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**IMPLEMENTATION OF INDUSTRY 4.0 IN LOGISTICS INDUSTRY: A CASE STUDY  
WITH SPECIAL REFERENCE TO JAMTRANS LOGISTICS PVT LTD (JLPL),  
BHUBANESWAR**

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**Abstract**

Supply chain and logistics are the backbone of a country's industrial growth. Almost 90% of the survival of industries depend on these two important operation processes. Efficient transportation and cost-effective flow of goods are the keys to the rapid movement of goods and services across the borders and states. However, the biggest challenge the transportation industry facing is ill network of transportation, poor management of warehouse & distribution facilities.

Logistics is a **manpower-driven industry** and in order to be successful skilled and trained people with multi-faceted efficiency is highly needed, otherwise there will be high levels of losses, damage of stocks. So in this context Jamtrans Logistics Pvt Limited has adventured some important steps in making their logistics process, somewhat streamlined in accordance with the Industry 4.0. Basically industry 4.0 is an important step towards the automation and data exchange in the industries which includes IOT, Industrial Internet of Things (IIOT), cloud computing, AI etc. What were the issues and challenges JLPL facing in the logistics process? How implementation of Industry 4.0 has increased the efficiency of logistics in JLPL?

Keywords: - Logistics, Supply Chain Management, Business Process Re-engineering, IOT, Automation

**Introduction:-**

Industry 4.0 is the latest and fourth generation industrial revolution. Originated in Germany, it is a networking of intelligent machines with the help of high bandwidth information and communication technology working along the principles of interoperability, virtualization, decentralization, real time capability, service orientation and modularity.



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## **Implementation of Industry 4.0 and IOT in Logistics and Process.**

Industry 4.0 has not yet influenced the people of India, as it is complex to some extent and would take time for some to understand. Industry 4.0 can be understood as the combination of IOT, Robots, Cobots, M.L, and AI.

In the current scenario, the various industrial sectors in India and abroad where Industry 4.0 is being utilized are:

- **Aviation**
- **Logistics**
- **Automobile**
- **Warehouse**
- **Supply Chain Management**
- **Manufacturing**
- **Rentals(Cabs)**
- **Hospitality**
- **Retail**
- **Service**

In India, there is only 30% implementation of Industry 4.0 in the sectors like Logistics, Aviation, Warehouse, Rentals, and Manufacturing.

In last 5 years, Logistics has emerged as a booming sector in India. There has been a need to improvise many operations in logistics like

- **Demand generation**
- **Truck bookings**
- **Standardization of freight**
- **Vendor-Supplier Integration**
- **Tracking**
- **Documentation/Paper work**
- **Dispatch Automation**

### **1. Dispatch Automation**

This process plays a major role in Logistics/Transportation operations as it involves loading/unloading, arrival of trucks, documentation and dispatch.

Implementation of Industry 4.0 in dispatch process has coined this new concept **Dispatch Automation**. Ease of Operations like involvement of Applications, IOT has displayed real time data monitoring and data analysis. Identifying errors and rectifying the errors instantly over the

IOT platform. Dispatch automation is a stepping-stone towards making logistics sector more organized in the future and will contribute immensely towards Safety Norms in the Post Covid.

## **2. Hospitality**

**Internet of Things**, an arm of Industry 4.0 has now earned a good weight due to Covid. It has already been implemented in hospitality sector in the process of –

- Bookings
- Check in-Check out
- Front office operations
- Room Service
- Restaurants
- KOT/BOT

In hospitality sector we can observe robots taking orders at the restaurant or orders can be generated by using tablets placed on the table which will be integrated with **IOT** .Order placed on tablet directly reflects in the Kitchen with the table number and ticket number.



For room service, customer can order using voice recognized mechanism placed in each room which also works using IOT platform or can be done by using room tablets .This will also enable the front office to raise the bill instantly in the account of the customer during her/his stay. So during check out time customer need not have to wait for the pending bills from bar or restaurant or the room to be generated. It has already been generated in the customers' account. It can save customers 15-25 minutes during check out.

### **3. Automobile and Manufacturing**

Industry 4.0 plays a major role in manufacturing and automobile sector. In manufacturing units like Bajaj, Lenskart etc. robots are being used for production of materials, which are integrated with IOT platform.

These robots are termed as **Collaborative Robots** or Cobots. Such Cobots are integrated with system, which gathers all the instruction like dimensions, color, scale, unit etc. to align Cobots to process.

### **4. Warehouse**

In modern warehouse operations, **Automated Guided Vehicles** are used to carry out process of unloading, picking, sorting, racking and loading. These vehicles travel on a magnetic path or designated route, which is denoted by mark or taped surface.

Any obstacles on their path or route the vehicle stops automatically and remain hold until the path is cleared. These automated guided vehicles have improved warehouse efficiency and operational capabilities to the highest. These vehicles are being used in warehouses of Flipkart, Amazon, Walmart, UPS, DHL etc. in India and around the world.



In India many reputed institutions are including Industry 4.0 as a core subject in their curriculum to enable students explore new trends in industry and gain knowledge about the future tech enabled operations and processes in the Industry in India and world.

**When it comes to Industry 4.0 and IOT**, Machine Learning and Artificial Intelligence also gained its importance in the sectors of Logistics, Manufacturing etc.

For simple example of A.I and M.L, we can say **Cobots** or Robots are being learnt to perform the task or process with the help of IOT and systems. These includes systematically, standardized



operations which are made to learn to the machines or robots to perform the task and they do exactly as per the inputs they receive. This is Machine Learning. This also go for Mobiles.

As we search anything on the web or any applications like looking for a shoe on Flipkart on mobile, we get pop up notification about new offers or sale or new launchings related to shoes category on other applications and on FB or Instagram as well. This is Artificial Intelligence with a mix of Machine Learning.

India's top Tech Enabled Logistics firm **RIVIGO** has developed its technology platform fully based on A.I, M.L and IOT, which can be operated on mobile application and on Webs.This strategy has enabled logisticians to make their operations smooth and efficient, which save time as well.

In near future Industry 4.0 is going to influence every part of the industry and processes which would demand utilization of technology and IOT to its fullest and partially reduce work force where Industry 4.0 can be a better alternative to save time and cost as far as long term basis planning and strategy is concerned. India is and will also observe Industry 4.0 with a rapid implementation in various sectors and will also encourage in developing skill set and knowledge in specific field.

### **Jamtrans Logistics Pvt Ltd (JLPL)**

It all started 50 years ago with the flagship companies of various family members.A family, which owns many firms and transportation,which was in their blood such as Jamshedpur Transport, Maruti Carriers, Indo Arya, Indian Roadways Corporation, Transport Corporation of India, Gati.

Jamtrans Corporation was established 30 years ago when the family entered into transportation sector after owning and managing Eastern India's second largest Textile mill in Cuttack,Choudwar namely Orissa Textile and Steels Ltd. **JAMTRANS**, the word used in the company had a historical meaning, which denotes the Postal Code name of Jamshedpur during 70-80s.

The company made the postal code Jamtrans as to let people know that it's the same company which was originated from Jamshedpur with many other firms.Today the company is a part of large business group, which has varied interest in the field of Manufacturing, International Trading, Publication, and Logistics. The family is also associated with a very strong relationship





with different family members who own some of the top companies in Logistics field like IRC India, IRC Group, TCI, and GATI.

Eldest brother of the family Shri Mahendra Kumar Agrawal has remained a pioneer in the field of professionalism and Indian Industries. He has been retired as Group President and Director in various firms in Reliance Industries Limited and has been interviewed in many magazines of top executives and directors diary. Jamtrans Logistics an oldest associate of Reliance Industries Limited handled over millions of tons of material movement from the plant at Dhenkanal, Odisha. Currently handling the movements from RIL plant at all four locations.

The company lead by board of members Mr. Nirmal Agrawal, Mr. Vijay Kumar Agrawal, Mr. Anukul Agrawal, Mr. Ashish Agrawal. The whole family was involved in logistics sector and a time came when the family members decided to get separate and handle their own company with different names. Then late Mr Raj Kishore Agrawal decided to continue the transport business with a new name but giving a touch of Jamshedpur as Jamtrans Corporation. Later Agrawal group got involved in various sectors of business managed by Shri Vijay Kumar Agrawal (Company Director).

It started with one branch and one truck and later expanded to more than 100 trucks during 90s. JLPL as a leading transport company and the family is engaged in movement of industrial cargo since last 50 years to and from leading industrial sectors all around India. The company has a well-established branch network of branches all over India manned by experienced professionals. It is also recommended by The Indian Banks' Association vide their approval code no. DLJ-500.

Some of company's valued clients to name a few are as below:

- 1. M/s. Reliance Industries Ltd.**
- 2. M/s. National Aluminium Corporation**
- 3. M/s. Anvil Cables Pvt. Ltd.**
- 4. M/s. Gupta Cables and Infrastructure Ltd.**
- 5. M/s. Everest Aluminium Co. Pvt Ltd.**
- 6. M/s. Hindustan Urban Infratech Ltd.**
- 7. M/s. J K Paper Ltd.**
- 8. M/s. Bennett, Coleman & Co. Ltd.**
- 9. M/s. Hyderabad Industries Ltd.**
- 10. M/s. Emami Paper Mills Ltd.**
- 11. M/s Patanjali Parivahan and may others.**

JLPL is a part of a large Business House with interests in Publication, Manufacturing and International trading and having varied experience of almost five decades now. They are one of



the most reputed publication player with the name of M/S Vibha Publication Pvt Ltd, booked in Limca Book of Record for printing highest number of papers in Noida unit.

Transport sector was started with one person one truck and one branch .This was a standard for all the major 3/4 transport companies in India.Today there are 90 lakh active fleets on the road owned by various Logistics players in India.In the past years Logistics industry was known as Transport industry where the operations and processes were more of a kind of manual or traditional working system and culture.

### **Challenges faced by JLPL**

In recent years there is a swift change in working culture and management style in Transportation sector in India. Today every industry has changed its course and have been affected by many ancillary industries in terms of scale and operations. We can assume that Indian Transport Industry was considered to be 10 years behind the world transport industry but past 5 years Indian Transport Industry has been developed and managed to improvise volumetrically and economically.

JLPL being in the industry since almost fivedecades have witnessed the change in the industry with drastic J curve on the graph.With more Logistics players adding up in the market, many start ups who entered the industry with new Technology has been the part of \$1 Billion Company like Rivigo and Black Buck.JLPL has been changing operational style and process with development of people as they are the most crucial drivers for the company.Earlier the operations were 100% manual and dependent on workforce but now it has been dependant on technology and development of people.Today margins in Logistics industry are low but if the focus will be on volume then it has huge capability to make the company to have 500Cr plus turnover with minimum margin of 10-12% per annum.But in the sector of Part Load Services there is a margin gap of almost 20-25% and is the most successful operational are in Logistics industry apart from warehousing and FTL services.

JLPL had started its services with one client Hindustan Aeronautics Limited and later with Reliance Industries Limited and was one of the top five transport operators in India.With gained momentum in the economy and Industrial revolution the importance of Transporters were on the highest of all the times.Now the demand of transporters and Logisticians are based on their Cost effective freight rates and Value Added Services.

JLPL was undergoing major challenges and was facing many problems. The interest for ongoing truthfulness and responsibility has expanded in the course of recent years as the market for transportation and logistics continues developing with Industry 4.0. Absence of truth and commitment is a genuine obstacle for the monitoring of supply chain effectively. Internationally, logistics players experience serious difficulties in taking a shot at the delayed information and database, which has an impact on their timely response to the situations that may go out of



control. Same thing was happening with JLPL. Preceding usage of Industry 4.0, the organization used to get information about the vehicle of their products days or even a long time after their packages were handed over at the designated places. Combining the enormous measure of information, and truth to be told, is an extreme assignment and settling any issues inside the supply chain is almost incomprehensible as it's difficult to pinpoint precisely where and when something turned out badly. False impersonation is something that has been pestering JLPL for quite a while. Erroneously marking an item with that of a different brand, utilizing debased parts to make an item and other comparable strategies are applied by outlaws who threaten the sustainability of logistics industry.

Burglary is another test that tests the persistence of logisticians. It is exceptionally hard to make out of where the robbery may have happened. Mostly accessibility to the information of a segment is available only after the items have been unloaded at the designated destination. Items from the food, drink or for the most part from the FMCG class are shipped inside pre-set natural conditions, for example, inside certain temperature boundaries. It is preposterous to expect to scrutinize the temperature and different aspects progressively.

There is another likelihood that some transportation organizations will in general give erroneous data on how they have shipped certain products.

#### **Implementation of Industry 4.0 in JLPL**

Earlier there was a big issue of how to undergo and bring change in the overall process. But this challenge has to some extent withered because change is the only phenomenon which is universal and constant.

**The best way to change is to change the mentality.** The conventional and traditional nature of the logistics business shielded it from growing fast like other enterprises and change management was one of the significant causes. With IoT, trucks, distribution centers and ships can identify with the utilization of the World Wide Web and report on GPS about the natural conditions, for example, temperature, humidity, and pressure.





JLPL has also begun utilizing IoT's that report those conditions back to makers to hint them that the merchandise are in good care. It has also ensured integrity and quality in the transportation function by using asset-tracking sensors. This implies there is a need of a significant level of trust required from the producers as it is in the logistics supplier's big interest not to allow any issues go out of hand while it is in their responsibility to take good care of the items in their possession.

Today as JLPL is growing with Industry 4.0, Logistics industry is also influenced with 4.0 trends like A.I, M.L and IOT. JLPL is changing its operational style and implementing technology in the process. Technology like AI and IOT is being used in the company operations and has led to efficiency in work and accuracy. By implementing IOT, it enables JLPL to track deliveries from the vendor to the manufacturing facility, monitor sensitive goods to avoid damage or loss. In addition, sometimes you need to know where your vehicles are at all times for safety and compliance reasons. The various truck details like position, tyre pressure, weight, extra weight, speed, fuel, stops etc are being tracked on phone and get recorded for future reference and data analytics. Data Analytics is the biggest asset and with big data, a company can grow to the next level and can adopt the major changes as it displays all the parameters of success/failures and the trends, which are going on in the market.



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