

Impediments to JIT Implementation in Textile Industry

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Abstract. This study aims at identifying the Impediments involved in implementing Just-in-Time approach in Textile weaving industry of Karachi. Research is based on the gathered data, collected through questionnaire; and themes are spawned from senior management, and merchandisers of weaving Industry by which it is concluded that, lack of awareness of JIT approach among the weaving sector in terms of supplier selection criteria, layout of company, inventory management, scheduling, maintenance policy, quality standard, employee consideration, power shortage, political volatility, buyer consistent demand, and infrastructure are considerable variables.

Keywords: Supplier Selection Criteria, Layout of Company, Inventory Management, Scheduling, Maintenance Policy, Quality Standard, Employee Consideration, Power Shortage, Political Volatility, Buyer Consistent Demand, And Infrastructure.

1. Introduction

It is becoming extremely difficult for the organizations to catch up with profitability in the wake of increasing global competition. Keeping an eye on competitor's product, price, quality is very important but the most important thing which should be kept in mind is the strategies which are built to get the competitive edge, it can be related to anything, either how to get the maximum output through increasing the sales volume or increasing the maximum profit by reducing cost or any other. Nowadays different organizations are focusing on varying concepts which are helping them to minimize the cost of product they make. Just in Time (JIT) is one model which is used for minimizing the cost of the product through various techniques and maximize the best possible outcome.

Though generally believed the concept of JIT was initiated by Toyota motors, its roots could be traced back to Henry Ford's book "My Life and Work", which insisted that buying exact amount of material which fits into the production plan is the key to get success besides timely delivery. If the practice is accurate, it will result in giving a very rapid turnover and will decrease the amount of money tied up in material. Henry Ford system had some limitations such as Ford was never agreed to change the system which was once developed, modification was not possible in Ford system whereby the world was changing, people were getting more conscious about their purchases.

JIT is a pull production system which is based on manufacturing of material when it is required whereas Batch system is a push system which is based on bulk manufacturing and stocking. There are number of elements on which both the systems can be compared such as, in batch system functions are grouped together where as in JIT teams are multifunctional, in batch system operators can work on wide range of product type where as in JIT they are focused on family of similar products, employees are independent in batch system where as they are interdependent in JIT on previous function, there is no access to inventory information in batch system where as computer on a work station give the detail information about the inventory in JIT, buffer stock is kept in successive operations where it is limited in JIT, raw material inventory is delivered to stock room and placed in assembly kits, where as in JIT raw material is delivered to cell teams and placed in bins, if there is short of stock in batch system during production operator must go to stock room to get the stock where as in JIT if the situation happens he switches on the red light and which signals to the support staff to provide the stock, in batch system manufacturing engineers are physically separated from shop-floor workers where as in JIT they are in close contact with workers, no work group

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meeting occurs in batch system where as they are arrange on regular basis to solve the problems which are faced in different level of production.[1], [2]

jit has simplified the accounting process of many organizations; it offers many monetary advantages as one cannot neglect the benefit that by implementing JIT company does not have to stuck money in inventories of direct material and finish goods as they are liabilities and need lot of investment to maintain, it also helps to minimize the storage cost and reduces the cost of reprocessing of defected inventory. Various studies have also shown that there is a significant relation between JIT implementation and financial growth from savings; one of claims that there is significant correlation between the level of JIT implementation and the level of financial success [3].

1.1 Background

The textile industry of Pakistan holds a key position in the exports of Pakistan; it provides highest employment and contributes to 8.5% in total GDP. If not considered as a backbone by having a share of 54% in total exports, 46% in total manufacturing and 35% of labor force. Contribution of textile industry of Pakistan in world trade is about 32.8% in cotton yarn and 8.1% in cotton clothes. Pakistan is the 8th largest exporter in the textile products and is the 4th largest producers of cotton [4]. Pakistan has been exporting its product to US, Hong Kong, Germany, China, South Korea, Switzerland, Russia and France but now recently Turkey, Portugal and Singapore are also included in the list. The industry consists of various other sectors which are the part of its value chain process that are Spinning, Weaving, Dyeing, and Printing & Finishing. Garments Sector is also a part of textile industry which provides the highest employment with in the textile value chain. Our research is focus on weaving units.

2 Problem Statement

A number of studies have been conducted globally on the implementation of JIT, and various have shown mixed results given the nature of various geographical areas & sectors. Textile industry has always been considered imperative for Pakistan economy. Over the last decade, the industry has to face a tough competition in the international market. It was not only because of the quality of products but owing to inflation, volatility in purchasing power and devaluation of Pakistani currency which significantly caused increase in the cost of product, utility bills (Gas, Water, and Electricity), besides labor wages also increased the cost of products in international market. This study attempts to give a strategic direction to the strategy makers to overcome the high cost of production by eliminating waste, also a core objective of JIT.

2.1. Objective of the study

The research is conducted to reduce the overall cost of product by implementing JIT system in supply chain departments of weaving sector of textile industries, & will enable the industry to get competitive edge in global market amongst its rivals by increasing sales.

2.2. Research Question

2.2.1. Primary research question

What are the major Impediments involve in implementation of JIT in weaving industry of Karachi?

2.2.2. Limitation of the study

The paper was kept limited because numbers of constraints were involved such as time, finance, availability of data, excess in the industry and many others.

2.2.3. Delimitation of the study

Majority of weaving factories in Karachi are still running under "Seth"(Owner-based) oriented culture, they still have a belief in, that actual information should not be shared outside the organization as tax saving being the primary reason amongst all besides lack of trust. So the data was collected through a questionnaire filled with the help of different textile professionals and supply chain managers through telephone, emails and personal meetings.

3. Methodology

It consists of sub segments such as research approach, research design, selection of sample, data collection and data analysis technique required to describe the complete methodology on the basis of which result will be generated.

3.1. Research approach

In this research quantitative approach has been used.

3.2. Research design

Quantitative approach used in this research thus focused strategy was developed by using structured questionnaire based on likert scale such as Strongly Disagree=1, Disagree=2, Neutral=3, Agreed=4, Strongly Agree=5, are filled by textile professional such as director and supply chain manager. This research is totally dependent on the questionnaire responded within weaving industries of Karachi. By the end, the outcome will justify about the possible impediments, which are present in implementing JIT in weaving industries of Karachi. Initially questionnaire will be filled and analyzed through Regression Analysis and in the end conclusion will be extracted from the results.

3.3. Selection of samples

Purposive sampling is used due to limited number of desired population.

3.4. Data Collection Method

Structured questionnaire was filled by textile professional such as director and supply chain managers where the theme questions are undertaken to meet the objectives of the research by the help of analysis.

3.5. Hypothesis

Ho: Impediments involved in implementation of JIT in Textile weaving industry of Karachi.

H1: No Impediments involved in implementation of JIT in Textile weaving industry of Karachi.

3.6. Data Analysis Technique

Multiple Regression analysis is used for analysis of results. It is also widely used for predicting the value of one dependent variable from the values of two or more independent variable.

4. Research Findings

A structured questionnaire was filled by textile professionals, directors and supply chain managers. Main purpose of this research is to find out impediments involved in implementing JIT (Just in Time) in Textile weaving industries of Karachi. To determine the relationship of considered variables, multiple regression technique is applied. Results of the test are shown in Table I. It is clear that there is an insignificant impact of Employee Consideration, Power shortage problem, Scheduling, Infrastructure, Supplier Criteria, Inventory Management, Political volatility, Maintenance, Inconsistent Forecasting and Quality on JIT (just in Time) in current situation of Textile weaving industry of Karachi Pakistan. Whereby layout has a significant impact on JIT. P value = 0.312 which is greater than 0.5 so we do not reject our claim i.e. Ho: Impediments involved in implementation of JIT in Textile weaving industry of Karachi. R square showing Independent variable predicting dependent variable up to 87.9%. Shows that these variables are highly correlated with JIT but if any variable missing, it will highly impact on JIT implementation.

Table I: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
dimension0 1	.938 ^a	.879	.437	.14138	.879	1.989	11	3	.312

a. Predictors: (Constant), Employee Consideration, Power shortage problem, Scheduling, Infrastructure, Supplier Criteria, Layout, Inventory Management, Political Volatility, Maintenance, Inconsistent Forecasting, Quality

About impediments in implementing JIT, 60% respondents replied with a common answer highlighting that external environment such as Infrastructure, for which 80% respondents strongly agree that Power shortage (Electricity) is a major problem, 53.3% agreed Political volatility is one of the problem, 60% strongly Disagree about Buyer demand is consistent, 13.3% don't know about buyer demand which was neutral.

5. Recommendations

This research carries significant importance in textile industry of developing nations and provides all stakeholders to understand the nature of incompetence & its sources in Textile sector in face of severe competition in international market. In current scenario of Karachi a number of reasons are involved such as law and order situation of the country, devaluation of currency and others. Devaluation of currency is the major problem for Textile businessmen thus they cannot offer a product in international market on lower price as do their competitors such as in Bangladesh, Vietnam, India and China. If they go for implementing such cost cutting technique such as JIT it would make it possible to offer lower cost to compete in international market. Therefore following recommendations are made to help textile industries to adopt JIT approach:

- Factories should be designed keeping space flexibility & optimization in considerations.
- Supply chain departments should be made responsible to identify Impediments.
- Market forecasting should be done on the basis of both past trends with calculated weightage to future scenario.
- Associations such as SITE Association and APTMA should collect all stake holders in one platform so that they can pressurize government to minimize external Impediments such as law and order situation; though the new government in Pakistan pledged to address this issue in Karachi along with Power shortage problem.
- Importance of JIT should be conveyed to each and every person working in textile industry so that their motivational level should increase with its benefits.

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