

Consignment Inventory System and Entrepreneurial Survival in Lagos State

Dr Ovharhe, Orugba Harry (Ph.D)^{1*}, Dr Ahunanya, Valentine (Ph.D)², Dr Woko Emmaunel Boma (Ph.D)³

^{1*}School of Social Development & Occupational Therapy, University of Port Harcourt Teaching Hospital, Port Harcourt, Rivers State, Nigeria

²Centre for Logistics and Transportation Studies, University of Port Harcourt

³Bayelsa State College of Health Technology, Otuogidi, Ogbia LGA

Corresponding Author: Ovharhe, Orugba Harry

harryovharhe@yahoo.com

DOI: 10.56201/ijssmr.v8.no5.2022.pg29.42

ABSTRACT

This study investigated consignment inventory system and entrepreneurial survival in Lagos State. The study adopted cross-sectional survey and quasi-experimental method. With the aid of accidental sampling technique and proportionate stratified random sampling technique, the total population of 98 and sample size of 83 was determined using Slovin's Formula at 0.05 level of significance. The 83 copies of questionnaire were administered, only 72 was deemed fit after processing, retriever, coding and cleansing. The Split-half method of reliability accompany with Spearman Brown Prophecy formula. Two research questions and two hypotheses were raised which was tested with parametric measurement using Pearson Product Moment Correlation because of its monotonic function via SPSS 25 version. From the findings, consignment inventory system aligned corporate bond with innovation and adaptability. Hence, inventory control strongly correlates significantly entrepreneurial survival. Hence, it was revealed that the alternate hypotheses were accepted. It could be recommended that employee at all level should be train on innovative skills on how to control inventory in the long run and short run. The consciousness on the philosophy of survival should be the spirit of leadership in the enterprise.

KEYWORDS: *Consignment Inventory System, Entrepreneurial Survival, Inventory Control, Innovation, Adaptability*

1.1. Introduction

With the moving trend of the pandemic in Nigeria, the need to address the pitfalls and bottlenecks in the micro-firms should be considered paramount, especially with regards to entrepreneurial survival in the logistic issues that engulf distribution of the rehabilitation therapy equipment. Entrepreneurs in the merchandizing of rehabilitation therapy equipment are faced with variety of challenges as a result of the changes that occur concurrently in the business environment, they are operating in with advent of delta variant Covid-19 pandemic. These

challenges are disturbances which consignees and consignors experience in trying to survive in their entrepreneurial merchandizing activities. As Rogers, Steven and Matthew (2016) succinctly puts it, entrepreneurs, like micro-firms dealers on the rehabilitation therapy equipment do finds it difficult to coup with the challenges on how to survive.

Nigeria is aiming to the cohort of becoming a key entrepreneurial player in the global village and as rightly argues customer choices can affect the survival proxies such as adaptability, flexibility, innovation, customer retention, business expansion, customer loyalty, client satisfaction, customer patronage and profit-margin (Bertha, Ferry & Himadhani, 2020). On the other hand, micro-firms of the rehabilitation therapy equipment in Nigeria have not fully been immune to the impacts of the recent global market survival because of the risk they encounter to survive during the business cycles of recession (Robert, Chao, Shanshan & Tae, 2017).

However, according to Alina, Michael and Alexander (2017) entrepreneurs in the micro-firms of rehabilitation therapy equipment should be prepared to manage risk, failure and success on their survival strategies for the worst, so as to survive its innovation, client satisfaction, adaptability, flexibility, customer retention and profit-margin in turbulence times.

The term survival has both dynamic subjective and objective dilemma (Ovharhe, Woko & Ezeocha, 2021). The most objective way to measure survival in micro-firm is to observe their continuing existence. Survival which is the tendency of any micro-firm to orchestrate merchandizing function towards long-run and short-run existence in the climax of reckless and troublesome competitive parity with fine-tuning business strategies and tactics are fundamental issues for any business organization in the present global environment and beyond because the business environment especially the external environment is characterized with complexities, uncertainties and unanticipated events that threaten the existence of organizations (Ovharhe, 2022a). These uncertainties if not properly managed begin with organizations experiencing decrease in sales, market share and profitability (Ovharhe & Igbokwe, 2021).

The entrepreneurial survival climax during the covid-19 pandemic engulfed the isolation-period, lock-down, social distancing among others. Thus, in the long run this might result to challenges on lead-time, damages, demurrage, deterioration, obsolescence, and overhead cost (Ahunanya, Ovharhe, Emenike & Otto 2022a; Ahunanya, Ovharhe, Emenike & Otto, 2022b).

The consignment inventory system could be integrated to proffer possible solution. The consignment inventory system synergized the consignee and consignor to plan, organize, coordinate, direct and control inventory in the short-run and long-run to achieve firms' inventory operational and strategic policy in line with the corporate objectives of the enterprise. The framework of the consignment inventory system also controls the input and output phenomena to prevent error in the stock supply change management, warehousing management system and enterprise resource planning (Ovharhe, 2022b).

The consignment inventory system also addresses the complexity within fire sales occurrences. Fire sales occur when firms are in dilemma on stock control. This scenario occurs when the firm ought to auction stock to prevent deterioration, obsolescence and damages. The firm would rather sales at a giveaway pricing instead of running at loss. No entrepreneur would want to

engage in the loss of profit at tax, return on capital employed, payback period, internal rate of return and net present value in consignment stock.

This paper identifies the corporate bond during the covid-19 pandemic era among consignment inventory system and entrepreneurial survival in the micro-firms of rehabilitation therapy equipment in Lagos State, Nigeria.

1.2. Objectives of the Study

- i. To examine the corporate bond among inventory control and innovations in the micro-firms of rehabilitation therapy equipment in Lagos State, Nigeria.
- ii. To examine the corporate bond among inventory control and adaptability in the micro-firms of rehabilitation therapy equipment in Lagos State, Nigeria.

1.3. Research Questions

- i. What is the corporate bond among inventory control and innovations in the micro-firms of rehabilitation therapy equipment in Lagos State, Nigeria?
- ii. What is the corporate bond among inventory control and adaptability in the micro-firms of rehabilitation therapy equipment in Lagos State, Nigeria?

1.4. Hypotheses

Ho_i: There is no significant corporate bond among inventory control and innovations in the micro-firms of rehabilitation therapy equipment in Lagos State, Nigeria.

Ho_{ii}: There is no significant corporate bond among inventory control and adaptability in the micro-firms of rehabilitation therapy equipment in Lagos State, Nigeria.

2. LITERATURE REVIEW

2.1. Conceptual Review

Consignment inventory system is a basic requirement to survive the competitive parity in the micro-firms. This requirement orchestrates the consignee and consignor to keep a stock of products as safety stock. However, obsolescence of products, i.e. stock that are no longer used, is an important cost factor. The consignee functions on the demand prospect, while the consignor is seen from the view of supply. This is to say that if demand stimulates or orchestrates supply, consignee orchestrates the brand, product or service deliverables of the consignor (Ovharhe, Woko & Ezeocha, 2021; Ovharhe, Woko & Ogolo, 2021).

Anderson (2012) proposed two classes of discrete time models on the consignment inventory system that might affect the merchandizing activities of the consignee and consignor. The first class of models incorporates the risk of consignment becoming obsolete considering logistic distribution strategy and fleet management. In the second class of models Markov processes are used to model the risk of consignment becoming obsolete stock. Evans (2020) develops a forecasting system to estimate the total requirement of consignment moderating by the consignee and consignor.

Consignment inventory system ranges from eyeball systems to reserve stock to perpetual stock. Valuation of stock on consignment inventory system is based on certain deterministic or stochastic factors among the consignee and consignor (Ahunanya, Ovharhe, Emenike & Otto 2022a; Ahunanya, Ovharhe, Emenike & Otto, 2022b). The deterministic and stochastic factors most at times are bent on economic factors or market factors such as exchange rate, discounting rate, inflation and competitive parity (Ovharhe & Igbokwe, 2022; Chibuike, Ovharhe & Amara, 2022). If the economic and market factors are beyond control or not being able to managed by the consignee and consignor they will invoke the term “fire sales”. Fire sales are scenario whereby both consignee and consignor reach a point of accord and satisfaction to auction consignment stock (Ovharhe, Okolo, Woko & Igbokwe, 2022). The consignment stock is offers for sales at give-away price to prevent much loss.

But, much consideration is adhering to the original cost, market value, or current replacement costs, whichever is agreeable. This practice adopted because it minimizes loss with focus of cost-benefit analysis on the entire enterprise transaction (Priniotakis & Argyropoulos, 2018).

The consignment inventory system merchandised stock varies from one consignee-consignor to another. Consignment inventory system may be justified because low risk-investment by both the consignee and consignor (Ovharhe, 2022b) The consignment inventory system has transfer of burden to the insurance companies. The end-user certainty is mostly assured before transaction proceeds. The consignor will be save from a lot of swollen headed burden on creating market development, product development and market extension certainties because the consignee tends to act in reputable capacity (Ovharhe, 2022a). While, the consignee benefits from the productivity, financing, procurement, labour and overhead production cost.

On the other hand, because stock are available to meet demand, consignment hence inventory system may boost client/customer relationship management and profits as frequencies of patronage, time of patronage and volume of patronage are optimistic. Augmenting consignment inventory system should be based on reordering time and stock specification of order placement. However, during the covid-19 pandemic consignment inventory carrying costs, material purchases, and storage costs are all expensive that affect the survival of micro-enterprise. However, stock-outs are expensive also and more disastrous during the covid-12 pandemic because of low patronage and productivity as a result of the lock-down, social distancing and isolation period. All of those costs can be minimized or properly managed by efficient consignment inventory policies.

Consignment inventory system involves the procurement, care and disposition of materials. There are three kinds of inventory that are of concern to managers: Sarojit and Chitra (2017) raw materials, in-process or semi-finished goods and finished goods. If a manager effectively controls these three types of inventory, capital can be released that may be tied up in unnecessary inventory, production control can be improved and can protect against obsolescence, deterioration and/or theft.

Consignment inventory system records are essential to making buy-and-sell decisions. Some companies control their stock by taking physical inventories at regular intervals, monthly or quarterly. Others use a dollar inventory record that gives a rough idea of what the inventory may be from day to day in terms of dollars. If your stock is made up of thousands of items, as it is for

a convenience type store, dollar control may be more practical than physical control. However, even with this method, an inventory count must be taken periodically to verify the levels of inventory by item. Periodic physical counts are taken to verify the accuracy of the inventory card.

Some discrepancies between inventory records and quantities at hand cannot be ruled out. An actual count of all items at hand is periodically necessary for effective consignment inventory system. The method selected depends upon the size and diversity of stock, the degree to which work process is standardized and the processing methods employed in a particular plant (Inegbedion, Sunday & Eze, 2019)..

An efficient system must be designed for the control of material from the time of requisitioning of purchase to the storage of the finished product. A step by step standard routine must be developed, authority and responsibility for the execution of each step, must be clearly delegated to specific individuals.

From the above, one can observe that the three methods of consignment inventory system are interwoven (Shahzad, Syed, Faraz & Moin, 2020).. This is from the point of view that physical inventory items cannot be determined without the material control cycle method which monitors the step-by-step movement of inventory from entry point to exit point and the material control cycle cannot be effective without the application of the perpetual inventory method. Therefore the three methods of consignment inventory system are complementary.

Mohammed (2018) admits that an alternative approach to consignment inventory system (for manufacturing inventories in particular) is to consider inventory as a residual and not control it directly. This is the central theme of just-in-time (JIT) system, in which attentions is focused on the eliminations of waste, the reduction of variability, close linkage among all systems, and process standardization and rationalization (Pretorius & Pretorius, 2020). These systems are based on the fact that myriad decisions about manufacturing are often made with reference to the resulting impact on inventory positions. Explicit consideration of issues that can result in inventory profitability or depletion can eliminate the causes of such profitability or depletion and prevent them.

Perpetual consignment inventory system is the most practical for big-ticket items. With such items it is quite suitable to hand count the starting inventory, maintain a card for each item or group of items, and reduce the item count each time a unit is sold or transferred out of inventory (Alexandre&Jean-Marie, 2021).

Afolabi, Morakinyo and Olumide (2017) developed a method to estimate the total requirement of service products by using the sales data of the consumer products in which the service parts are used. Renewal theory is then used to develop an appropriate forecast for the relevant service parts. Priniotakis and Argyropoulos (2018) provided continuous techniques for analysis of non-stationary demand processes. They remark that an important form of non-stationary is the situation where demand can stop. Romero, Rajkumar and Kelly (2012) investigated the effect of obsolescence on the inventory policy. They showed that significant savings can be made by including the risk of obsolescence in the inventory decision. Muhayimana (2015) recognize the importance of stocks becoming obsolete in inventory control. They remark however that in practice, it is only possible to find a rough estimate for the probability that the part will become obsolete in the near future. This makes approaches that have a lot of parameters hard to implement. Therefore, they propose simple methods that only need a rough estimate for the risk that the part will become obsolete in the coming period. They argue that such an estimate can be

given by an expert. Evans (2020) considers the final order problem under the possibility of stock disposal. A dynamic programming formulation of the problem is derived in order to find the optimal policy. Muhayimana (2015) consider an exponentially declining Poisson demand process. Dynamic programming is used to optimize the ordering process.

Saygin, (2020) consider a model in which service parts can be obtained in two different ways. During a final production run, parts can be obtained at a low price. After this run the parts can only be obtained at an increased price. They find a series of order-up-to levels, which are decreasing in time, together with an optimal size for the initial order. Mohammed (2018). study the effect of delaying the final order. They find that the manufacturer benefits from this delay because it improves forecasts. On the other hand, the supplier will need an incentive to enact this delay, because an early final buy is beneficial for his turnover. Song & Lau (2004) construct an approximation for an EOQ model including obsolescence. The proposed solution relies on dynamic programming.

Furthermore, their method requires sophisticated knowledge regarding the distribution of the time at which the part becomes obsolete. The problem of determining the final order quantity of repairable service parts (Azeddine & Mohammed, 2017).The parts cannot always be repaired, for they are sometimes condemned. The problem is modeled as a transient Markov chain. Also, an approximate model is presented that allows for more efficient calculations. Managerial insights are developed, and a sensitivity analysis is performed. Alexandre and Jean-Marie (2021) studied a model in which it is known in advance that a significant demand decrease will occur, which will cause the optimal reorder-point to decrease.

Because it is assumed that only demand can take away the excess stocks resulting from this change in control policy, the shift in control is initiated before the shift in demand occurs. They derive a method to approximately determine the optimal time to shift to the new control policy.

2.2. Theoretical Foundation

Just-In-Time (JIT) Theory

Just-In-Time (JIT) which is also known as Toyota production system (TPS) was developed within Toyota manufacturing operations by Taiichi Ohno in Japan within 1960s and 1970s as a means of measure of fine-tuning client demands with achieving optimum service delivery time as supported by Krolicki and Noel (2020); Chibuike and Ovharhe (2022). With a JIT strategy, the consignee can be perceived to the caretaker of the consignment, while the deliverables of the product or equipment in the terms of occupational therapy can be seen as the consignor. JIT goes further than material requisition planning, because the consignee and consignor ought to be in close pace to control the consignment deliverables service at the right time, right positioning on warehousing system of containerization and palletization, with the right specification of brand and quantity, nevertheless with consistency and adequate store administration.

JIT theory was developed in Japan to minimize inventories waste, cost and bottle-necks. Ideally, JIT theory in the consignment inventory system consider the order processing and requisition order of the stocks this make the JIT theory unique in the planning processing and inventory control, because JIT lay emphasis of the focus on continual improvement of any enterprise. In the consignment inventory system JIT also promotes zero degree defect. Consignment can

encounter conceal or apparent damages, but anticipating zero degree defect ensures the presence of total quality assurance and total quality control.

The capability of the JIT system to support credibility in lead-time of consignment deliverables and service quality fine-tune the pitfalls in demurrage, deterioration and obsolescence of stocks and equipment. This enhances overhead cost minimization. JIT as an emerging cost minimization core values promote consistent framework towards improving entrepreneurial survival of any enterprise especially in the equipment being utilized in the covid-19 pandemic era when macro and micro firms are struggling to survive the in the business environment and competitive parity.

JIT is a key building block for modern approaches to manufacturing planning and control. In reality, JIT is both a philosophy and a set of techniques. It reduces the complexity of detailed material planning, the need for shop-floor tracking, work-in-process inventories, and transactions associated with shop floor and purchasing systems. These benefits in turn require more tightly coordinated manufacturing processes both inside the company and with suppliers. Prompt just in time (JIT) consignment inventory system for enhanced operational efficiency (Ahunanya, Ovharhe, Emenike & Otto 2022a; Ahunanya, Ovharhe, Emenike & Otto, 2022b).

JIT orientation involves: (i) Reduction of set-up times and lot sizes (ii) 'no defects' goal in consignment, (iii) focus on continual improvement of consignment system (iv) worker involvement (v) cellular consignment.

The consignment inventory system strategy used by a wide range of entrepreneurs is focused on increasing their inventory quality control (IQR). IQR is a measure of inventory performance calculated as the percent of the total inventory value that is needed. IQR measures inventory in two dimensions, value and timing. Value refers to how much inventory you currently have and is expressed in monetary units of measure. Timing is a measure of when you need the inventory you currently have and is usually measure in days or weeks. This ratio is a powerful strategy because it will drive you to tactics that will not allow inventory to be created before it is needed. In other words, it links directly back to purpose of consignment inventory system, 'have just enough of the materials you need when you need them (Ovharhe, Okolo, Woko & Igbokwe (2022).

Skidelky (2020) has further observed that there have been differences in the nature of JIT efforts pursued according to the type of organizations which he referred to major-organizations that reported major JIT programmes; some organizations that report adhoc modification, experimental JIT efforts, and none-organizations with no JIT programmes. These vibrations persisted in the nature of effort as well as in the quantum of benefits realized. Accordingly, companies that have initiated major JIT programmes have very different concerns from those who merely "think" about JIT. However, only in respect of two factors viz. (i) employee involvement and (ii) standard containers, the three broad categories of organizations as above have some degree of agreement among themselves. Concluding his study, Skidelky (2020) has given some guidelines for successful JIT implementation. Firstly, firms have to inevitably go for certain system level changes, like introduction of kanban, cellular manufacturing, and set-up time reduction, secondly, the nature of efforts to be employed differs from case, as it depends on

complexity of manufacturing, sector and the ownership. Thirdly, major JIT efforts will be successful only when it is a part of a strategic planning exercise, which in turn ensures top management's active role and commitment. Lastly, clarity and priority is of utmost important, the lack of which may lead to confusion and wasteful expenditure.

This refers to a consignment inventory system technique with objectives of having inventory readily available to meet demand. Evans (2000) states that just-in-time (JIT) inventory is a consignment inventory system strategy that is aimed at monitoring the inventory process in such a manner as to minimize the costs associated with inventory control and maintenance. To a great degree, a just-in-time inventory process relies on the efficient monitoring of the usage of materials in the production of goods and ordering replacement goods that arrive shortly before they are needed.

3. Methodology

The positivism research philosophy was used because of its authenticity in the triangulation of data. The cross-sectional survey and quasi-experimental method was integrated to generate the data from the rehabilitation therapy equipment (occupational therapy, physical therapy, prosthetics, speech therapy and audiology) among micro firms that are merchandisers via on-line data collection. Ninety-eight rehabilitation therapy equipment micro-firms were targeted but only eighty-three were selected with accidental sampling technique and proportionate stratified random sampling technique that comply fully with the corporate affairs commission (CAC) and standard organisation of Nigeria (SON) statutory demands. Eighty-three rehabilitation therapy equipments among micro-firms in Lagos State were targeted in Suru-Lere (29), Idumota (43), Yaba (7) and Ikeja (4). However, 83 entrepreneurs were selected, whereby, only 78 were chosen by the application of Slovin's Formula with accidental sampling technique and proportionate stratified random sampling technique. 20 self-structure questionnaire were drawn from Ahunanya (2022) thesis (Consignment Inventory System and Obsolescence Management in Drilling Fluid firms). The instrument were validated by certified and license Rehabilitation Therapist' assisted by entrepreneurs in the field. The split-half method of reliability was employed on the instruments, while Spearman Brown Prophecy formula technique was used to ascertain the level of the reliability. 78 copies of questionnaire were administered, 72 were retrieved, 6 were discard during cross-examination of data cleansing and coding, hence only 72 was used for the data analysis. The Pearson Product Moment Correlation was employed to analyzed the data using SPSS 25 version.

4. Result and Discussion

Test of Research Hypotheses

The study proceeds to test for research hypothesis in light of the Pearson product moment.

Test of Hypothesis one

Ho₁: There is no significant relationship between inventory control and innovation.

Table 4.1: Pearson Test for relationship between inventory control and innovation

		Correlations	
		Inventory	Innovation
Inventory	Pearson Correlation	1	.878 ^{**}
	Sig. (2-tailed)		.000
	N	72	72
Innovation	Pearson Correlation	.878 ^{**}	1
	Sig. (2-tailed)	.000	
	N	72	72

** . Correlation is significant at the 0.05 level (2-tailed).

Source: Author's Field Survey (2022) - SPSS version 25 output

Using the output it can be observed that the Pearson correlation (PC) coefficient is 0.878 which shows a strong and positive orientation of the relationship between inventory control and innovation. The significance value of 0.000 which is less than the 5% significance level ($p = 0.000 < 0.05$) leads to the rejection of the null hypothesis. This therefore reinforces the findings and on this basis, the null hypothesis is rejected while the alternate form of the hypothesis is accepted therefore concluding that there is a significant relationship between inventory control and innovation. In this line, Priniotakis and Argyropoulos (2018) investigation revealed that inventory management has become one of the key elements of the supply chain management and can greatly affect the performance of a business. The textile industry is no exception. Traditional approaches in decision making based on manager instincts and hunches are no longer enough in the today's increasingly competitive environment. Small to medium sized family owned textile businesses are usually prone to this way of thinking. Azeddine and Mohammed (2017) examine how consignment inventory system of supply chain with robust control theory. Supply chain management (SCM) in the management of obsolete stock and prevention of loss has become a vital tool for organisations, which desire to improve performance and resilience. Stephen and Jaydeep (2016) provide a useful summary of the major inventory management techniques based on a recent review of the literature in the field and interviews with management teachers and practitioners.

Test of Hypothesis Two

Ho₂: There is no significant relationship between inventory control and adaptability.

Table 4.2: Pearson Test for relationship between inventory control and adaptability Correlations

		Inventory	Adaptability
Inventory	Pearson Correlation	1	.857 ^{**}
	Sig. (2-tailed)		.000
	N	72	72
Adaptability	Pearson Correlation	.857 ^{**}	1
	Sig. (2-tailed)	.000	
	N	72	72

^{**}. Correlation is significant at the 0.05 level (2-tailed).

Source: *Author's Field Survey (2022)-SPSS version 25 output*

In the table, it can be observed that the Pearson correlation (PC) coefficient is 0.857 which shows strong and positive orientations of the relationship between inventory control and adaptability. The significance value of 0.000 which is less than the 5% significance level ($p = 0.000 < 0.05$) leads to the rejection of the null hypothesis. This therefore reinforces the findings and on this basis, the null hypothesis is rejected while the alternate form of the hypothesis is accept therefore concluding that there is a significant relationship between inventory control and adaptability. Nevertheless, Muhayimana (2015) investigates inventory management techniques and its contribution on better management of manufacturing Companies in Rwanda Case Study. The aim of this study is to highlight or determine the contribution of inventory management techniques on better management of manufacturing companies. Study was done in Sulfa Rwanda Ltd, located in Kigali City in Rwanda. Sarojit and Chitra (2017) the inventory level of materials constitutes the most significant part of current assets and working capital in any organisation. A small saving in the inventory will mirror a crucial edge in benefit of the organisation. Afolabi, Morakinyo and Olumide (2017) evaluation of the role of inventory management in logistics chain considering obsolete stock. The operation of inventory management determines the efficiency of storage of products. Shahzad, Syed, Faraz and Moin (2020) investigate inventory management through lean logistics and warehousing techniques on obsolete stock. Inventory is one of the eight deadly wastes in Lean. It is caused by overproduction (producing more than is immediately needed) but in turn it causes several other wastes.

5. Conclusions and Recommendations

5.1. Conclusions

The correlates between the consignee and consignor could be defined on how to ascertain the level of innovativeness and adaptability in the enterprise. The consignment inventory system

patterns fine-tune modalities on how to achieve the target of survival in line with the vision and mission. Hence, the explanatory variable has strong influence on the response variables.

5. 2. Recommendations

1. Management should always know that the growth of the enterprise depends on its ability to adapt to the business environment at the turbulent times
2. Employee at all level should be train on innovative skills on how to control inventory in the long run and short run
3. The consciousness on the philosophy of survival should be the spirit of leadership in the enterprise.

REFERENCES

- Afolabi, O. J., Morakinyo, K. O., & Olumide, O. (2017). Evaluation of the role of inventory management in logistics chain of an organisation. *LOGI – Scientific Journal on Transport and Logistics*, 8(2),1-11. DOI:10.1515/logi-2017-0011
- Ahunanya, V, Ovharhe, O. H., Emenike, C. G., & Otto, G. (2022a). Consignment inventory system and entrepreneurial success among micro warehousing firms. *International Journal of Social Science & Management Research*. 8(5), 18-28. DOI:10.56201/ijssmr.v8.no5.2022.pg18.28
- Ahunanya, V., Ovharhe., O. H., Emenike, C. G., & Otto, G. (2022b). Consignment inventory system and obsolescence management in the drilling fluid firms in Nigeria. *International Journal of Social Science & Management Research*. 8(5),1-27. DOI: 10.56201/ijssmr.v8.no5.2022.pg1.17
- Akinsanya, O., & Akinsanya, D. (2019). *Design and implementation of a computerized stock management system*. (A case study of Mide supermarket). Mide Digital Publishers
- Alexandre, D., & Jean-Marie, P. (2021). Inventory management in supply chains. *Journal of Physics Conference Series*, 69(1), 67-72. DOI:10.1007/978-1-84996-017-5
- Alina, S., Michael, F., & Alexander, K. (2017). Do entrepreneurs really earn less? *Springer Small Business Economics*, 49(2), 251-272
- Anderson, B.(2012). *Building cars in Australia: Morris, Austin, BMC and Leyland 1950-1976*. Sydney: Halstead Press.
- Azeddine, Z., & Mohammed, E.I. (2017). Inventory management of supply chain with robust control theory: literature review. *International Journal of Logistics Systems and Management*, 27(4), 45-64

- Bertha, M. S., Ferry, J., & Himadhani, M. (2020). Analysis of the uncertainty sources and SMEs' survival. *Policy for Innovative, Interventions and Entrepreneurship Journal*, 1(1), 1-27. <https://doi.org/10.1080/08276331.2020.1764737>
- Chibuïke, C. U., & Ovharhe, O. H. (2022). Emergence of risk culture and lean culture in Nigeria during pandemic and crisis era: Using confirmatory analysis. *International Journal of Multidisciplinary Research and Growth Evaluation*, 3(1), 263-271. DOI: <https://doi.org/10.54660/anfo.2021.3.1.14>
- Chibuïke, C. U., Ovharhe, O. H., & Abada, A. M. (2022). Synchronization of lean accounting alert and entrepreneurial sustainability among micro firms in Nigeria during pandemic and catastrophe: Using confirmatory factor analysis. *The International Journal of Business & Management*, 10(1), 1- 13. <https://doi.org/10.54660/anfo.2021.2.6.15>
- Evans, D. (2020). *Coronavirus shows that supply chains are outdated and unfit for modern manufacturing*. *Forbes*. Retrieved May 21, 2020.
- Hayes, R. (2020). Loss prevention: Senior management views on current trends and issues. *Security Journal*, 16(2), 45-62. DOI:10.1057/palgrave.sj.8340129
- Inegbedion, E. H., Sunday C., & Eze, S.C. (2019). Inventory management and organisational efficiency: stock market efficiency using different estimation techniques. *Journal of System Spectrum Research*, 5(3), 756-763. DOI: 10.32861/jssr.53.756.763
- Krolicki, N. C., & Noel, R. (May 21, 2020). *Just-in-time' economy out of time as pandemic exposes fatal flaws*. *www.abc.net.au*. May 1, 2020. Retrieved May 21, 2020.
- Meyer, L., & Pretorius, L. (2017). *A management approach to component obsolescence in the military electronic support environment*. University of Pretoria. DOI:10.7166/14-2-271
- Mohammed, H. D. (2018). The effect of information technology on inventory management for the manufacturing companies in Mogadishu. *European Journal of Logistics, Purchasing and Supply Chain Management*, 6(3), 20- Retrieved from <https://www.eajournals.org/journals/european-journal-of-logistics-purchasing-and-supply-chain-management-ejlp SCM/vol-6-issue-3-june-2018/the-effect-of-information-technology-on-inventory-management-for-the-manufacturing-companies-in-mogadishu/>

- Muhayimana, V. (2015). Inventory management techniques and its contribution on better management of manufacturing Companies in Rwanda Case Study: Sulfa Rwanda Ltd. *European Journal of Academic Essays*, 2(6), 49-58
- Muscatello, J. R. (2018). Enterprise resource planning (ERP) implementations: Theory and practice. *International Journal of Enterprise Information Systems*, 4(1), 63-83.
- Ovharhe, O. H. (2022a). Sustainable development goals: Multicollinearity between therapeutic entrepreneurship and rehabilitation therapy among African nations. *International Journal of Small Business and Entrepreneurship Research*, 10(3),1-59.
- Ovharhe, O. H. (2022b). Sustainable Development Goals: Therapeutic Entrepreneurship and Entrepreneurship Injelititis among West Africa Countries. *World Journal of Entrepreneurial Development Studies (WJEDS)*, 7(1), 87-113. DOI: 10.56201/wjeds.
- Ovharhe, O. H., & Igbokwe, E. L. (2021). Analytical intervention of remote working correlates on risk culture and entrepreneurial adaptability in South-South Geopolitical Zone, Nigeria: Covid-19 Perspective. *Journal of Education and Practice, IISTE*, 12(3), 34-44,DOI: 10.7176/JEP/12-34-05
- Ovharhe, O. H., & Okolo, B. S. (2022). Sustainable development goals: Lean entrepreneurship and Green entrepreneurship. *International Journal of Research and Scientific Innovation ISSN: 2321-2705*
- Ovharhe, O. H., Okolo, B. S., Woko, E. B., & Igbokwe, L. (2022). Light entrepreneurship and customer funded business model. *International Journal of Social Science & Management Research*. 8(5), 87-106. DOI: [10.56201/ijssmr.v8.no5.2022.pg87.106](https://doi.org/10.56201/ijssmr.v8.no5.2022.pg87.106)
- Ovharhe, O. H., Woko, E. B., & Ezeocha, V. U. (2021). Remote Working: Entrepreneurial risk and entrepreneurial survival in the micro firms in Niger-Delta, Nigeria (COVID19 Pandemic Prospects). *International Journal of Small Business and Entrepreneurship Research*, 9(4), 11-28. Available at SSRN: <https://ssrn.com/abstract=3983482>
- Ovharhe, O. H., Woko, E. B., & Ogolo, T. M. (2021). Competitive risk strategy and entrepreneurial satisfaction among fast moving consuming goods in Nigeria during covid-19 pandemic using confirmatory factor analysis. *International Journal of Multidisciplinary Research and Growth Evaluation*, 2(6), 267-272.<https://doi.org/10.54660/anfo.2021.3.1.14>
- Pretorius, L., & Pretorius, J. C. (2020). A management approach to component obsolescence in the military electronic support environment.*SDLC*, 2(2), 45-64.DOI:10.7166/14-2-271
- Priniotakis, G., &Argyropoulos, P. (2018). Inventory management concepts and techniques. *IOP Conference Series Materials Science and Engineering*, 459(1), 012-060. DOI:10.1088/1757-899X/459/1/012060

- Robert, P. G., Chao, M., Shanshan, Q., & Tae, J (2017). Entrepreneurial spawning and knowledge-based perspective: a meta-analysis. *Springer Small Business Economics*, 49(2),355-378
- Roger, R.,Steven, K., & Matthew, M. (2016). Peace through entrepreneurship: Investing in a startup culture for security and development?. *Springer Small Business Economics*, 49(3), 717-720
- Romero, F.J., Rajkumar R., & Kelly, S. (2012). Obsolescence risk assessment process best practice. *Journal of Physics Conference Series*, 34(1), 43-52. DOI:10.1088/1742-6596/364/1/012095
- Sarojit, K. B., &Chitra, K. (2017). *Analysis of different inventory control techniques: A Case Study in a Retail Shop*. Jessore University of Science and Technology
- Saygn, N. (2020). An obsolescence management framework for a defence industry.*Journal of Physics Conference Series*, 71(3), 85-91
- Shahzad, N., Syed, M. M., Faraz, A., &Moin, A. (2020). Inventory management through lean logistics and warehousing techniques. *International Journal of Management Sciences and Business Research*, 5(10), 159-167
- Skidelky, R. (2020).*The coronavirus pandemic shows why the West must transform its economic logic*. newstatesman. newstatesman.
- Stephen, G., & Jaydeep, A. P. (2016). Review of modern inventory management techniques. *Journal of Physics Conference Series*. 64(4), 47-58
- Yinyeh, M. O. (2013). *Inventory management system software for Public Universities in Ghana (IMSSPUG)*. Ghana: University for Development Studies Publishing
- Yunusa, A. (2021). Inventory management practices and performance of manufacturing firms in Kogi State. *Journal of Good Governance and Sustainable Development in Africa (JGGSDA)*, 6(3), 54-63
- Zunic, E., Delalić, S., Hodžić, K., &Beširević, A. (2020). Smart warehouse management system concept with implementation. Conference: 2018 14th *Symposium on Neural Networks and Applications (NEUREL)*. DOI: 10.1109/NEUREL.2018.8587004