

JIT Can Give Benefits to Small and Large Manufacturing Industries in India

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Abstract: This research paper explains about just in time can give contribution towards developing country like India. This will give a lot of benefit towards Indian manufacturing industry if it implementing on large scale for large and small-scale industry because JIT is now looking as a backbone of the fast-growing industry and give many advantages to the industry on a large scale. The main aim of this research paper for define the impact of JIT system to give excellence performance in the manufacturing industry. The main reason for apply JIT in the industry for enhances the performance, reduce/eliminate waste, and increase service level end to end system in the industry. If the JIT is implementing in the industry on seriously in the manufacturing industry then repetitive manufacturing, concentrate on lot less, with only one unit of (WIP) and no stock of finished goods inventory. This research will show that if developing country like India will uses the JIT on a large how it can give the benefit to the manufacturing industry in India to the large and small scales manufacturing industry.

Keywords: Just in time (JIT), Work in progress (WIP), Implementation, Benefit, Indian Manufacturing Industry.

1. Introduction

The main philosophy of JIT in the manufacturing industry, it is a planned to eliminate all the waste and also continuous improvement of productivity. It is very much helpful for the successful execution of all activity which is carried out in the industry for producing the final product from stages of conversion from raw material to their delivery. The first elements (synonym for JIT) zero inventory, these inventory only available whenever we have requirement for inventory. The main goal for this is to zero defects; by the reducing of lead time we can reduce the setup time, queue lengths, and lots sizes; the things at minimum cost. Such that it helps to applies to all forms of manufacturing industry for their job, process and as well as repetitive. JIT is philosophy. It is also believing to be a path, which follows the route of continuous improvement. with the pursuit of continuous improvement in the area of shorter lead time, better price and delivery performance, reduction of waste and improvement in quality, a company can claim to be on the path of JIT [10].

Taiichi Ohno was the first to given the concept of Just in time. Who was also knows as father of Just in Time process? Just in time philosophy why has been adopted has not been clean till now. Due to lack of standardization and shortage of resources, lack of employees. As we know that after the world

War II the developing country like Japan wanted to rebuild themselves.

Taiichi Ohno was first developed the JIT system mid 1970s was applied to Toyota Motor Company. The roots of JIT system probably be traced to the Japanese environment where in lack of space, lack of natural resources where considered as waste of resources. From their point of view, anything which are not giving any contribution for their value of the product that is viewed as the waste. Another most important philosophy is that it is utilizing the full capability of the workforce that is the workspace us made responsible for producing quality products/parts just in time to support the next production process. The main responsibility was if the Company to apply the process then they can stop the process and take the help if what so ever required. Additional responsibility is given for improving the production process through quality circles for process of production improvements [10].

2. Literature Review

The researcher of this paper emphasis on JIT motivation spread from japan, then they deal on the spread of the JIT concepts. Motivation of JIT system on the quality, considered as that it is essential for JIT system, no defects, no inventory better quality produced. JIT system can detect the error and correct the mistakes which is occurred. It can apply for subsystem like that set up and lot size reduction time, cost saving, supplier's managements, flexibility in manufacturing industries, lead time reduction, JIT helps the purchasing departments to purchase at right time, right quality & right quantity of the materials, right cost, at from right source explained by researcher [2].

The researcher of this paper Explain the reason for Indian industries unable to implement Just in Time process. Indian industries way of doing work is traditional not want to upgrade it not available in to stand in front of international market globally and also not able to give the competition to the world. The researcher also Explain critical factors like Vendors relationship, cooperation from labor and High level in the Management department could have been the main for the not implementation of JIT. All the industries will come in front for right way of work, then Indian industries will stand high level global level [3].

The purpose on this paper explained that JIT can contributes

for building of performance of Indian manufacturing industries. The researcher of this paper has removed the most of implementing issues which can create in the Indian industries.

The study suggests that if Indian Industries want benefits than JIT initiatives implementation and also accept the global competition challenges. These are the things which are affecting the performance that is improvement of organization culture, employee improvement, Quality and so no. Building organization for globally competition strategic planning should be made for manufacturing industry. The manufacturing manager should have knowledge of the initiative JIT, their organization attain world class manufacturing. The most important in the depth knowledge of JIT for manufacturing manager understanding the different features of JIT and understanding the working and also top level of management should take step [4].

On this research paper the researcher has focus on what are the barrier for not implementation of just in time in Indian industry. The factor which is more affecting that is operational, technological, cultural & financial, behavioral, organizational, technological barrier a set of questionnaires, which ask from Indian industries, company. The researcher study about that in the direction of implementation of JIT management should be serious and remove the JIT implementation barrier. The researcher concluded that JIT if it implemented in the Indian industries can give more benefits that is reduce costs, productivity, utilization of resources and also increases the Organizations maintenance performance [6].

In this paper focus on the background means their originated Philosophy of Just in time process started by Japanese in 1970s by Toyota company to fulfill the demand of customer minimum delay time. Then after focus on the benefits by modifying procedure and operations. the Indian industries gets from the JIT process. Implementation of the JIT process explained from top management to control and testing. As the end of their research get the results that Explained mainly few issues which are mainly coming Labors are not educated, lack of motivation, lack proper training for organization culture, government controls the supplier's raw materials and decide the price that create also obstacles for implementing of JIT. Social, political and culture activity also becomes barriers in India and whole world [7].

In this paper researcher presents through JIT concepts to give the knowledge to Indian manufacturing industries increases the higher quality and productivity, reduces the inventory levels in industries. In this paper also focus on JIT process is good process problem detection and immediate solution. Eleven implementing phases of JIT suggested that is operating system formulation, analysis and planning of activities, improvement and evaluation function. This paper some major areas on which

Management have to focus that is leadership, team work type culture, Good communication system, continuous focus on the improvement, simultaneous development [8].

3. Characteristics of JIT

- Ideal Lot Size
- Focused factory
- Aims to all queue at Zero
 - a) Minimize Inventory Investment
 - b) Shorten Production Lead Times
 - c) Shorten Production End Times
 - d) Reacts faster to demand change
- Cellular (GT) Manufacturing System
- Uncover Any Quality problem and control at source
- Total Preventative maintenance
- Close ties up with the suppliers
- Uniform work load
- Production system in JIT is PULL system
- Standardization of product
- Eliminates the wastes
- Eliminates the defects
- Quality is High levels
- Suppliers and manufacturer have closed ties up
- Suppliers has exact quantities package
- Contract agreements is long terms
- Deliveries in small lots frequently
- Supply rate is steady rate
- Suppliers encourages to their buyers to encourages their contracts
- Kanban cards
- Cross-trained worker and Worker flexibility
- Strong Relationship between suppliers and buyers

4. Components of JIT

- Kanban process
- Reduced set-up and end-up time
- Production smoothing
- Standardization
- Uniform and invariable output rate
- Multifunction workers
- Streamlined process design
- Flexibility and versatility
- Smaller lot size
- People should involvement
- Discipline and teamwork should maintain
- Total quality control

5. Six wastes Reduce using JIT Principles

- Reliable Suppliers
- Buffer inventory reduce
- Purchasing cost reduce
- Material handling improve
- Zero inventory
- Frequency of order increase
- Lot size reduce

6. Benefits of JIT

As we know that the Indian manufacturing industries whether it is large and small not giving their best as compare to international industries. The main reason is that the industries has not understand, one of the most important process that is Just in Time production system and their benefit, such that in the Fig 1. Explained the benefits of Just in Time for manufacturing industries. Some the most important benefits are the increased productivity, increase the team aim for organization benefits. The benefits of the Just in Time can give more and more beneficial for Indian industrial sector. The main benefit of the Just in time process is that it creates good relationship between supplier and buyers or customer.

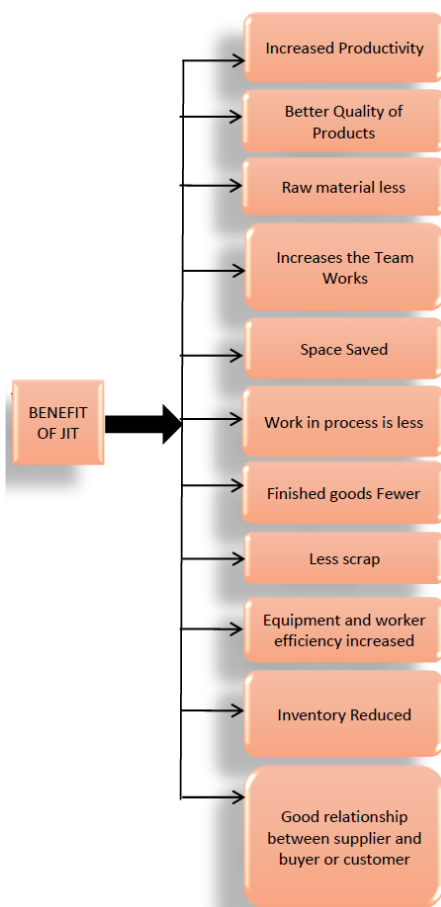


Fig. 1. Benefits of JIT

7. JIT Key Elements

- Kanban System
- Standardization
- Short lead time
- Small lot size
- Zero defect
- Total Quality control
- Quality circle
- Long term contract

- Total preventive maintenance
- Quality control training to workers
- Set up time reduction
- Strong buyer relationship
- Buffer stock removal
- Process control
- Supplier Quality Certification
- Statistical Quality control
- Team work
- Layout improvement
- Multi-functional worker
- High quality control visibility

8. Limitation of JIT

- No margin for manufacturing for error
- Pressure on the workers
- Industries to Industries success varies
- Commitment of employees
- Unable to fulfill the demand unexpected order of the customer
- High risk factor
- It works on product life cycle that is from growth to maturity phases
- Regular demand stable
- Big order difficulty
- Costs of implementation
- Manufacturing interrupted in the absence of inventory supply
- Dependency at supplier's high
- Cultural changes required

9. Advantage of Just in time

As the research it found that the industries can get the more and more advantages after applying the Just in time process in their industries on the large scale.

Table 1
Advantages of JIT

Adopting JIT	Output Obtained
Eliminate waste	Do not rise the chance the expired or out of date of products, Overproduction
Stock holding costs	Level is minimum
Essential stocks required for manufacturing	Working capital is less, re-ordering level is minimum
Low level of stock	Return on investment is high
Goods produced on demand	All goods sold no inventory after manufacturing
Right First Time	Minimize the inspection cost and costs of rework also
Satisfaction of customer	Higher satisfaction
Over production	Elimination of overproduction
Efficiency Quality	Higher efficiency and Greater Quality product

Table 1 has explained the advantages on the JIT in the manufacturing industries. Some of the advantages like that is

eliminates waste, High return on investment, overproduction and inventory reduces and so on. As we know that Just in time can give more advantages for manufacturing industries because products are manufacturer according to the buyer desire no inventory available after products made. And JIT is most appropriate tools we can say that it can reduces the seven wastes from the industries on large scale from small and large Industries. we can see from research Fig. 2. These are the seven wastes that JIT eliminates from industries.

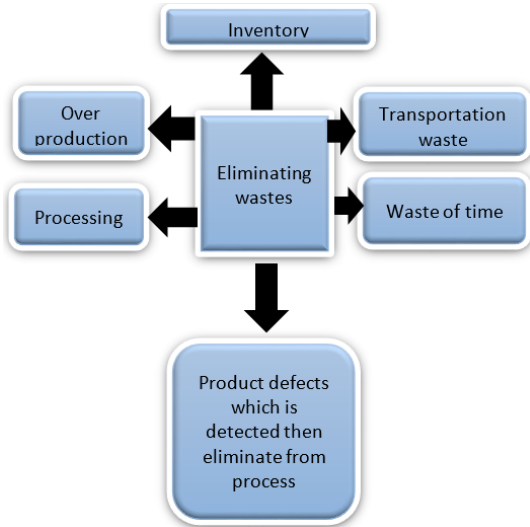


Fig. 2. JIT eliminating wastes

10. JIT Manufacturing strategy

If the industry taking step in the direction of manufacturing strategy must keep in mind about the customer need and competition from other type of Competitor's.

Identify by the manufacturing and marketing strategy issues in the market place their industry should achieve how product win orders, and by using such winning order industry work on that task. The relationship of this manufacturing strategy Explain in the Table 2. How it can give benefit to Indian industry.

Table 2
JIT manufacturing Strategy

S.No.	JIT capability	Competitive Advantage
1	Lower overheads	Lower cost manufacture
2	Quality increased	Higher Quality products
3	Raw material reduction	Lower cost
4	Flexibility Increased	Customer demand
5	Productivity increased	Reduction in cost

Some industries which are using JIT manufacturing strategies and getting benefits for it as follow:

- Increased flexibility
- Cost reduction
- Reduction in raw material
- Quality increased
- Reduction in WIP

- Productivity increased
- Lower inventory
- Overheads is lowered

As we Knows that the present scenario of the Indian company using manufacturing strategies the Just in time process is apply only few large scales industries like Toyota Kirloskar motors private ltd Karnataka, Harley Davison India and some of these types using Just in Time. Only some of the large scales industries using this process and but most of the small scales Industries not using this concept that is JIT manufacturing techniques. I find out many Study that India Auto industries has contributed 6% in 2019-2020 to Indian GDP. This contribution only from auto manufacturing industries in India. But as we know that the industries sector is the second sector after the first sector Service sector, Industries sector contributes 30-40% to Indian GDP. Such that manufacturing strategies in industries has given as an importance.

11. Requirement of implementation of JIT

The basic requirements for the implementation JIT process should be for the applying in the industry for small and large industries are Explained in the Fig 3. How the industries can apply for manufacturing of the goods on large scale.

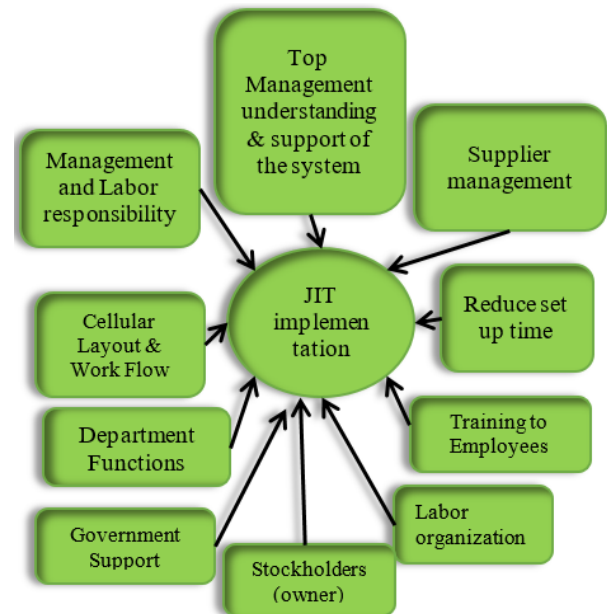


Fig. 3. Requirement of JIT

12. Methodology

This research paper study has about Indian manufacturing industries if the JIT implementation on the large scales then it would give benefits to the small- and large-scale industries. The research of this paper has adopted 12 steps to proves the research study. The steps as follows and shown in Fig. 4.

- 1) Introduction of the JIT method

- 2) Detail Literature Review
- 3) Characteristics of JIT
- 4) Important components of JIT
- 5) JIT principles reduces wastes
- 6) Study benefits of JIT
- 7) Key elemnts of JIT
- 8) Barrier for not implementation in Indian industries
- 9) Detail study advantages JIT can give to Indian industries
- 10) Manufacturing strategies can for manufacturing industries in India
- 11) Requirements for implementation in India and other countries also
- 12) Future works researcher can overcome the limitation
- 13) In the end, find out the conclusion on the basis of the research study.

for both industries that is small and large scales industries. One of the most important steps that Indian industries can take manufacturing strategies for implementation of JIT process in small and large industries for increases the productivity, reduces the wastes, reduces the costs for that industries that has not enough budget apply on large scales.

13. Future works

As per this research paper there are some limitation or barrier which are responsible for not implementing JIT process in the Indian manufacturing industries into the small and large on the large scales. Such that the researcher should try to solve the problem barrier for implementation. First of all, the government should take big step in this direction, because as we know that the industries sector in India second largest sectors which contributes to Indian GDP. For implementing successfully and government support provided to the Indian manufacturing industries. About the JIT the researcher should try to reduce in their research works in this future. These are limitation that the researcher can works. Firstly, “unable to fulfill the demand of the unexpected order for customer”, for this research can works proper inventory maintenance and transportation after applying JIT. Secondly, “Pressure on workers” if the demand has come for expected or unexpected things then pressure increases, such that for this reason most the employees not ready for the JIT process. Pressure on the workers the researcher should study that how the pressure can reduce according to the demand. Thirdly, “Regular demand stable” the researcher should work how to maintain the regular demand maintain the Indian manufacturing industries for small and large scales both.

14. Conclusion

As per research study we have come across on the conclusion that Indian industrial sector rank second highest for the national economics. Manufacturing sector an important part of Indian industrial sector. But from study it is found that Indian manufacturing industries declined by 2% in 2019-20. This type of declined will give great impact on the Indian manufacturing industry or Indian manufacturing sector. There is big issue in the national economics point of India for declined for manufacturing industries. Because as we know that it is most important part of the Indian industrial sector.

As per research it is found that only few of big auto industries are using JIT manufacturing strategies. There are standing their company for globally competition. These are few companies are getting benefits from Indian market or from the international market. But most of the auto industries due to lack of proper support are facing a lot of problem for implementation of JIT. Only few big auto industries are applying this JIT process but small industries are not started yet. As we know that Indian automobile manufacturing components are demand over the years due to their cost of production is low, high quality of products. So, we can say that not only Indian auto industry, but there are many Indian manufacturing industries enhances the

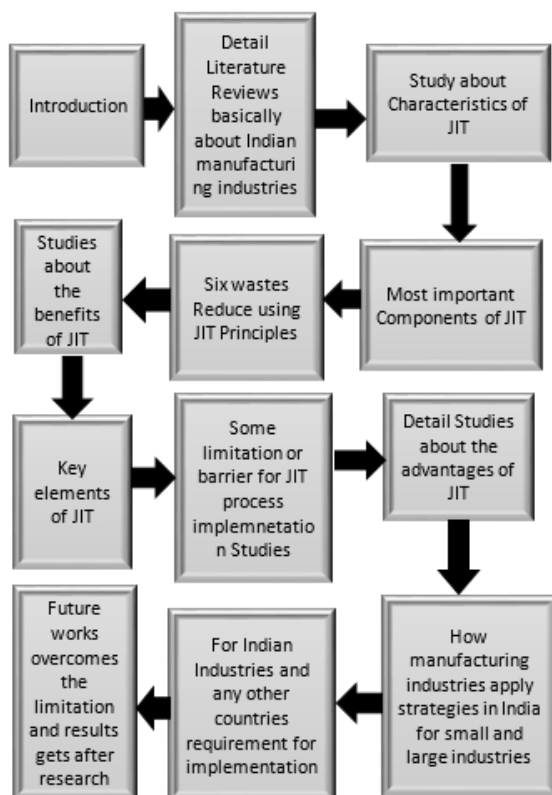


Fig. 3. Methodology for research

Most of the above information gathering from journals, books, conferences papers and the websites. Some of steps which is helped to prepare this research paper that is, literature review step from this we understand that how can JIT process can boost to Indian manufacturing industries if it implementing on large scale and how long research find the result we have understand from review. Another step is benefits and advantages of JIT helps to understands the concepts of the JIT to the manufacturing industries. We have finds of the some of limitations which are responsible for not successful implementation of JIT in Indian industries on the large scales

productivity, reduces the wastes, increases the potential of the Indian manufacturing should stand for facing the international market globally by their manufacture goods or components best performance rate by the implementation of JIT process. This performance we can get large as well as small manufacturing industries as per result concluded JIT benefits wants Indian manufacturing industries then first government should come for support, top management support, employees training, full support from worker to enhance the productivity of industries. Lastly concluded from research study that on the benefits basics the Indian manufacturing industries should start implementing of JIT system in the large- and small-scale industries as soon as possible for facing global competition. There is some barrier but, in the future, research should barrier to reduce that barrier for implementing JIT. The limitation is not big issue that can be overcome, but first step starts the JIT implementation process in Indian manufacturing industries.

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