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The Roles of Supply Chain Performance Measurement on Manufacturing Firms

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Abstract

This paper is to investigate the current challenges, trends, relevance and the concept of supply chain performance measurements in developing nation basic metal industries. This paper gives an overview of different performance measurement tools that can be applied to measure and improve the supply chain systems of an organization. Since the study is focuses on supply chain performance measurements practices in the Ethiopian basic metal industries. The paper identifies and discusses the main motives and impact of supply chain performance measurement practice on the performance of basic metal manufacturing industries in Ethiopia and provided solutions to areas that needed improvement. While the study reviews the relevance of the main strategies, models and tools to measure the performance of supply chain in manufacturing industries is done though the research is conducted based on a qualitative methods. Structured questionnaires, field observation and oral interviews research techniques is use to get primary data from the sectors. Performance measure sets is identified through descriptive analysis. This study found that, large number of companies that now accomplish performance measurement systems at local and global level. Even though, most manufacturing firms use traditional performance measurement systems such as financial performance measurement systems. But this traditional performance measurement systems were not properly evaluates the performance and competitiveness of the whole supply chain systems of manufacturing sectors. Also according to this research proposes that the concept of supply chain performance measurement is not fully hold by the Ethiopian basic metal industries and highlights the difficulties associated with its implementation. Therefore, to tackle the challenges and attempt to the current performance measurement limitations, further studies need to involving other sectors and industries needs to be undertaken in order to gain an in-depth understanding of the key factors associated with the accomplishment of supply chain performance measurement practices in Ethiopia.

Keywords: Supply chain performance; Performance measurement; Performance matrices; Role; Manufacturing industries; Integrated framework; Optimum performance

Introduction

The ultimate goal of a business organization is to exploit on supply chain management practices in order to ensure timely delivery of products and services to the customers at the optimum cost and minimum delivery time. Supply chain management processes have great impact to the organization in providing defined the firm type, size, level analyses and evaluate business process and systems to provide companies with a sustainable competitive advantage.

Supply chain process is not only achieve sustainable competitive advantage of the organizations through, investigating supply chain performance measures but also needs to explore the potentials impacts of performance tools in the firm, the way to use and adopt this performance measurement are a critical task. Since supply chain management and supply chain systems has a most important impact on the on the whole performance of the organization. As a result supply chain and supply chain performance has emerged as a very significant area of study in engineering and management field and critical assignment for scholars. Besides, competitive performance measurement tools has not been extensively implemented in the manufacturing industry in developing countries [1,2]. Since, manufacturing industries on developing countries have not yet apply appropriate performance measuring tools in the consideration of the real situation on the firms in competitive manner. Somewhat they use, the existing evaluation and measurement models were based on the familiarity of the business development of the firms in the developed countries [3]. However, effective utilization of performance measurement systems and performance tools will provide a better alternative global supply chain integration efforts and cooperation's on basic metal industries. But in order to use adequate supply chain performance systems and tools to basic metal industries, it is compulsory to have clear understanding the current supply chain performance measurement system and processes in developed and developing countries. For this reason, we have to study the reliable information about the firms' current characteristics of the supply chain performance measurement systems and performance measurement tools, so as to enhance firm performance. Since, this study is design to investigate the practices on supply chain performance measurement systems, measurement methods and performance matrices on manufacturing firms to develop effective and efficient supply chain performances measurement frame on basic metal industries.

General objectives

The main objective of this study is to investigate the current challenges, trends, relevance and the concept of supply chain performance measurements in developing nation basic metal industries, so as to investigate the current performance measurement gaps for further model developments.

Research methodology

The study focuses on supply chain performance measurements practices in the Ethiopian basic metal industries as a case sector. Since, the paper identifies and discusses the main motives, impact of supply chain performance measurement practice on the performance of basic metal manufacturing industries in Ethiopia and provided solutions to areas that needed improvement. While the study reviews the relevance of the main strategies, models and tools to measure the performance of supply chain in manufacturing industries is done though the research is conducted based on qualitative methods. Structured questionnaires, field observation and oral interviews research techniques is use to get primary data from the sectors. Performance measure sets is identified and studied through descriptive analysis. Finally, summarized the findings, conclusions and future research directions are included.

Literature Review

Supply chain performance

Study by Balfaqih H, et al. [4] shows that, for competitive business environment, supply chain performance measurement is fundamental issue to secured efficient supply chain management process. Since, supply chain performance measures allow a large amount of information inside to increase the integration of the company and along with the supply chain firms.

However supply chain performance shows and provides for way of systems to fulfil the end-customer necessities, product capacity & availability, on-time delivery, and all the necessary inventory and capacity in the supply chain to deliver that performance in a quick to respond manner. Supply chain performances evaluate and measure in various stages of the firm includes basic materials, components, subassemblies, finished products, distribution through various channels to the end customer. Besides, supply chain organization success depends on the ability of all supply chain partners to focus on ultimate customers and respond to changes in the demands of those customers. Since, success of each of the organizations comprising the supply chain depends upon the ability of the overall supply chain to respond to changing customer demands, to restructure the supply chain in response to changing markets and economic environments, and to align production, marketing, and financial strategies throughout the supply chain [5]. This success of supply chain systems between firm organizations measures the level and the extent of supply chain performances. In other words, the success of supply chain organizational is the mirror of supply chain performances. Though, supply chain performance is the ability capability of process, standardize, reasons, deliver product and services within customer expectations in terms of time, quality, cost, and supporting metrics. Since, supply chain performance measurement systems including (performance measurement tool and metrics) have an important role to setting objectives, evaluating the situations and determining future way of actions. Since, in supply chain firms should identify the performance requirements of their key customers, major supply chains, shareholders and key stakeholders, and then configure their supply chain network, processes and resources to achieve these requirements.

Supply chain performance measurements

The main things for performance measurement is to collected and analysing of data to evaluate work done and results achieved [6] since performance measurement.

Further Chan [7] found that in supply chain systems, there are many ways of measuring a is, the way of quantifying the efficiency and effectiveness of systems, indicators of how well the thing is being done, evaluation of products to meet customer requirements, evaluate the performance and comparativeness of comparativeness of supply chain systems as whole [8]. Since the performance of the firm measure terms of efficiency, effectiveness, quality, customer satisfaction, cost, time etc. Though, performance measurement is critical to the success of any organization because it creates understanding, moulds behaviour and improves competitiveness [7], organizational boss used as tool monitor the performance progress, to increase the motivation and communications, and to identify the problems or state of affairs [9]. Even though, there are no any guidance or set rules under which can to measure supply chain performance [10,11].This is due to lack of clarity and comparability concerns in this area creates misunderstanding and makes it more difficult to formulate a clear strategy. For instance, in the previous study [7] proposed conceptual-framework for resource utilization; flexibility; visibility; trust; and innovativeness explores as performance measurement systems of organizations. Besides, found that supply chain measurement is done from: customer satisfaction, quality and productivity point of views. In addition, Ambe [12] discovered that quality, final product delivery reliability and cost were highly rated and the most important indicators for the supply chain performances. According to Ambe [12] study firm performance measure interims of quality, cost and time rather than other criteria like flexibility, technology, efficiency and effectiveness. Accordingly Zelbst [5] found that supply chain performance is more strongly related to the marketing performance, but marketing performance positively impacts financial performance. This result indicates that supply chain performance is measured in terms of financial and marketing perspectives. Since the above analysis leads to a major problem of inconsistency because of lack of standardization, hence leading to confusion and biased judgment. Since the area needs for further study and investigation to use proper supply chain measurement systems performance, e.g. on a time or cost basis. Even though, supply chain firms should adopt only one kind of measurement, which is most related to the particular characteristic of the company. On the contradictory of Chan [7], the study by Beamon [13] founds the weakness of single supply chain performance measurements rather than measuring all aspects of the Supply chain but some measure a single issue of supply chains. Since, Deshpande [14] also explore that, there is gap also exists in terms of understanding of the relationship between supply chain management performance measures and organizational performance measures. Then supply chain measurement should be studied and explored in a proper and understandable way.

In addition Georgise, et al. [15] study results show that manufacturing industries still largely use financial and productivity performance measures for measuring their supply chains. This traditional performance measures have their own limitations that make them less relevant in today's competitive business environment.

However they recommended that organizations should use innovative performance measurement rather than these traditional financial measures. Georgise, et al. [15] studies also recommends, the importance of further study in this areas. In addition to the above analysis the table below presents performance measurement system, trends, methods, limitations studded in the previous researcher and scholars (Table 1).

Author and Year of Study	Research Methods	Supply Chain Performance measure	Performance Metrics	Concept of major findings
Zelbst, [5]	The survey instrument ,structural equation methodology Triple-A supply chain strategy	-Marketing Performance -Financial Performance	Marketing performance includes Average market share growth, Average sales volume growth, Average sales (in dollars) growth Financial performance considered, average return on investment, average profit, profit growth, average return on sales	Results found that, marketing performance positively impacts financial performance, while supply chain performance is more strongly related to the marketing performance than to the financial performance of the organization. Gaps they are not can't conduct a case study to know the real situation and financial and marketing is not the only performance measurements they lose a lot of performance measurement.
Beamon [13]	Literature survey	-Resources measures (generally cost) -Output measures (generally customer responsiveness) -Flexibility	-Efficiency -Customer service -Environmental change ability	Found that the key strategic goals of supply chin and believes that a supply chain measurement system must place emphasis on three separate types of performance measures: resource measures (R), output measures (O), and flexibility measures (F). Although flexibility has been limited in its application to supply chains, many advantages exist to a flexible supply chain. Believes that a supply chain measurement system must place emphasis on three separate types of performance measures: resource measures (R), output measures (O), and flexibility measures (F). Gaps the result believes that efficient resource management is critical to profitability, acceptable output handle customers but not only this also emphasize effectiveness, long-term customer, supplier relations.
Georgise, et al. [15]	Literature survey supported by case study	Financial and Productivity performance measures.	cost and productivity	The result states that geographical limitations and performance measurement has not been widely implemented in the manufacturing industry in developing countries. However the current performance measurement systems have faced different challenges what they did not encounter in developed nations companies. Gaps The study conducting using limited (financial and productivity) performance measures, it does not show the exact progresses of performance measurements in proper way. Founds the existing performance measurement systems in developing country manufacturing industries but it does not quantify the extent of the practices. -The study was not to show the gaps of performances measuring in developed nation scenario.
Xia, et al. [16]	Literature survey supported AHP analysis	Lean supply chain, agile, leagile and adaptive supply chain strategies developed as performance measurement.	Cost, Re-configurability, Reliability, Flexibility, Responsiveness as matrices	The study highly emphasized ensures companies that their supply chain performance measurement is aligned with their supply chain Strategies rather than other things. They propose to adopt fuzzy logic technique to complete picture of the supply chain performance systems in a particular measuring metrics.
Naini, et al. [17]	Case study	A mixed combination of evolutionary game theory and the balanced scorecard (BSC) as performance measurement	Supply chain performance measures four perspectives of finance, customer, Internal business process, and learning and growth. Reduction, reuse and recycling of resources were used as performance indicator.	After the investigation, Based on the result, they proposed the application of combining evolutionary game theory and BSC for environmental supply chain management (ESCM) to evaluate their day-to-day business performance in order to select the best strategy in emergency situations.
Akyuz and Erkan [18]	Literature review	The concepts of 'total quality', 'fit' and 'excellence	Partnership, collaboration, Agility and business excellence.	Found that establishing and implementing a performance measurement requiring simultaneous considerations of business process management, technical and organizational /managerial issues.

				-BSC approach and SCOR models found as foundation of the performance management system. -Findings reveal that performance measurement in the new supply era is still an open area of research [19].
Galankashi, et al. [6]	Literature survey supported by AHP decision making	BSC interims of financial, customer, internal business and innovation and growth perspectives.	Performance Metrics -Financial -Turnover, Total shareholder return, Equity Per share Payment Ratio, Economic added rat), Customer (Satisfaction, Loyalty Level, relationship, number of complaints, customer response time, customer loss rate, market share), Learning and Growth (employee capabilities, team performance, it infrastructure, turnover ratio, satisfaction), Internal Business (on time deliveries, new product development, production time).	Explore that, BSC considered as a proper framework for performance evaluation in electrical companies. -Gaps they only see a specific sectors, the study does not the show the potentials of BCS, rather than electrical companies.
Chan [7]	analytic hierarchy process (AHP), is used to make decisions based on the priority of performance measures	Cost, Resource utilization; flexibility; visibility; trust; and innovativeness	Time, input, process, output, Improvement.	The result indicates that, misunderstanding and misconceptions by measuring supply chain by cost only, should be abandoned, while cost is directly related to profit and is an easy measurement to make, it is only part of the review of the outcome. According to the study customers are considered as the main concern of a company whereas cost is not really related to the customers. The study believes that customers, may not receive any benefits from cost reduction, as the supplying company seems often not to lower the price even though the cost is slightly reduced. According to the result cost and resource utilization quantitative measurements, whereas quality, flexibility, visibility, trust and innovativeness were identified qualitatively as performance measurement categories.

Table 1: Supply chain performance matrices.

Although, in this study founded on the literature review, a set of supply chain performance measurement practices that are applicable to different organizations were identified. The above section including the table shows that lists of supply chain performance practices are studied, developed, recommended by different authors. The study concept, categorize and deal with various aspects of supply chain performance measurements, including type of performance measurements, performance metrics classifications, problems of the current supply performance measurement systems and the need for the establishment of a new performance measurement were investigated [6-8,14].

Supply chain performance measurement systems and tools

The sets of supply chain metrics used to quantify both the efficiency and effectiveness of firm is measured by performance measurement. A performance measurement system offers to link strategic planning and operational control of an organizations, provides to the necessary information to the monitor, control, evaluation, and feedback function on operations management [20]. Although some supply chain performance measurement tools are commonly used for measuring supply chain performance includes the balanced scorecard,(BSC), the supply chain operations reference(SCOR) model, the logistics scorecard(LSC), economic value added(EVA), total quality management(TQM), and activity-based costing(ABC). Studies by Kwamega, et al. [21], Georgise, et al. [15], Ray [22], Mooraj, et al. [23], shows that each performance measurement tools have their own advantage and limitations, interims to the content wise, the concern to measure, and contributes the strategic improvements of supply chain firms. For example Kwamega, et al. [21] founds that application and implantation of the total quality management (TQM) have significant impact on Small and medium enterprises (SME's) performance and performance measurement. Sim, et al. [24] shows that BSC have impacts on linked their corporate goals and objectives to their performance measurement systems and can be used as a tool for monitoring the long-term value creation process in business process. In addition Khaddafi, et al. [25] , Ray [22] studies shows that the company's financial performance interims of active project found, return on capital or economic value addition of an organization, and the economic efficiency is measured by economic value added(EVA). As well, Georgise, et al. [15] explored that, the manufacturing industry in the developing countries is less likely to have formal performance measurement system, and they are concerned, basically, with survival rather than further improvement the systems. In addition, in developing country like Ethiopian basic metal industries use only 12.3% of the total basic metal and engineering [2]. Even if, the percentage is low, till they practice financial performance measures were commonly used than the non-financial measures. This implies that developing country manufacturing industries lacks modern performances measurement systems. However, without proper and standard performance evaluation system, it is impossible to collaborate, cooperate with manufacturing industries and impossible

to compete in global markets. Though, these nations will improve the performance by adopting alternatives and effective management of the available resources is the key factor to improve performance (Table 2).

Types of Performance Measurements	Functions and Main Components	Limitations
SCOR	Plan, Source, Make, Deliver, and Return	Does not evaluate quality issue on manufacturing firms
ABC	Assessing the financial intricacies like the total cost involved in engaging a particular customer or the metrics pertaining to a specific product in the supply chain. that means. assigning costs in a supply chain based on its activities rather than on the end deliverables	Only measure active cost of the project and process
QMS/TQM	Customer-oriented, leadership, strategic planning, employee responsibility, continuous improvement, cooperation, statistical methods, and training and education	This is not evaluate financial performance, logistics and related issues.
BSC	Financial, Customer, Internal process perspective , The learning and growth or innovation perspective	
LSC	Logistics Financial Performance Measurement Logistics Productivity Measurement Logistics Quality Measurement Logistics Cycle Time Measurement	

Table 2: Prioritization of performance measurement.

Results and Discussion

In this study founded on the literature review, a set of supply chain performance measurement practices that are applicable to different organizations were identified. The above section including the table shows that lists of supply chain performance practices are studied, developed, recommended by different authors. The study concept, categorize and deal with various aspects of supply chain performance measurements, including type of performance measurements, performance metrics classifications, problems of the current supply performance measurement systems and the need for the establishment of a new performance measurement were investigated [6-8,14].Accordingly, the study is crucial for identifying the higher link exists between supply chain practice, and performance measurement systems, performance matrices, performance indicators and performance measurement tools, in the manufacturing firms are used so far. All over, the trends performance measurement has been used to assess the success and some used as survival measurement of organizations. Since, performance measurement is significant to the achievement of almost any organization because it creates understanding, pattern behaviour and improves competitiveness. While many performance measurement systems and tools are implemented in different developed nation's manufacturing industries [15]. Though, depending on firm type they also used different types of performance measurement tools, for example the balanced scorecard(BSC), the supply chain operations reference model, the logistics scorecard, the economic value added, total quality management(TQM),activity-based costing, and resource planning were used. For sure different supply chains systems have different performances and have different performances measurements in various reasons, at various industries.

Nevertheless, the firm performance and performance measurement only vary in their status of performance and relative importance, the way to measure their performance systems can be the same.

This concepts are confirms by Chan[7]. However, current supply chain performance measurement systems are inadequate because they rely heavily on the use of cost as a primary measure, they are not inclusive, they are often inconsistent with the strategic goals and objectives of the organization, and do not consider the effects of ambiguity. Since, the most significant criticism of the traditional performance measurements is the fact that they focus on financial performance measures. But, traditional performance measurement systems have been criticized as being too narrowly focused on financial figures and functional level performance such that they often fail to capture organizational long-term business success. Also, skills and competencies companies are trying found proper performance measurement systems rather than traditional. Because, this traditional financial performance measure systems worked well for the industrial era but not competencies firms. As well most study also concerned to study this traditional performance measurement rather than strategic. For instance Zelbst [5] results indicate that supply chain performance is related to the marketing and the financial performance of the organizations. Their result explore as triple-A supply chain strategy positively impacts supply chain performance and that, in turn, supply chain performance positively impacts organizational performance. Since from this result we found that even if they only use financial and marketing performance rather than the others, till the study confirms that organizational performance is directly measured by financial performance systems. Though Caldarola [26] used and proposed the Balanced Scorecard (BSC) as strategic management performance measurement systems. The study proposed a new model that translates the BSC from a three-part internal and one-part external performance measurement system into a comprehensive measurement system that includes stakeholders' a priori expectations and that merges those expectations with performance measurement systems that will enable organizations to satisfy the often exclusive expectations of all stakeholders. In addition, the main point is that, supply chain performance measurement should not be considered as a generic

context-independent process, but as a system adapted and customized to specific supply chain systems and requirements.

This concept assured by Piotrowicz, et al. [27] in such a way that the organizational and supply chain contexts have an important influence on performance metrics selection and practice. Since the performance measurement can be viewed as a context-dependent process, tailored to specific supply chain requirements. In the meantime other scholars, Halme [28] state that supply chains should be measured in different levels, typically the levels are strategic, tactical and operational. The performance metrics should be carefully selected and they should capture the essence of organizational performance. So the above concept clearly show that firms are use different type of supply chain performance systems, matrices and tools to evaluate the status based on their contexts. Since, depending on the situation of the performance of the firm, manufacturing industries should use different type, and one or more performance measurements will apply and used. In addition to his, they the performance matrices also lie with the scenario of the industries. But the main thing for performance measurement is instead of specific they consider multi -dimensional issue of the firm, rather than traditional they should concern strategies measurements of firm performances [6,7,15].

On the other hand , the result found that the performance measurement are not is intended only as only performance measurement system but also as a strategic tool to control system which can align business process customer, internal process and personal goals to overall strategy. For example, originally, Kaplan, et al. [29] balanced Scorecard was introduced the concept of a "Balanced Scorecard" for motivating and measuring business unit performance rather than strategic tools. The performances of organizational strategies were measured by the new BSC systems by further result and development [30]. In addition Norreklit [31] shows that the BSC is intended not only as a strategic measurement system but also as a strategic control system which can align departmental and personal goals to overall strategy. Further result shows BSC is not just intended as a measurement system, but; use as also a control system. BSC even it is good measurement systems compare to others but lacks some issues of the organizations including benchmarking, quality, sustainability, mutual benefit of the supply chains firms. Even the extended study of Kaplan and Norton [29,30,32,33] not fully measure and evaluate supply chain systems of an organizations. Rather the study suggested that supply chain performance measurement tools and systems advance from a performance measurement system to become the organizing framework, for a new strategic management system of firms. Also the Supply Chain Operations Reference (SCOR) model provides a unique framework that links performance metrics, processes, best practices, and people into a unified structure [34]. Since, the SCOR model create it possible for organizations to quickly evaluate, determine and compare the performance of supply chain and related operations within their organization and against other organizations process and systems. Although, this analysis shows that the till, the current performance measurement and single performance measurement systems have limitations and does not measure the whole performance of supply chains. It needs a compressive model development for supply chain performance systems. However, performance measurement should not be restricted to financial measures but be concerns non-financial ones, which provides more comprehensive picture of the company. Also, the performance measurement is brought out of the supply chain firms, and should touch the important and fundamental aspect for all business strategies, goals not simply as an enabling factor but often taking on the role of a vital element which can resolve a sequence of facets create by the redefining the expectations, setting of the criteria, redesign strategist and accomplishing the supply chain firms goals and objectives.

Summary

From this analysis, the following points are investigated on the practices, trends and process of supply chin performance measurement systems in manufacturing industries. Although, this study found that supply chain performance measurement systems and measurement tools are different over time, differ between companies [7,34] and nation to nations [15]. This difference is found due to the dynamic nature of supply chain system, implies that business organization performance measurement system is dynamic and it changes as the supply chain firm type and business scenario. In addition the dynamic environment also crates, different performance measurement system and measuring environments. Since due to this change business and different performance measuring environment, the effect and the impacts of the tools are different. However, from this investigations the following impacts of performance measuring system and tools are investigated. Though the challenges related on developed country manufacturing performance measurements are ,most organizations use single performance measurement, stick with financial performance, contextual analysis were not properly considered and were not studied as well and limited study in the area of supply chain performance.

Besides, this result shows that ,the challenges developing country manufacturing firms are ,infant in performance measurement systems, even they used as survival rather than improvement and competitiveness, performance measurement is science and a tool but some used as reprisal or revenge of the employment carrier(BSC), some starts more than one but they can't to accomplished and sustained the systems(PBR,BSC,TQM), problems on knowledge, skill and awareness on implementing of the systems.

Moreover the result shows that, most company use traditional performance systems and traditional performance measures only considered minimal set of metrics that is adapted to a supply chain might include. However, within small amount of matrices and traditional performance systems, it is difficult and impossible to evaluate the entire situation of the firms. For example in most of the times financial metrics are related to cost and related issue. This cost and related issue is shows how the companies assured firm profitability, secede in profit rather than others concerns (quality, sustainability, flexibility, time, resource utilization. etc.,) of supply chain firms. Since, in this stage, we believe there is much research that is needed to study metrics that measure quality focused supply chain performance and process performance collectively and at various levels within the entire supply channel utilizing the system. Including SCOR models lacks entire supply chain performance matrices, for example SCOR model is not concerned in the areas of human resources, training, and quality assurance. While by considering this thought manufacturing firms including basic metal industries should emphasis to use optimum performance measurement systems to measure the entire supply chain systems, so as to improve their performance and competitiveness.

Conclusion and Recommendations

Conclusion

This paper is to investigate the current challenges, trends, relevance and the concept of supply chain performance measurements in developing nation basic metal industries. This paper gives an overview of different performance measurement tools that can be applied to measure and improve the supply chain systems of an organization. Since the study focuses on supply chain performance measurements practices in the Ethiopian basic metal industries. The paper identifies and discusses the main motives and impact of supply chain performance measurement practice on the performance of basic metal manufacturing industries in Ethiopia and provided solutions to areas that needed improvement. While the study reviews the relevance of the main strategies, models and tools to measure the performance of supply chain in manufacturing industries is done. Though the research is conducted based on qualitative methods. Structured questionnaires, field observation and oral interviews research techniques is use to get primary data from the sectors. Performance measure sets is identified through descriptive analysis. This study found that, large number of companies that now accomplish performance measurement systems at local and global level. Even though, most manufacturing firms use traditional performance measurement systems such as financial performance measurement systems [5]. But these traditional performance measurement systems were not properly evaluating the performance and competitiveness of the whole supply chain systems of manufacturing sectors. As well the extent of supply chain performance measurement systems was limed on developed country firms, but till infant in developing firms [15]. These have negative impact on global economy and digital globalizations. In addition, the according to this investigation developing countries used performance measurements for the survival and productivity of the firm rather than firm improvement and supply chain evaluations. This indicates that developing country manufacturing firms lucks supply chain performance, systems. As a result of this the performance and global competitiveness are poor [2]. But optimum efficiency performance measurement systems should measure the supply chains should be measured in different levels and scenario, typically the levels are strategic, tactical and operational [28]. Also according to this research proposes that the concept of supply chain performance measurement is not fully hold by the Ethiopian basic metal industries and highlights the difficulties associated with its implementation. Therefore, to tackle the challenges and attempt to the current performance measurement limitations, further studies need to investigate and develop optimum performance measurement systems, it incorporates scenario and at different levels, typically the levels are strategic, tactical and operational issues of supply chain firms. Since further research involving other sectors and industries needs to be undertaken in order to gain an in-depth understanding of the key factors associated with the accomplishment of supply chain performance measurement practices in Ethiopia.

Recommendation

From the investigation of this study, the recommendations below were done. Further research should to address and develop a framework that evaluate internal and external integration on supply chain practices, in particular in terms of financial, product quality, technological capability, operational efficiency, resource utilization, green supply chain practices and sustainability issues of performances of supply chains. Future research study ,also use this study as reference and investigate, the relationship between supply chain performance measurement, supply chain performance matrices and supply chain performance measurement tools needs to be further investigations.

Conflict of Interests

The authors declare that there is no conflict of interests regarding the publication of this paper.

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