *CCMP* is equally considered critical in all forms of industry. For, as organizations operate in the new knowledge age and increasingly seek for competitiveness, innovativeness and creativeness, they strive to tenaciously hold on to their valued production practices. For instance, Jorgenson and Griliches (2007) identifies that there is a struggle by management all over the world to retain their valued production practices and *CCMP* is turning out to be one of the most critical issues of the future of effective organisations. This is because, the *PIF* creates value in the system and no organisation can afford to loose its most prized strategies for competing in the global-dynamic business environment.

Graves (1999) postulated that it is now imperative for manufacturing organisations not only to engage in strategic staffing, but to also continually search for ways to retain and raise the *PIF* levels as well as identify their productive competencies in unleashing their creative potentials towards *CCMP*. This is because retaining the best organisational survival and prosperity strategy and ensuring the maintenance of a competitive edge within the population of organisations can only be achieved through *PIF* which guarantees high level of *CCMP* (Umoh, 2005; Vollman *et al,* 2007). In the face of the obvious importance of *PIF* in manufacturing organisational practice, there is now a growing need for the emergence of a theory that encapsulates the full force of contributive stream of consciousness which leads to improved *CCMP*. For instance, while research that examines the relationship between organisational processes and *CCMP* is well developed (Kendrick, 2004; Wild. 2008), there is dearth of theory to elucidate the impact of *PIF* on *CCMP* in Nigerian Manufacturing Industry.

As Jaja (2005) once remarked, little attention has been paid in the literature to the investigation of *PIF* as an organisational phenomenon that might influence *CCMP* and induce organisational change and development. With particular reference to production management literature, Davies (2005) identifies that the

problem is with researchers in the management sciences who emphasize *human beings* rather than the *human doing* or *action*. The author argues that apart from their physical component, human beings make things happen, watch what is happening, wonder what is happening and/or can destroy what has happened by their actions (Davies, 2005; Winston, 2004).

The current gale of de-industrialization in African countries especially as it concerns Nigeria brought to the fore the conviction of Eleanya (2009) who stated that stable European and American states have industries which provide a platform for the citizens to be gainfully employed and usefully engaged hence removing a large segment of the population from, hunger, want, poverty, penury, anger and thus the possibility of being available for recruitment as political thugs, miscreants and possibly instigators of political, economic and social instability and ultimately, revolution. The same cannot be said of Nigeria.

Research evidence has shown that in Singapore, South Korea, Indonesia, Thailand and Malaysia the manufacturing sector contribution to Gross Domestic Product (*GDP*) is well over sixty percent (60%). These are countries that have through massive industrialization joined the class of world industrialized nations. Indeed, China which independence is about eleven (11) years older than Nigeria, a manufacturing share of *GDP* as high as eighty percent (80%). As at today manufacturing sector's contribution to *GDP* in Nigeria is less than three percent (3%). This is a problem.

There is therefore need to collectively sustain the pressure and advocacy for friendly business environment, stable macro-economic policies, consistent, clear and focused industrial strategy that will provide support and incentive for manufacturing activities, ensure value addition and job creation, to give the economy the required organizational productivity of profit maximization/cost minimization, and development in general.

It is the extent of understanding, design and application of these techniques as they relate to operational efficiency in Nigeria that forms the focal concept of this research. It is argued that the existing models could not have been developed with the Nigerian economy in mind, or that the economy lacks proper understanding of such models, thereby being unable to adapt it for application. There is therefore a vacuum in literature which has given rise to a growing concern that underlines the fact that *PIF* as an important determinant of *CCMP* has suffered neglect. This is serious because as argued by Thomas and McClain (2005), current models and theories that do not consider *PIF* and its effect on *CCMP* might be misleading or incomplete. At present, this emerging claim about the connection between *PIF* and desired cost minimization outcomes in Nigerian Manufacturing Industry is supported by little empirical research evidence. Most studies on the subject are theoretical and in some cases speculative with little empirical support (Agbadudu, 1996; Vollman *et al,* 2007).

Thinking along the reasoning of Fowge (1997), it is our belief that interest in *PIF* and operational efficiency has spurred curiosity beyond the capacity of scholars to keep pace with it either theoretically or methodologically. This seems to us to be the case in Nigeria as we do not find sufficient evidence of empirical studies on *PIF* and its impact on *CCMP* in the Nigerian Manufacturing Industry. Correspondingly empirical studies on *PIF* and *CCMP* specific-research in Nigeria are scanty (Chinweizu, 1979; Agbadudu, 1996) although Chase *et al* (2001) while acknowledging that the models of *PIF* and *CCMP* have been developed and tested in western countries, advocates that there is a need for more systematic research to determine whether these models apply elsewhere. It is upon this premise that this study sets out to examine the impact of *PIF* on *CCMP* in the Nigerian Manufacturing Industry with a view to enhancing organizational effectiveness and competitive advantage.

2.0 Theoretical Foundation.

Two key variables were important to the focus of this study and they were the Criterion Variable – *CCMP* which depends on the Predictor Variable – *PIF*. We defined *CCMP* as a measure of operational efficiency. In the same way, *PIF* has its dimensions as production planning, scheduling and control. It was assumed that the practices of *PIF* will trigger operational efficiency through its dimensional effects on cost minimization.

The objectives and the research questions for the study were drawn from the hypothesized relationships between the predictor and criterion variables. The framework assumes a straight line relationship between the predictor variables and the criterion variables. The conceptual framework, which is unidirectional, indicates that *CCMP* is a function of *PIF*. This is represented in the following mathematical model:

$CCMP = f(PIF)$

Where:

$CCMP$ = Corporate Cost Minimization Performance

PIF = Production Improvement Function

From the conceptual framework, *CCMP* is a measure of operational efficiency. The framework also shows the dimension of *PIF* as production planning, scheduling and control. Consequently our mathematical model can be expanded thus:

$CCMP = f(p, s, c)$

Journal of Information Engineering and Applications
ISSN 2224-5782 (print) ISSN 2225-0506 (online)
Vol.3, No.10, 2013

www.iiste.org

IISTE

Where:
>p = planning
>s = scheduling
>c = control

3.0 Methodology.

The cross sectional survey design is considered most appropriate because what is being investigated is experiences (Anwuluorah, 1987). Again the range of issues and inter-relations are numerous and diverse. The study is also a causal study that is intended to identify the effect of the application of *PIF* on *CCMP* in the manufacturing industry. The design is expected to reveal the relationship between *PIF* and *CCMP*. The purpose of a cross-sectional survey therefore is to generate a body of data in connection with two or more variables, and to examine and identify patterns of association (Nachimias, and Nachimias, 1981). This design meets our purpose and enables us to generalize from the result of our sample for the entire population. Furthermore, the causal investigation is adopted in this study and is built around the purpose of hypothesis testing in which we examined the causal relationship between *PIF* and *CCMP* in a non-contrived setting.

3.1 Population of the Study

The population consists of those manufacturing companies quoted in the Nigerian Stock Exchange (NSE) fact book of 2009. A total of one hundred (100) manufacturing companies were identified, but a sample of eighty(80) was drawn for the study using stratified random sampling method. In this case, the proportional allocation approach was used firstly to determine the number of companies in each stratum (sector) as classified by the Nigerian Stock Exchange (NSE) Factbook of 2009. Thereafter a simple random sampling technique was used to select members of the sample frame from each stratum (sector).

3.2 Data Collection Methods

Primary and secondary sources of data collection were explored for this study. The primary data were gathered through the administration of questionnaire designed using Five-Point Likert-Scale. While the secondary data were sourced from the companys' financial statements as reported in the Nigerian Stock Exchange Factbook of 2009.

The structured questionnaire containing questions relating to *PIF* with dimensions such as production planning, scheduling and control as it affects *CCMP* of firms in the Nigerian manufacturing industry were served on chief executives or senior managers in the production and operations department. The copies of the questionnaire were administered personally and online (where applicable) by the researcher to the respondents. Sixty two(62) copies of the questionnaire were retrieved and analyzed.

To generate the qualitative data, we adopted an in-depth personal interview through the use of open ended questions designed to clarify certain issues and obtain further intricate details about the phenomena under investigation which were difficult to capture through the structured questionnaire. Sometimes, since the interviews were conducted after the copies of the questionnaire with their responses have been retrieved, the interview was also used as a confirmatory test of some of the responses especially those that were not clear.

We observed the operations in the study units. Here, we adopted the socio-technical systems model (Susman and Evered, 1978). In this respect, the system's framework guided the collection of facts so that they were organized into an integrated whole about boundaries, transformation of inputs into outputs and the climate of the operations environment. Secondary data were generated from textbooks, journals, company bulletins, annual reports of firms and professional bodies. These materials were reviewed to obtain relevant information about the organisations and the phenomena we have studied.

3.3 Research Hypotheses

In undertaking this study, we were guided by the following hypotheses:

Ho_1 There is no significant relationship between production planning and cost minimization in the Nigerian Manufacturing Industry.

Ho_2 There is no significant relationship between production scheduling and cost minimization in the Nigerian Manufacturing Industry.

Ho_3 There is no significant relationship between production control and cost minimization in the Nigerian Manufacturing Industry.

4.0 Guide to Decision.

This section provides a verification of the hypotheses that were stated earlier using the simple linear regression analysis.

H_{01}: Production planning has no significant impact on cost minimization in the Nigerian manufacturing industry.

In testing this hypothesis, operational efficiency as the variable measure for cost minimization of the selected companies was regressed with the percentage responses of the influence of plan for production activities on cost minimization performance. The result obtained is presented in the table below;

Table 4.1:   The Impact of Production Planning on Cost Minimization

Statement Variables	Values
Co-efficient of correlation	0.84
Co-efficient of determination	0.706
t-statistic	3.579
p-value	0.01
Intercept	2.311
Partial Regression Co-efficient	0.006

Source; SPSS Version 16 Window Output

The table revealed an R-value of 0.84, which suggest that production planning has a strong impact on cost minimization. The analysis shows that changes in production planning accounts for about 70.6% variation in cost minimization; hence the model is a good fit. Therefore the null hypothesis that production planning has no significant impact on cost minimization in the Nigerian manufacturing industry was rejected.

H_{02}:   Production scheduling has no significant influence on cost minimization in Nigerian manufacturing industry.

In testing this hypothesis, operational efficiency as the variable measure for cost minimization of the selected companies was regressed with the percentage responses of the influence of schedule for production activities on cost minimization performance. The result obtained is presented in the table below

Table 4.2:   The Influence of Production Scheduling on Cost Minimization

Statement Variables	Values
Co-efficient of correlation	0.539
Co-efficient of determination	0.288
t-statistic	4.883
p-value	0.100
Intercept	918358.933
Partial Regression Co-efficient	2142.739

Source; SPSS Version 16 Window Output

The table shows an R-value of 0.536, which suggests a weak influence of production scheduling on operational efficiency. The analysis shows that changes in production scheduling accounts for about 28.8% variation in growth, hence the model is not a good fit. Therefore, the null hypothesis that production scheduling has no significant impact on cost minimization in the Nigerian manufacturing industry was accepted.

H_{03}:   There is no significant relationship between production control and cost minimization in the Nigerian manufacturing industry.

In testing this hypothesis, operational efficiency as the variable measure for cost minimization of the selected companies was regressed with the percentage responses of the influence of production control on cost minimization. The result obtained is presented in the table below;

Table 4.3:   The Relationship between Production Control and Cost Minimization

Statement Variables	Values
Co-efficient of correlation	0.91
Co-efficient of determination	0.828
t-statistic	4.076
p-value	0.004
Intercept	1.861
Partial Regression Co-efficient	0.001

Source; SPSS Version 16 Window Output

The table shows an R-value of 0.91, which suggests a very strong relationship between production control and cost minimization. The analysis shows that changes in production control accounts for about 82.8% variation is coat minimization, hence the model is a good fit. Therefore, the null hypothesis was rejected.

The following findings were therefore drawn;
1)   Plan for production activities enhances cost minimization performance of the firm.
2)   Schedule for production activities does not increase cost minimization performance of the firm.
3)   Control of production activities enhances cost minimization performance of the firm.

5.0 Discussion of Findings

The logical question one may ask at this point is "what do the research findings entail"? Therefore, this section of the study is focused on a detailed discussion of the research findings by relating them one after the other to previous studies.

5.1 Production Planning and Cost Minimization Performance

The key measure of the success of a firm is its productivity performance; hence business executives work assiduously to actualize this objective. One of the major means of doing this is through cost minimization.

In this study, we observed that production planning has a significant impact on operational efficiency and hence profitability of manufacturing companies in Nigeria. An increase in production planning activity is responsible for about 70.6% increase in operational efficiencies. These findings do not differ significantly from prior studies such as Olusegun and Adegbuyi (2010); Everette (2006), Higgins (2001) and Weimer (1999). Olusegun and Adegbuyi in their study revealed that a significant relationship exist between production planning operations and organizational output. Everette (2006) reported that forecasting future demand of a firm's product helps to eliminate any form of disruption to meet expected demand, which consequently enhances profitability and shareholders worth of the business. Higgins (2001) observed that firms with effective production planning system outperform those with an adhoc approach to production operations in around performance measures. Weimer (1999) revealed that operational cost is significantly high when there is lack of production planning operations which may lead to wastages, error in product design and rework. This implies that productivity is enhanced with adequate production planning operations.

5.2 Production Scheduling and Cost Minimization Performance

Production scheduling serves to boost production planning and control. It brings about smooth flow of work throughout the production cycle, prevents conflicts and delays in the use of productive resources and determines the expected time for the arrival of supplies and the shipping of finished products at minimum costs.

In this research work, it was gathered that production scheduling has a low influence on operational efficiency of Nigerian manufacturing firms. Increasing the scheduling of production activity results in 28.8% increases in operational efficiency. The absence of a significant influence of production scheduling, could be attributed to lack of adequate attention given to production scheduling by production managers. Scheduling is not an end in itself but a means to an end. It boosts production planning and control for improved performance.

Our findings in this study offer support to Olarewaju (2010) and Poterba (2006). Olarewaju (2010) affirms that in order to enhance productivity in Nigerian public service, adequate attention must be given to proper work scheduling by public administrators. This is equally applicable to private sector organizations. More so, Poterba (2006), had asserted that the end result of undermining work schedule in business organization is inefficient operations, low sales revenue and lack of business growth.

5.3 Production Control and Cost Minimization Performance

With production control, a firm can meet customer requests for delivery times when feasible, meet the present goals for inventory levels, and minimize per unit cost of production. We observed in this study that production control is a veritable weapon for improved productivity performance in Nigerian manufacturing firms. It was gathered that an increase in controlling production operations leads to 82.8% increase in operational efficiency. A detailed analysis of these findings revealed that even in most organizations where there are no formal planning, efforts are always made in controlling operations by ensuring that actual output conforms to expected output.

The outcome of this study aligns with previous studies. Ikan (2003) reported that production control aids managers in responding to the resulting threats and opportunities. It detects changes that affect the organization's products and services, thereby promoting corporate growth. Matsushita (2001), indicated that customers' demand for improved design, quality or delivering time from shareholders and management wealth maximization are mere illusions without effective production control. Abrahamson and Pickle (1990), reported that value-added to a product or service so that customers will favour the firm's products as against competitors offer takes the form of above-average quality, which is usually achieved through control procedures.

6.0   Recommendations

Based on the findings of this study, the following recommendations were suggested;

1) Since production improvement function enhances cost minimization and hence productivity performance, Nigerian manufacturing firms must with seriousness be involved in effective and formal planning and control of production activity, irrespective of the size and age of the firm.

2) Nigerian manufacturing firms should embrace the application of advanced manufacturing technology, such as automated production technology, computer assisted design and manufacturing (CAD/CAM), robotics and flexible, manufacturing systems.

3) To ensure effective application of advanced manufacturing technology in the Nigerian manufacturing

industry, professionals with high technical knowhow should be hired by the organization and effective training programmes should be organized for the organizational members who are to be affected by the technological advancement.

4) It is evident from our findings that production scheduling, which is a component part of production improvement function is generally de-emphasized in most of the companies studied and therefore hinders the smooth flow of work throughout the production cycle which accounts for its insignificant influence on cost minimization. It is therefore recommended that adequate attention should be given to production scheduling by production managers.

5) There should be a formal relationship between the Nigerian manufacturing sector and the tertiary institutions. This will go a long way to make research activities and findings efficient and effective.

References

Abrahamson, F.A. and Pickle, G. (1990) "The Interface of Production and Marketing – An Empirical Analysis"; *Journal of Industrial Marketing;* 7 (1): 212-236.

Agbadudu A.B. (1996) *Elementary Operations Research 2*, Benin: Mudiaga Press.

Anwuluorah, M. C. (1987): "Surveys and when is a survey best in Social Research and Information Gathering" in Ugwuegbu, D.C.E. and Onwumere, S. O. (ed) *Social Research and Information Gathering,* (Lagos, F. G. Printers) p.17 - 27.

Bestwick, P. P. and Lockyer, K. (2008) *Quantitative Production Management*, London: Pitman

Billington, P. I.; McClain J. O. and Thomas, L. J. (2003) Mathematical Approaches to Capacity-Constrained MRP Systems: *Review, Formulation and Problem Reduction*, *Management Science*, Vol. 29, No. 10 (October), pp.1126-1141

Buffa, E.S. (2001) *Production and Operations Management,* New York: Krieger Publishing

Chase, R. B; Aquilano, J.J; and Jacobs l;. R. (2001) *Operations Management for Competitive Advantage*, Boston: McGraw-Hill.

Chinweizu, C (1979) *The West and The Rest of US,* London: NOK Publishers

Eleanya, L. U. M. (2009) De-Industrialization and the Stability of Nation States, Port Harcourt: RIVCAS

Everette, E.A. (2006) *Production and Operations Management – A New Approach*; Englewood Cliffs; Prentice-Hall Inc.

Fowge, F. P. (1997) *Modernization without Development in Africa*, Africa World Press INC. Asmara, Eritrea.

Graves, Stephen C. (1999) Manufacturing Planning and Control, *Massachusetts Institute of Technology*, (November), pp. 17 – 25

Higgins, J.M. (2001) *Strategic Management and Operations*; Chicago; The Diyden   Press

Ikan, N. (2003) "Impact of Production Control on Corporate Growth"; *Decision Science;* 27 (4); 616-639.

Jain K. C.; and L, N. Aggarwal (2008) *Production Planning, Control and Industrial Management,* Delhi, Nai-Sarak: Khalma Publishers.

Jaja, S.A. (2005)*Small Business Paradigm;* Port Harcourt, Pearl Publishers.

Johnson L. A. and Montgomery, D. C. (2009) *Operations Research in Production Planning, Scheduling and Inventory Control,* New York: John Wiley.

Matsushita, K. (2001) "Production Control and Customers' Satisfaction in Industrial Market"; *Princeton University Journal of Management;* 9 (1): 107-123.

Nachimias, C. and Nachimias, D. (1981); *Research Methods in the Social Sciences, Alternative Second Edition without Statistics*. Edward Anold (Publishers) Ltd. London.

Nachimias, D. and Nachimias C. (1976): *Research Methodology in the Social Science*. UK'Edward Arnold.

Olarewaju, A.D. (2010) "Productivity Improvement Techniques in the Public Service"; *International Journal of Management and Administration*; 31(1): 144-159

Olusegun, D. and Adegbuyi, F.M. (2010) "The Effect of Production Planning and Budgeting on Organizational Productivity"; in Olusegun, D and Adegbuyi, F.M. (Ed.)   *Production Management – A Strategic Approach*; Ibadan; Heinemann Publishers

Poterba, D. (2006) "Work Schedul*e* and Business Growth in India Manufacturing Firms"; *Administrative Science Quarterly*; 21(2): 247-261.

Susman G.I; and R. Evered R. (1978); "The Scientific Merits of Action Research". Administrative Science Quarterly. Vol. 123 p 599.

Thomas. L. J. and J. O. McClain, (2005) An Overview of Production Planning, In S. C. Graves, A. H. G. Rinnooy Kan and P. H. Zipkin (eds.) *Handbooks in Operations Research and Management Science*, *Logistics of Production and Inventory*, Vol.4, pp. 333-370,

Umoh G. I. (2005) *Quantitative Analysis for Modeling and Decision Making,* Nigeria: Lynno Company.

Vollman, T. E., Berry, W. L. and Why Bark, D.C. (2007) *Manufacturing Planning and Control Systems,* Boston:

McGraw-Hill.

Weimer, A.M.(1999) *Introduction to Business – A Management Approach*; Homewood Illinois; Richard D. Irwin.

Wild R. (2008) *Production and Operations Management*, New York: Holt, Risehart and Winston

Winston, W. L. (2004) *Operations Research: Applications and Algorithms*, California: ITP Wadsworth Inc

Brayton, G.N. (1983). "Simplified Method of Measuring Productivity Identifies Opportunities for Increasing It". Industrial Engineering. February

Craig, C.; Harris, R. (1973). "Total Productivity Measurement at the Firm Level". Sloan Management Review (Spring 1973): 13–28.

Davis, H.S. (2005). Productivity Accounting. University of Pennsylvania.

Jorgenson, D.V.; Griliches, Z. (1967). "The Explanation of Productivity Change". Review of Economic Studies 34 (99): 249–283. doi:10.2307/2296675. JSTOR 2296675.

Kendrick, J.; Creamer, D. (2005). Measuring Company Productivity: A handbook with Case Studies (89). The National Industry Productivity Board.

Kendrick, J.W. (2004). Improving Company Productivity. The Johns Hopkins University Press.

Mundel, M.E. (1983). Improving Productivity and Effectiveness. Prentice-Hall, Inc.

Pineda, A. (2009). A Multiple Case Study Research to Determine and respond to Management Information Need Using Total-Factor Productivity Measurement (TFPM). Virginia Polytechnic Institute and State University

Godwin Ikpe Umoh is an Associate Professor in the University of Port Harcourt. He has a PhD Engineering Production, Specializing in Systems, Re-Engineering and Operational Research from the University of Birmingham, England, UK (1983). His MSC is in Systems Analysis and Operational Research (1981). He has a Graduate Diploma in Systems analysis and design, from Aberdeen College, Aberdeen, Scotland, U.K. (1980). He is presently the Head of Department of Management in the Faculty of Management Sciences in the University of Port Harcourt. He is a member of the Institute of Data Processing London. His areas of Specialization include Operational research applications in business, Advanced Statistics and Statistical analysis, Operations/Production Management, Human factors engineering otherwise known as Ergonomics, Management Information Systems. He is a Fellow, Nigerian Institute of Corporate Administration. He is a Member, Operational Research Society, UK, Member, Institute of Data Processing, London, Member, Ergonomics Society, UK, Member, Institute of Production Engineers, Uk. Member, The Academy of Management.

Ify Harcourt Wokocha is a Chief Lecturer with the Rivers State College of Arts and Science. He has a PhD in Management from the University of Port Harcourt. His area of specialization includes Operations Management. He is a member of the Nigeria Institute of Management.

This academic article was published by The International Institute for Science, Technology and Education (IISTE). The IISTE is a pioneer in the Open Access Publishing service based in the U.S. and Europe. The aim of the institute is Accelerating Global Knowledge Sharing.

More information about the publisher can be found in the IISTE's homepage: http://www.iiste.org

CALL FOR JOURNAL PAPERS

The IISTE is currently hosting more than 30 peer-reviewed academic journals and collaborating with academic institutions around the world. There's no deadline for submission. **Prospective authors of IISTE journals can find the submission instruction on the following page:** http://www.iiste.org/journals/ The IISTE editorial team promises to the review and publish all the qualified submissions in a **fast** manner. All the journals articles are available online to the readers all over the world without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. Printed version of the journals is also available upon request of readers and authors.

MORE RESOURCES

Book publication information: http://www.iiste.org/book/

Recent conferences: http://www.iiste.org/conference/

IISTE Knowledge Sharing Partners

EBSCO, Index Copernicus, Ulrich's Periodicals Directory, JournalTOCS, PKP Open Archives Harvester, Bielefeld Academic Search Engine, Elektronische Zeitschriftenbibliothek EZB, Open J-Gate, OCLC WorldCat, Universe Digtial Library , NewJour, Google Scholar