Journal of Contemporary Issues in Business and Government Vol. 28, No. 04, 2022
https://cibgp.com/

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2022.28.04.138

Assessment of Supply Chain Integration in Ethiopian Textile Industries

Girma Abdissa Gamachu
A PhD scholar in Management, Jain University, Bangalore, India
Email of corresponding author: girmaabdissa4@gmail.com
Dr. Harold Andrew Patrick
Research Guide of Jain University, Professor and Dean, CMS Business School
Email: harold.patrick@jainuniversity.ac.in

Acknowledgment: The author like to express heartfelt grateful to his guide, Dr. Harold Andrew Patrick for his indispensable advice and constructive suggestions on the entire research article. The author also like to express his gratitude to the Ethiopian textile industries leaders, higher experts and the participant individuals for agreeing to take part in the research and providing all the necessary and relevant information, without whom this research paper could have not been written.

Conflict of Interest: The authors declare no conflict of interest.

Abstract

The study develops and implements an integrated supply chain performance measurement framework that provides a more thorough approach to investigating supply chain performance measurement by merging supply network macro operations and decision-making levels. The conceptual model framework is built on performance and supply chain related theories. The study investigates the performance of supply chain integration along with the performance indicators in the textile industries in Ethiopia. The quantitative research was used to measure financial measurement indicators, Quality, time measurement indicators, productivity indicator measurement, internal supply chain integration, external or customer integration and information communication technology indicators. The data was treated using SPSS version 20. The data was collected from textile industry professionals through self-reported method and the common method bias analysis was done. The survey was administered/mailed to eighteen hundred (800) textile industry professionals and only (385) three hundred and eighty-five were able to complete the study questionnaire. Eight standardized, valid, and reliable questionnaires were adopted to collect primary data from the employees of top textile manufacturing Organizations' located in Addis Ababa - Ethiopia. It was found that supply chain integration performance is influenced by the indicators such as financial measures, time, quality, productivity, internal supply chain, and external supply chain and information communication technology. Multiple regression analysis

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2022.28.04.138

for the hypotheses indicated that: Performance sub-dimensions i.e., financial measures, time, quality, productivity, internal supply chain, and external supply chain and information communication technology significantly predicted supply chain integration performance in Textile industry.

Keywords: Supply chain management, Performance, Multiple regression, Supply chain integration, Textile industry.

1. Introduction

Ethiopia is a country located in the Horn of Africa, bordered by Somalia to the east, Sudan and South Sudan to the west, Eritrea to the north, Djibouti to the south, and Kenya to the north. Its coordinates are 30°-150°N and 330°-480°E. Ethiopia has a population of about 120 million, making it her second most populous country on the continent. The total area is 1.1 million square kilometers (420 million square miles). Textiles can be produced using unskilled labor and relatively simple techniques. Traditional hand spinning, weaving and sewing techniques formed the basis of a larger industry. British inventors began automating the carding, spinning and weaving processes used in the small textile industry in the 18th century (African development bank, 2008). African countries do not participate in the global textile and garment trade as well as Asian countries, the EU or the US.

However, the market is starting to move to Africa as labor costs tend to rise in Southeast Asia. Global trends in textile sector production clearly show a pattern of sustained declines in rich countries and a geographical shift of production to developing countries (Teshome and Ashagre, 2018). The African Growth and Opportunities Act (AGOA) have facilitated significant increases in trade, investment and employment across the continent.

Supply chain in Textile Industry

A supply chain consists of all the actions that occur along the path that goods and information travel from the raw material stage to their final destination. Supply chain integration is the process of contact and collaboration in which companies involved in a particular supply chain work together to reach mutually agreed conclusions (Pagell, 2004). Supply chain integration is seen in several literary genres as a collaborative effort to connect functional networks and supply chains in terms of processes, information, and physical flows (Mentzer et al. 2008). Supply chain management, according to Lummis and Vokurka (1999), is a system that "encompasses all efforts involved in the manufacture and delivery of the ended product, from the supplier's supplier to the customer's customer."

There are many problems with the integration outcome of Ethiopia's textile industry in the production supply chain. The country's existing export market share is affected by these issues. Less capacity is available for global markets. Therefore, the main objective of this study is to assess how to maximize the performance of Ethiopian industries through the integration of supply chain components. Despite this difficult situation, Ethiopia has a competitive advantage

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2022.28.04.138

in the export of leather, leather products, and textiles. Even though the industry works well, the textile industry product is severely dependent on imports.

2. REVIEW OF LITERATURE

Organizational Strategy

A comprehensive organizational action plan for achieving key organizational goals is called a strategy (Higgins and Vincze 1989). A company's strategy can be derived from its strategic priorities. Understanding the opportunities and needs that may give rise to new management problems and require a reconfigured structure to effectively operate the organization leads to the development of strategic priorities (Chae2009; Waggoner et al., 1999). Based on strategic choices like cost leadership, distinctiveness, and focus, businesses can create various strategic priorities. However, it appears that the two main strategic concerns that influence supply chain process integration are cost orientation and client orientation (Agami et al., 2011). Furthermore, we create quantitative and empirical sciences that turn corporate strategy into a science and an expertise. A subject of management called "strategic management" includes a number of methodologies and specializations (David, 2005; Parnell, 2005). In addition, the primary goal of the strategic management process is to enable companies to provide a competitive advantage over their competitors, capitalize on internal strengths and external opportunities, and minimize internal weaknesses and external threats. (Bryson, 1995; David, 2005; Ben Naylor et al., 1999; Steiner, 1996).Moreover, one of the main tasks of strategic management is to help managers make decisions when faced with a multitude of options (Parnell 2005, shepherd and gunter, 2006). "Strategic management is the management process that pursues organizational goals while managing the relationship between the organization and its environment," Higgins and Vincze (1993). So performance refers to the ability to meet a requirement and the time and method spent doing so. Performance is the effectiveness and efficiency of activities, or the efficiency and conversion of inputs to outputs (Andy Neely et al., 2005). Improving operational performance requires performance measurement, and performance measurement becomes an important part of organizational management. Organizational performance is the efficiency with which a company meets both economic and business objectives (Yamin S et al., 1999).

Performance Measurement

There are many well-known models and frameworks in the fields of operations, logistics, and supply chain management. In the era of globalization, the selection of appropriate key performance indicators and key figures is of great importance to the success and competitiveness of a company. Several frameworks have been created in the past. Lebas (1995) argues that performance can be considered subjective and depends on each organization's own set goals and objectives. In other words, performance is the ability to meet requirements, and the time and methods spent doing so. Performance is the effectiveness and efficiency of an activity, or efficiency and conversion of inputs to outputs (Andy Neely et al., 2005). Therefore, the procedure must be dignified for better performance. Therefore, performance evaluation is very important for organizational management. The effectiveness of an organization in achieving both

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2022.28.04.138

financial and market-oriented goals is called organizational performance (Yamin S et al., 1999). The long-term objective of supply chain management is to improve market share and revenue for all supply chain players while the simple terms objective is to enhance productivity, decrease inventory, and shorten cycle times. All organizational projects involving supply chain management should ultimately improve organizational performance. Brown et al. (1998) use a top-down, process-oriented approach and a common set of performance metrics and indicators. This includes various performance metrics or facets.

Quality Technology

Many factors affect the quality of the final product, but two in particular increase the use of raw materials and machinery (technology). Especially for exports, a firm's ability to pay and access technology determines its competitiveness (Taneja, 2012). According to a Lao study (Kongmanilaa & Takahashi, 2009), innovation (product and manufacturing process innovation) is a key determinant of export performance and thus company profitability. The development of exports is also influenced by information technology. Information technology, the ability of firms to produce products of international quality and greater flexibility in the textile industry are positively correlated.

Information Technology (IT)

This is the most important factor affecting a company's export performance (Lal, 1999). Export performance in global markets is unaffected by variables based on capital and technology, supporting the notion that the textile and apparel industry is focusing more on low-cost products than on high-end product categories (Abraham & Sasikumar 2011). Success depends on quality. Today's customers demand high-quality goods, so companies that can produce these goods at competitive prices are thriving. Quality is assessed at the three main levels of intake, outcome, and utilization quality standards. Most businesses priorities quality because they want to give their clients high-quality services and goods (Heckl and Moormann 2010; Badri et al. 1994).Function, reliability, fit, durability, usability, aesthetics and perceived quality are the eight dimensions of quality covered by White (1996). Empirical proof of the quality between these characteristics exists in compatibility. Consumer satisfaction, intake quality, outcome quality, expense quality, and numerous customer complaints have all been recognised by Gosselin (2005) as quality indicators. Machine reliability, rework, quality system expenses, service quality, gains, inbound and outbound quality, product dependability, and machinery reliability have all been examined by De Toni and Tonchia (2001) as quality measurements. I was. Efficiency, function, dependability, appropriateness, technical longevity, usefulness, attractiveness, value perception, humanism, and value are quality measures, according to New and Plats (2005).

Flexibility

A firm's ability to perform a large number of tasks with a fixed amount of resources, such as labor and machinery, is called flexibility (Zhang et al. 2003). The most trustworthy indicators of flexibility, according to neely and Platts (2005), are substance quality, outcome quality, new and revised goods, availability, volume mix, and resource mix. De Toni and Tonchia have

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2022.28.04.138

identified a number of flexibility performance indicators, including quantity flexibility, mix versatility, commodity changes adaptability, process change adaptability, and growth flexibility. Perceived flexibility, flexibility in comparison to rivals, process flexibility in comparison to competitors, perceived relative product flexibility, and plant reaction to changes in product mix are all mentioned by White (1996). Important variables include time, product cycle time, setup time, tool change time, tooling change, fixture assembly or transport, percentage increase in typical setup days, perceived relative volume flexibility, ability to execute many activities quickly, and degree of openness to change.

Time

The effectiveness of a manufacturing organization is significantly influenced by time. For manufacturing firms throughout the world to have a competitive advantage over their rivals, time-based manufacturing is a big problem (Koufteroset al.1998). As indicators of time performance, De Toni and Tonchia (2001) focus on production lead times, delivery dates, delivery performance, delivery frequency, and product release rate. The following terms and concepts are used in this sentence: Time to Market, Sales Lead Time, Customer Delivery Reliability, Supply Lead Time, Supplier Delivery Reliability, Manufacturing Lead Time, Standard Lead Time, Actual Lead Time, Wait Time, Setup Time, Transportation Time, Inventory Turnover, Order - Turn time and average (flexibility) were suggested by Neely and Platts (2005) as indicators. White (1996) used the following metrics: break-even point, time from idea to market, average time between innovations, number of project changes, paper turnaround time, material turnaround time, distance travelled, decision turnaround time, lost waiting decision time to market, percentage of first competitor to market, detection of need for delivery, and order processing time. The time component of strategy is smart time. In his research, White (1996) defined time as speed.

Satisfactions

In latest days, it has been evident that in order for complex work systems to meet organizational goals, both workplace organization and technology safeguards are required (Mearns et al. 2003). The most crucial safety indicators, according to Parameter (2009), are the degree of risk and reported rate of accidents, the degree of employee collaboration, the managers' and workers' attitudes toward safety, and the degree of physical danger that employees face at work Safety level. The most significant safety performance metrics in the UK are accident rates and time lost in accidents (Flin and O'connor 2000).

Financial Performance

The tangible values of profits and revenues or the capital return and assets, have historically been the best indicators of a company's performance. Companies are under pressure to use financial metrics to measure internal performance. This is due to pressure from external shareholder groups who are very concerned about performance measures of this kind (White 1996). Numerous firms and scientists evaluate and analyze their financial performance using a variety of indicators. In this instance, we followed the advice in the book The Critical Success Indicators' Financial Metrics Parameters (2009) (KPIs). The cost of sales/scrap as a percentage of overall

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2022.28.04.138

income, air conditioning receivables revenue, cash flow, days of inventory, and receivables are all indications of a company's financial performance. Days, Net Income, Revenue, Amount of Valuable Customers, return on Capital, Product-Level Revenue, Revenue Growth, and Return on Assets are some of the metrics. Financial metrics, such sales and earnings as well as the return on capital and assets, are the most effective measures of a company's performance. Companies are under pressure to use financial metrics to measure internal performance. This is due to pressure from external shareholder groups who are very concerned about performance measures of this kind (White 1996).

Cost

As external stakeholders are more interested in cost-based performance measurement, the organization should develop a cost accounting system that includes efficiency and effectiveness measures, reflecting efforts to connect the performance measures both internally and externally. (White 1996). According to neely and Platts (2005), cost performance indicators are manufacturing costs, value added costs, selling prices, operating costs, and service costs. Overall Product Cost as a Factor of Lead Time, Estimated Cost - effectiveness, cost of manufacturing, Equity Profitability, Capacity Utilization, Precision Efficiency,Overall Productivity Improvements, and Direct Labor Cost Numerous elements, including overhead labor costs, productivity, cost of materials, holding cost, disposal costs, repair costs, quality costs, engineering costs, comparable R&D expenses, sales costs, overhead costs, and trade, have been found (White, 1996). Material costs, labor costs, device energy costs, equipment resource usage costs, inventory levels, equipment saturation, gross effectiveness, working capital productivity, valuation productivity, and value are among an organization's cost-performance measures, according to De Toni and Tonchia (2001).

Hypothesis 1: *There is no positive relationship amid Performance, financial measurement indicators, Quality, time measurement indicators, productivity indicator measurement, internal supply chain integration, external or customer integration and information communication technology*

Hypothesis 2: *There is no significant prediction of Performance by financial measurement indicators, Quality, time measurement indicators, productivity indicator measurement, internal supply chain integration, external or customer integration, and information communication technology.*

3. Methodology

The researcher identified Top textile manufacturing organizations with minimum of twenty (20) respondents drawn from each organization. The main study data was collected over fourteen (8) months from three hundred and eighty-five (385) respondents. The survey was administered/mailed (385) textile industry professionals and only (358) three hundred and fifty eighty were able to complete the study questionnaire with minimum twenty (30) professionals from each organization.

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2022.28.04.138

***Sample* Size**

The sample size determination for the study is based on cluster sampling and, after categorizing the cluster, the sample size was determined using a sample random sampling method. The statistical method for determining the size will be outlined in the following ways: The sample of this research was calculated by using the Taro Yamane (Yamane, 1973) formula with a 95% confidence level (according to 10,000 people in the textual industry will be chosen for this thesis study. The researchers adopted a simple mathematical formula that was suggested for determining the size of their sample, for a confidence level of 95%

n=N/(1+N(〖e)〗^2)

n=10000/ (1+10000(〖0.05)〗^2)

Where:

e = precision level

N = population size

n = sample size

e = margin of error at a confidential level of 95%, then the margin of error € is 0.05

n = corrected sample size, N = population size, and e = Margin of error (MoE), e = 0.05 based on the research condition.

Let's assume that the population is 10,000. At 5% MoE., the sample size would be:

10,000/ (1 + 10,000 (0.05^2) = 10,000/26 = 384.61 ~ 385

Measures

Performance of Supply Chain Integration (PSCI), designed by Sadler and Hines (2002), Huan et al. (2004), Koh et al., (2006) Zailani and Rajagopal (2005), Smith (2005) and Mukhopadhyay and Setoputro (2004) measures the performance of supply chain integration of the manufacturing plant. The scale consists of 9 items. All these items were answered by means of Likert five-point scale, wherein 1 denoted 'Strongly Disagree' and 5 denoted 'Strongly Agree'.

Financial Measurement Indicators (FMI), designed by De Toni &Tonchia (2001); Chan & Qi (2003) measure the growth in revenue and expenses of the manufacturing plant. The scale consists of 11 items. All these items were answered by means of Likert five-point scale, wherein 1 denoted 'Strongly Disagree' and 5 denoted 'Strongly Agree'.

Quality Measurement Indicators (QMI), designed by Tan et al (1998); Stank et al. (1999) measure the quality of the performance in the manufacturing plant. The scale consists of 3 items. All these items were answered by means of Likert five-point scale, wherein 1 denoted 'Strongly Disagree' and 5 denoted 'Strongly Agree'.

Time Measurement Indicators (TMI), designed by Coyle 2003; Zheng & Li (2008) and De Toni & Tonchia, 1998measure the delivery time, lead time and order entry time etcin the

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2022.28.04.138

manufacturing plant. The scale consists of 7 items. All these items were answered by means of Likert five-point scale, wherein 1 denoted 'Strongly Disagree' and 5 denoted 'Strongly Agree'.

Productivity Measurement Indicators (PMI), designed by Stank et al. (1999) measure the effectiveness of resource utilization in the manufacturing plant. The scale consists of 6 items. All these items were answered by means of Likert five-point scale, wherein 1 denoted 'Strongly Disagree' and 5 denoted 'Strongly Agree'.

Internal Supply Chain Integration Indicators (ISCI), designed by Leets al. (2007) and Zailani & Rajagopal, (2005) measure the effectiveness of internal supply chain integration in the manufacturing plant. The scale consists of 6 items. All these items were answered by means of Likert five-point scale, wherein 1 denoted 'Strongly Disagree' and 5 denoted 'Strongly Agree'.

External Supply Chain Integration Indicators (ISCI), designed by Tan et al. (2002) and Zailani & Rajagopal, (2005) measure the effectiveness of external supply chain integration in the manufacturing plant. The scale consists of 6 items. All these items were answered by means of Likert five-point scale, wherein 1 denoted 'Strongly Disagree' and 5 denoted 'Strongly Agree'.

Information Communication Technology Indicators (ISCI) designed by Tan, (1998), Zheng & Li (2008), and Kaplan & Norton (1996), measure the effectiveness of Technology integration in the manufacturing plant. The scale consists of 8 items. All these items were answered by means of the Likert five-point scale, wherein 1 denoted 'Strongly Disagree' and 5 denoted 'Strongly Agree'.

4. Analysis

Descriptive Statistics

The below table shows, Minimum, Maximum, Mean and Standard Deviation of Constructs

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2022.28.04.138

Table 1: Descriptive Statistics

	N	Minimum	Maximum	Mean		Std. Deviation	Variance	Skewness	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error
PERFORMANCE	385	1.00	5.00	3.3252	0.03806	0.74681	0.558	.326	124
ISCI	385	1.20	5.00	3.2171	0.03895	0.76432	0.584	.438	124
ESCI	385	1.00	5.00	3.0887	0.03405	0.66818	0.446	.186	124
FMI	385	1.67	4.50	3.1634	0.02505	0.49151	0.242	.283	124
QL	385	1.00	5.00	3.2433	0.04268	0.83747	0.701	.290	124
TIM	385	1.50	5.00	3.3065	0.03551	0.69670	0.485	.408	124
PR	385	1.00	5.00	3.2455	0.03980	0.78099	0.610	.248	124
ICT	385	1.00	5.00	3.0143	0.03082	0.60465	0.366	104	124
Valid N (listwise)	385								

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2022.28.04.138

The above table indicates performance of supply chain integration and the respective constructs that influence performance of the textile industry in Ethiopia. Performance has the highest mean score of 3.32 and Information communication technology has the lowest mean score (3.01) of all the constructs. Based on the mean score, it is understood that the respondents collectively neither agree nor disagree on the constructs followed in their own organization. The study gives us the opportunity to explore the further influence of the above constructs on the performance of supply chain integration.

Pearson's correlation

Objective 1: To examine the relationship and influence those financial measurement indicators, Quality, time measurement indicators, productivity indicator measurement, internal supply chain integration, external or customer integration and information communication technology on performance of supply chain integration in textile industry in Ethiopia.

Table 2: Indicating the correlation between the constructs

Correlations

	PERFORMANCE	SCI	SCI	MI	L	IM	R	CT
PERFORMANCE	1							
ISCI	.353**							
ESCI	.355**	518**						
FMI	.414**	508**	449**					
QL	.288**	303**	425**	437**				
TIM	.364**	434**	.540**	.551**	636**			
PR	.418**	.594**	.545**	.525**	.501**	686**		
ICT	.182**	.461**	.443**	.331**	.271**	423**	425**	

****. Correlation is significant at the 0.01 level (2-tailed)**

The correlation coefficient was calculated to measure the association among Performance, financial measurement indicators, Quality, time measurement indicators, productivity indicator measurement, internal supply chain integration, external or customer integration, and information communication technology. It indicates a positive association amid the variables at (p = 0.01). In general, a moderate association was observed among performance, financial indicators, and productivity. The strongest association was amid Time and productivity indicators (.686) and the weakest positive association was amid performance and information communication technology (.182). The total intensity of the association among performance, financial measurement indicators, Quality, time measurement indicators, productivity indicator

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2022.28.04.138

measurement, internal supply chain integration, external or customer integration, and information communication technology was reasonable to moderate and yet all associations were important at (p =0 .01) level. H1 is not supported and there is a significant association between performance, financial measurement indicators, Quality, time measurement indicators, productivity indicator measurement, internal supply chain integration, external or customer integration, and information communication technology.

Regression Analysis

Objective 2: To investigate the relationship and affect that financial measurement indicators, Quality, time measurement indicators, productivity indicator measurement, internal supply chain integration, external or customer integration, and information communication technology has on the performance of supply chain integrations in the textile industry in Ethiopia.

Table 3: Indicating the Model summary of performance and its indicators in Ethiopian Textile industry.

Model Summary

Model	R	R Square	Adjusted Square	Std. Error of the Estimate
1	.663[a]	.440	.438	.65492

a. Predictors: (Constant), ICT, QL, FMI, ESCI, ISCI, PR, TIM

Table 4: Indicating the ANOVA of performance and its indicators in Ethiopian Textile industry.

ANOVA [a]

Model	Sum of squares	df	Mean Square	F	Sig.
Regression	52.464	7	7.495	17.474	.000[b]
Residual	161.701	377	.429		
Total	214.166	384			

a. Dependent Variable: PERFORMANCE

b. Predictors: (Constant), ICT, QL, FMI, ESCI, ISCI, PR, TIM

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2022.28.04.138

Table 5: Indicating the regression coefficients of performance and its indicators in Ethiopian Textile industry.

Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.140	0.244		4.682	0.000
ISCI	0.083	0.060	0.085	1.381	.008
ESCI	.134	.066	.120	2.016	.044
FMI	.328	.089	.216	3.704	.000
QL	.020	.053	.023	.383	.002
TIM	.037	.079	.034	.469	.019
PR	.181	.067	.189	2.695	.007
ICT	.102	.066	-.083	-1.546	.002

a. Dependent Variable: PERFORMANCE

To test if financial measurement indicators, Quality, time measurement indicators, productivity indicator measurement, internal supply chain integration, external or customer integration, and information communication technology considerably forecasted performance multiple regression method was adopted. The outcomes of the regression point to the seven predictors exhibited (43.8%) of the variance (R^2=.440, p<.001).Table 4.10, (p< 0.001) point out that the comprehensive model is considerably good in forecasting performance. It is found that indicators: financial measurement indicators (t (384) = 3.704, p<.01), Quality (t(384) = .383, p<.01), time measurement indicators (t(384) = .469, p<.05), productivity indicator measurement (t(384) = 2.695, p<.01), internal supply chain integration (t(384) = 1.381, p<.01), external or customer integration(t(384) = 2.016, p<.05), and information communication technology (t(384) = 1.546, p<.01) considerably forecasted performance of supply chain integration.

The equation for regression: Performance = 1.140 + 0.328(Financial) + 0.020(Quality) + 0.037(Time) + 0.181 (Productivity) +0.083 (internal supply chain integration) +0.134 (external or customer integration) + 0.102 (Information communication Tech)

H2 is not supported and financial measurement indicators, Quality, time measurement indicators, productivity indicator measurement, internal supply chain integration, external or customer integration, and information communication technology do significantly influence performance. Discussions and Implications All theories demonstrating a direct connection

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2022.28.04.138

between SCI and SCP were validated. With other variables present, these correlations may also be eighty-five mediated or regulated. Huo (2012) has discovered that the overall performance of the firm's clients and suppliers, or SCI, respectively, mediates the relationship between the company's overall performance and SCI. Alfalla-Luque et al. (2015) also got here to the conclusion that external integration orientation has an oblique effect on the operational performance of the firms due to dealer and customer integration (EIO). It's possible that there isn't always constantly an easy relationship between SCI and performance (Zhao et al., 2015).

Performance necessitates both the physical stamina to deal with uncertainty and the potential to integrate. In this study, integration is defined as facts exchange, reliance, shared decision-making, and system coupling that aid in the synchronization of activities. Integration methods facilitate the simplification of grant chain operations. Integration may not usually produce greater overall performance because it necessitates outside help because it won't useful resource in growing physical capability. Therefore, companies need to invest in bodily infrastructure when they sketch for capacity or take proactive measures to enhance the current capability to grow functionality and have flexible operations for extended SCP. The second argument would possibly be that Ethiopia is still developing and that the manufacturing region is no longer growing as quickly as it ought to. However, organizations nonetheless use outdated equipment, little infrastructure, and out-of-date technologies, which limits the direct overall performance effect of SCI, which is often pushed with the aid of IT. Kahn and Mentzer's (1996) assertion on the "conceptual ambiguity" of furnish chain integration, was once later supported by way of others (Arlbjrn and Haldorsson, 2002; Pagell, 2004). We've considered that studies put fashions and hypotheses to the take a look at the use of numerical metrics and operational metrics derived from hazy and disjointed definitions.

The surveys frequently base their questions on a small set of operational measurements and indicators. As a result, it is difficult to drive suppositions from the "proof" that emerges from the majority of the lookup in our pattern given that they use "poor" measurements of SCI, performance, or each (Stuart et al., 2002; Wacker,2004).In our examination, numerous conceptual conflicts are evident. Despite previous publications recognizing it as an essential part of this integration, the IT/systems layer is rarely included when talking about grant chain integration. Pagell (2004) claims that "the information technology has not previously proved to be a substantial enabler or Changes of integration" in contrast to the literature review on which he primarily based his assessment. This makes this particular feature murky and necessitates more study. Second, the analysis of the breadth of integration reveals considerable variance.

According to Mentzer et al., the majority of academics concur that an integrated grant chain must contain three stages or more (2001). As a result, it is questionable if supply chain integration is examined in publications from a research perspective. Furthermore, only a tiny number of articles were measured to have a wide width across all four levels. Thirdly, the wide variations in the extent and degree of what papers have measured make it difficult to assess information. When examining overall performance in phrases of what has been regarded and

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2022.28.04.138

how it is measured, problems with the proof end up greater clear. This is related to the issue that even the titles of the SCI dimensions fluctuate between publications, main to uncertainty about the SCI's content. For instance, integration strategies are a layer dimension (Sahin and Robinson, 2005). The scope dimension is also referred to as level, stage, degree, arc, type, and furnish chain shape (Stock et al., 2000; Kim, 2006; Narasimhan and Kim, 2002; Frohlich and Westbrook, 2002, 2001). The degree dimension is sometimes referred to as level, stage, intensity, and capacities (Rosenzweig et al., 2003; Bagchi and al., 2005), as well as degree (Mollenkopf and Dapiran, 2005; Stock et al., 2000; Gimenez and Ventura, 2005; Power, 2005; Bagchi et al., 2005). The argument does now not advise that quantitative methods for determining independent and established variables must be abandoned. On the contrary, we aid extra quantitative research and our study serves as a foundation for SCI and overall performance evidence enchantment in this sector.

However, caution is exercised while using the items, questions, and measures. Studies that make widespread attempts to measure SCI and overall performance have been observed with the aid of our analysis. It is honestly necessary to keep away from this fragmentation in future studies, both in observed articles and literature reviews. Our research provides a beginning factor for more correct overall performance and SCI assessments. Furthermore, there is truly little proof to help the concept that grants chain integration consequences in elevated performance. An evaluation of the allusions cited in the publications exhibits that some are included often and would possibly be viewed as basic, including Stevens (1989), Vickery et al (2003), Narasimhan and Kim (2002), and Froehlich and Westbrook (2001). However, upon closer inspection, we see that few of these publications are founded on authentic research and empirical studies. Another thing to note is that the articles' theoretical underpinnings and research streams are broad, similar to many other studies in business transportation, operations, and SCM (Gripsrud et al., 2006; Jahre and Person, 2005). This is not a trouble in and of itself because it may contribute to each extent and deepness of the studies, however, the consciousness of the theories' underlying conventions would enlarge the studies' validity (Jahre and Persson, 2005; Arlbjrn and Halldorsson, 2002;).Our remaining issue relates to the various contexts—namely, the industries and nations—from which statistics have been obtained, which may make contributions to a clarification of the contradictory evidence. The truth that many papers do not show up to furnish intentional and thorough assessments of insinuations and workable limitations of their obtained data is something we view as problematic for concept development.

Previous studies are very limited in scope. Except for a few papers about Froehlich and Westbrook (2001), Vachon and Klassen (2006), and Zailani and Rajagopal (2005), most research examines explicit, single contingencies such as considering the relevance of transportation investments or the breadth of product-cycle sensitivity. The majority of these precedents comprise contingencies that might impact performance, but not their sign or relationship with it. (Daugherty and Droge, 1991; Withey, 1974;Kohn and McGinnis, 1997; Pfohl and Zollner, 1987; Person, 1978; Kahn and Mentzer, 1996 ;). In these studies, well-known works like Thompson

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2022.28.04.138

(1967), Lawrence and Lorsch (1967), Woodward (1958), and Galbraith (1973) are stated to help the thesis that positive organizational forms or structures are seen as more or much less terrific depending on the surroundings (business, industry, etc.).

As a result, the researcher assumes that reintroducing contingency techniques to theory-building ought to be advantageous. For example, we may research how, where, when, and how much grant chain integration is (or should be) beneficial to performance. Businesses seemed for novel enterprise models that would supply them with a competitive edge. Theory of Constraints (TOC), Just in Time (JIT), Supply chain management (SCM), and Total Quality Management (TQM) are a few examples of methods that have aided organizations in streamlining their manufacturing processes, cutting costs, and successfully competing in a range of commercial enterprise situations. Every MIS researcher is conscious of the fundamentals of globalization and the influence of the net on SCM. Companies commenced realizing the plausibility of statistics science to alter their commercial enterprise to expand competitiveness. Companies began to re-engineer commercial enterprise procedures utilizing science as the facilitator rather than automating antiquated, ineffective processes. Models for supply chain administration have been developed as a result.

All phases worried in directly or not directly finishing a client request are covered in a provide chain. Manufacturers, suppliers, transporters, warehouses, retailers, third-party logistics providers, and clients make up a supply chain. Instead of focusing on maximizing income in a unique provide chain, furnish chain administration seeks to amplify complete price (Chopra & Meindl, 2001). The SCM was once described via the American expert group, "Grant chain management safeguards the managing and planning of all sourcing and procurement, conversion, and logistical administration responsibilities. It is imperative to coordinate and work with channel partners, including vendors, middlemen, third-party transport providers, and clients. “The ideas of patron and provider integrative relationships received expanded interest throughout the 1980s and 1990s.

Business as a complete began to forge fantastically close ties with a small group of clients, now and again referred to as strategic customers, and an awful lot more emphasis was put on strengthening working relationships with suppliers. Three elements should be used to explain this trend of increased collaboration for the duration of the SC. Environmentally friendly processes and products must be developed and operated via the use of manufacturing systems. Manufacturing's organizational and business structures are becoming

Manufacturing takes location in an international context the place nearby markets are situation to world standards. By extending manipulation and coordination of activities throughout the entire grant chain, the intention was to substitute both market and vertical integration as a technique of drift system management (Larson, 2003). The ability to integrate is "the quality of the scenario of collaboration that arises across departments that are necessary to achieve team spirit of effort by exploiting the demands of the environment," according to Lee & Whang (2001)." Although this phrase refers to inside integration within an association or

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2022.28.04.138

organization, our interest is in exterior entities that are individuals in a furnish chain (Lee & Whang, 2001).

Recent developments in SCM can increase revenues, expand profits, and minimize costs. The ultimate subject is in connecting these unique strategies to obtain the competitive benefit of a clean flow of SC. Designing merchandise that matches patron demand and can be manufactured quickly and efficaciously requires the creation of collaborative external and internal procedures. The inside furnish chain, the provide chain network, and the 4 stages of the SC must be prioritized (which are manufacturing plants). The four flows are fabric flow, provider flow, cease customers going up and down stages, and distribution systems. Financial and informational flow (Larson, 2003).Conclusion this analysis shows that both drift integration and fabric with statistics are essential for supply chain integration and have a significant impact on performance.

It is a daunting task as it involves a large number of control factors associated with the change mechanism and supports logistical integration activities associated with the drift of the physical fabric between the two parties. Such complex issues are best dealt with in the supply chain if her partner has been courting for a long time. This analysis highlights the value of building lasting ties with companies that have supported us since the start of the Pleasant Control period. Overall, all the components discussed in this analysis have a clear negative impact on aggressive performance, either directly or indirectly. This shows that there are many facets to the combination of supply chain partners, and many capabilities working together to improve overall performance. A supply chain's performance is influenced by several variables. Some of the elements found in the current study include supply chain structure, inventory management practices, information sharing, customer demand, forecasting methodologies, lead times, and duration of review periods. Except for the fourth component, which is the operational state or environmental factor, all other variables are supply chain decision parameters or internal factors.

The effectiveness of a supply chain is greatly influenced by the inventory management policies applied to the chain. A key factor affecting supply chain performance is information sharing. A constant exchange of information helps managers make better decisions and increases supply chain efficiency. High customer demand volatility raises inventory holding costs and the bullwhip impact on the supply chain. The effectiveness of the supply chain is heavily reliant on prediction accuracy.

Limitations:

The limited sample population of this study of Ethiopian companies is one of its limitations. We believe these results apply to the entire supply chain, but cannot guarantee this. Future studies may extend this study to more companies, including other countries, to generalize the results and identify potential country impacts. The study also relies on perceptions of the relationships of the companies in focus. To learn “both sides of the story” about reciprocity and mutual impact concerns, it can be helpful to involve multiple participants in supply chain connections. The results of this study may vary from country to country as it is contextually

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2022.28.04.138

limited to the textile industry. Therefore, the results of this study should not be applied universally. Our research approach can be extended to respective industries and different economies for greater receptivity.

As suggested by Hadfield and Bechtel (2002), we have taken the following elements from the literature on supply chain integration: Mapping information flows, product and material flows, and long-term links between supply chain partners. There are other factors not covered by this study that may have a positive impact on performance when analyzing the integration of information and material flows between supply chain partners to identify significant performance impacts. The researcher took into account industry and company size but had no measurable effect on the results. However, future studies should consider additional effects that may occur in other situations.

Future research direction Supply chain integration (SCI) is a topic that deserves further research, as it has received little research according to a review of the relevant literature. Few articles have examined the relationship between SCI and other supply chain structures (Min, Mentzer, & Ladd, 2007; Hult et al., 2008; Patel et al., 2013). However, a thorough understanding of SCI will enable supply chain managers to effectively manage their supply chain and stay ahead of the competition.

Future research should focus on a deeper investigation of the many sub-dimensions of his SCI (internal integration, external integration, customer integration, etc.) that are relevant to these-SCP connections. Furthermore, since supply chain performance can be decomposed into operational-based performance and customer-based performance, analyzing the impact of these two dimensions on his SCI and its numerous sub-dimensions provides more detailed information. You can SCI cross-country analysis is also a legitimate research topic. Since SCI is a behavioral structure, national culture can have a significant impact. A qualitative analysis of the SCI-SCP relationship still needs research. In addition to the above points, the following points will be addressed in future research: (1) Longitudinal studies are needed to fully understand the SCI phenomenon. (2) Our findings are not random. You are connected (3) only two parameters are considered in this study. The more determinants, the better the predictive power of the model. (4) Service-Oriented Supply His literature on SCI in his chain has the potential to expand in innovative ways. (5)Another promising topic for future research is empirical studies of various combinations of supply chain actors such as suppliers, manufacturers, distributors, retailers, and end-users.

5. Conclusion

This research develops and implements an integrated supply chain performance measurement framework that provides a more thorough approach to investigating supply chain performance measurement by merging supply network macro operations and decision-making levels. Methodologically, the quantitative research was used to measure financial measurement indicators, Quality, time measurement indicators, productivity indicator measurement, internal supply chain integration, external or customer integration and information communication

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2022.28.04.138

technology indicators. The data was collected from textile industry professionals through self-reported method and the common method bias analysis was done. The survey was administered to eighteen hundred (800) textile industry professionals and only (385) three hundred and eighty-five were able to complete the study questionnaire. Eight standardized, valid, and reliable questionnaires were adopted to collect primary data from the employees of top textile manufacturing Organizations' located in Ethiopia.

The finding of this study revealed that supply chain integration performance is influenced by the indicators such as financial measures, time, quality, productivity, internal supply chain, and external supply chain and information communication technology. Multiple regression analysis for the hypotheses indicated that: Performance sub-dimensions i.e., financial measures, time, quality, productivity, internal supply chain, and external supply chain and information communication technology significantly predicted supply chain integration performance in Textile industry.

References

AGOA. (2003), "The African Growth and Opportunity Act: A Preliminary Assessment", *United Nations Conference on Trade and Development* (UNCTAD), New York and Geneva.

De Toni, A. & Tonchia, S. (2001). "Performance Measurement Systems: Models, Characteristics and Measures," *International Journal of Operations and Production Management*, 21(1-2), 46-70

Flin, P. & O'connor, J. (2000). A review of performance measurement: Towards performance management. *Computers in Industry,* 56, p.663-680.

Huan, S.H., Sheoran, S.K. and Wang, G. (2004). A review and analysis of supply chain operations reference (SCOR) model. *Supply Chain Management: An International Journal*, 9 (1), p.23-29.

Koh, S. C. L., Demirbag, M., Bayraktar, E., Tatoglu, E. & Zaim, S. (2007). "The Impact ofSupply Chain Management Practices on Performance of SMEs," *Industrial Management and Data Systems Journal*, 107(1), 103-124.

Larson, L. (2003). What about measuring supply chain performance? *ASCET*, 2 (15), p.287 297.

Lummus, R.R., and Vokurka, R.J. (1999), "Defining supply chain management: a historical perspective and practical guidelines", *Industrial Management & Data Systems*, Vol. 99 No.1, pp.11-17.

Mentzer, J., DeWitt, W., Keebler, J., Min, S., Nix, N., Smith, C. and Zacharia, Z. (2001). Defining supply chain management. *Journal of Business Logistics*, 22 (2),p.1- 25.

Mentzer, J.T. (2001), Supply Chain Management, Sage, Thousand Oaks, CA.

Neely A, Gregory M & Platts K (1995) Performance measurement system design: A literature review and research agenda. *International Journal of Operations & Production*

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2022.28.04.138

Management 15(4): 80–116.

Pagell, C. (2004). "Performance Measurement," *Work Study*, 49(2), 63-66. Lapide, L. (2000). "What about Measuring Supply Chain Performance?," *AMR Research, ASCET - White Paper*, 2(15), 287-297.

Paramenter, A. (2009). Application of analytical hierarchy process in operation management. *International Journal of Operations & Production Management,* 10 (3), p.5-19.

Sadler, I., & Hines, P. (2002). Strategic Operations Planning Process for manufacturers with a supply chain focus: Concepts and a meat processing application. *Supply Chain Management: An International Journal*, *7*(4), 225–241. https://doi.org/10.1108/13598540210438962

Smith MF, Lancioni RA & Oliva TA (2005) The effects of management inertia on the supply chain performance of produce-to-stock firms. *Industrial Marketing Management* 34(6): 614–628.

Stank T.P., Daugherty P.J., Ellinger. A.E. (1999), Marketing/Logistics Integration and Firm Performance**,** *The International Journal of Logistics Management*, Vol. 10 (No. 1), pp. 11-24

Tan, K C., S.B. Lyman, and J.D. Wisner (2002), "Supply Chain Management: a Strategic Perspective". *International Journal of Operations and Production management*, 8 June 2002, Vol. 22, iss. 6, pp. 614-631.

Teshome, B and Ashagre, G. (2018). "Overview of Ethiopian Textile Industry*," Journal of textiles and polymers*, 6(2), 117-120.

White, G. (1996), "Bridging the gap between suppliers and customers through relationship promoters: theoretical considerations and empirical results", *Journal of Business & Industrial Marketing*, Vol.15,No.2/3,pp.86-105.

Yamane, T. (1973) Statistics: *An Introductory Analysis*. 3rd Edition, Harper and Row, New York.

Zailaini, H. and Rajagopal, W. (2004), "Supply chain practice and information sharing", *Journal of Operation Management*, Vol. 25, pp. 1348–1365

Zhaofang, M., Xiaomei, L. & Fu, J. (2006). "A New Approach of Supply Network Performance Measurement Based on Supporting Level and Operational Level," This paper appears in: Technology and Innovation Conference, 1537- 1545.

Zheng, G. and Li, W. (2008). "A New Approach of Supply Network Performance Measurement Based on Supporting Level and Operational Level," This paper appears in: Technology and Innovation Conference, 1537- 1545.