A macro-environmental analysis of reverse logistics practices in India

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Abstract
Sustainability in the market, customer satisfaction and also from environmental perspective reverse logistics is slowly gaining momentum in India in the last few years. With increasing competition, thin profit margins and government regulations for safe disposal of products, this is the right time for the product manufactures’ to look into reverse logistics. With the existing opportunities, there are more or equal challenges for successfully managing a reverse logistics’ business model. The aim of this paper is to asses, understand the current industrial scenario in India by analysing the political, economic, social and technical factors which drives the reverse logistics business.

Keywords: Customer satisfaction, Safe disposal, Reverse logistics

Introduction
Reverse Logistics is the process of planning, implementing, and controlling the efficient, cost effective flow of raw materials, in-process inventory, finished goods and related information from the point of consumption to the point of origin for the purpose of recapturing value or proper disposal. More precisely, reverse logistics is the process of moving goods from their typical final destination for the purpose of capturing value, or proper disposal. Remanufacturing and refurbishing activities also may be included in the definition of reverse logistics. Reverse logistics is more than reusing containers and recycling packaging materials. Reverse logistics also includes processing returned merchandise due to damage, seasonal inventory, restock, salvage, recalls, and excess inventory. It also includes recycling programs, hazardous material programs, obsolete equipment disposition, and asset recovery. In the mid-1980s this was commonly known as “cradle-to-grave” resource management. Common reverse logistics activities are the process that is used to return the unwanted, outdated and damaged products as well as the
packaging materials to the manufacturer. After the product reaches the manufacturer, there are many options available to the company to dispose the products. The product can be returned to the supplier for full refund, or the product can be reconditioned, refurbished and remanufactured. The packaging material that has been returned could be reused or recycled.

The most common factors for product returns are manufacturing returns, product recalls, commercial returns, warranty returns, service returns, end-of-use returns and end of life returns. And the most common reasons for these returns are damage during transportation, product below customer expectation, incomplete delivery (parts are missing), product has manufacturing defect, cancellation of order by customer, late delivery or overstock.

**Current growth trend of logistics industry**

Understanding the current state of logistics industry in India is must to get the better view of reverse logistics existence in India. Logistics industry in India started gaining momentum way back in 1980’s with the growth of private owned door to door delivery services. Need for distribution of petroleum products across country was another enabler to bring in more private players into the logistics market. We can divide the growth of logistics industry into two parts namely domestic logistics and international logistics. International logistics took some time to grow while domestic market growth was comparatively faster due to the growing needs of people across country.

Diversity of Indian continent also facilitated the growth of logistics industry. Due to the varying geographical structure of India for every 300 kilometres the food, cloth habits were also different. Early day’s people used to manage what they get within their reach to fulfil their needs but with changing times and growth of road and rail network there was a convergence started happening in the needs though not to one hundred percentage but to the extent that started facilitating the movement of goods from north to south, east to west. Now we have many domestic and global players in the Indian logistics industry competing for a big pie. Globally India is seen as big consumer market for almost all kind of products and to be more specific consumer electronics, automotive and FMCG industry.

Certain cities of India are considered by the industries to locate their manufacturing plants due to many favourable conditions like promotions by state governments by means tax benefits, infrastructure, availability of cheap skilled labour and natural resources. This resulted in clusters of industrial areas getting setup across India with each cluster focusing on certain products and catering to certain industry. One good such example is Tirupur in Tamil Nadu for garment industry, Anandi in Gujarat for dairy products, Kolar in Karnataka for Gold mines, Surat for textiles and so on. These spreads of industrial towns across country have always been a key factor for the industries to improve their logistics network.

A decade back the practical difficulties for the success of the Indian logistics industry wherein it is described as Unholy Equilibrium being played by the three parties are government, industry and suppliers were discussed. The current success of the industry clearly shows that there have been significant improvements done by all three parties, though government is yet to play their part more efficiently.

The Indian Logistics Industry is presently estimated at US$ 90 billion with an
expected Compound Annual Growth Rate (CAGR) of approximately 8% over the next three to five years. Average spending on reverse logistics is about 10-15% for garment firms and about 20% for furniture companies, according to Anshuman Singh, managing director and chief executive officer of Future Logistic Solutions Ltd.

**Flow of Reverse Logistics**
In general, reverse logistics flow consolidates the following activities:

Collection: Process of bringing the product returns from consumer to the service or support centre to test the product and sort the items according to their quality status. Transfer the products to the manufacturer/other company in accord with the recovery route.

Reprocessing: This process includes many sub processes. The following sub processes are called as the 4R’s of reverse logistics:
- Repair - Items covered under warranty which requires some repair.
- Re-use - Retrieving re-usable parts for components that cannot be used.
- Refurbishing - Servicing of damaged components or products to bring it to workable condition.
- Recycling - Recycling is processing used materials (waste) into new products to prevent waste of potentially useful materials

This section illustrates the flow of product returns in an Indian industry to understand what is currently happening in the business

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*Figure 1 – Forward and Reverse logistics flow*

Step1: Customer calls on the call centre or contacts the service/support centre and returns the product. The product is tested, issue identified, disassembled and the concerned component is sent to the supplier.
Step 2: Supplier collection centre receives the component and the component is tested, issue identified, further disassembled and sent to their plant. According to the quality state of the component, decision on the recovery route is taken either at the testing centre or plant.

Step 3: The component is either repaired, re-used, refurbished. The component can further be dismantled to ensure the components are not wasted that it is either re-used or raw material being recycled.

**Political Economic Social and Technological (PEST) analysis**

Political, Economic, Social and Technological (PEST) analysis has been preferred to review the external factors that influence the reverse logistics business in India. The below factors and discussions signifies the main drivers of reverse logistics in India under each category.

**Political**

Indian government have started allocating funds for the development of industries and below are the some of the investment activities that act main drivers:

- Special economic zones for development of Logistics parks. (Mumbai, Kolkata, Chennai and Hyderabad etc.)
- National Highway Development Project
- Over all government spend has increased from USD 10 billion to 30 billion and is expected to rise in near future in the form of infrastructure projects and special economic zones
- Implementation of Extended Producer Responsibility as part e-waste management law

Other factors that political scenario can act as catalyst in improving the growth of reverse logistic industry are,

- On-going infrastructure development projects improves long-term prospects
- Supportive regulatory changes are catalysing growth by removing inefficiencies

**Economic**

Government economic policies always play a vital rule in the growth of the industry and below regulations getting enforced by government would enable the logistics industry growth

- End of indirect tax regime after implementation of GST. Other tax reforms like VAT
- The much-awaited implementation of the nationwide uniform Goods and Services Tax (GST) regime
- Low margins leading to underinvestment and risk aversion
- Growth in GDP and trade are the core drivers

It is not only sufficient that government bringing in laws, it also need to make sure they are enforced appropriately for example Goods and Services Tax (GST) which was scheduled to become effective from April 1, 2010 has been delayed by a year by the Union Government due to non-agreement of several State Governments on the proposed tax revenue sharing model between the Centre and the States. Implementation of GST is also expected to revamp the supply chain process and logistics infrastructure for majority
companies in each industry.

Technological
Some of the technologies influencing the reverse logistics industry include:

- Basic inventory management packages and barcodes systems
- Warehouse management systems
- Transportation management systems
- Radio frequency identification
- Web enabled communications

As of 2010, only about two-thirds of the end users reported to using some form of technology solution to support their logistics functions. Usage of exclusive logistics technologies is significantly low across industries. India’s logistics technology market is set to grow at 19.8 percent between 2010 and 2015, to cross $ 600 million by 2015. This growth is driven by demand from the thriving logistics, retail and manufacturing sectors, as well as government promotion. However, these technologies are highly expensive, making them unaffordable for majority of logistics service providers and end users, thus limiting the full potential growth of the Indian logistics technology market.

Social
Currently there is less evidence of any highly active social organizations involved in playing a role for the e-waste management or creating awareness except for a non-profit organization called Indian environmental society (IES). IES focus is not only on e-waste but focuses on overall safeguarding of the environment like from industry pollution, cleanliness and so on. Creating awareness among societies is real indirect catalyst for the promotion of reverse logistics and this would require more focus from the government and as well non-profit organization.

E-waste is conventionally defined as “any electrically powered appliance that fails to satisfy the current owner for its originally intended purpose” says Dr. Kioko Mang’eli in his paper Global Trends and Technologies in Electronic Waste Management by Genco University. Some of the ways that would help to create awareness as suggested by Dr. Kioko Mang’eli are,

- Standards can be put in place to act as a tool for intervention for stakeholders and business.
- On regulatory and policy frameworks countries may use innovations such as eco-labelling as part of the regulatory and governance structure
- E-waste solutions proposed include creation of incentives to recycle, such as tax credits for recyclers, re-evaluation of program in a few years, (for example make it illegal to throw away e-waste if adequate recycling infrastructure is available to public) and ensuring legislation mandates, creation of recycling centres and development of re-use incentives which are noticeably absent.

India has seen a dramatic change in laws for handling e-waste in India. As India grows, more e-waste is generated, not to mention the e-waste that is dumped there from the West. In India there isn’t a safe e-waste recycling infrastructure to handle the nation’s waste.

One of the challenges in India is the unique role of the informal sector. The informal sector is comprised of people (men, women and children) who collect, refurbish,
dismantle and even recycle the metals found in e-waste. In 2010 Indian lawmakers passed an e-waste policy that included Extended Producer Responsibility (EPR). EPR means that the brand owners such as Apple, Dell and Hewlett Packard will be required to take financial responsibility for recycling their products.

The Indian EPR law also requires electronic manufacturer’s partner with Indian recyclers, including the informal sector, in setting up collection centers. This is the first time in Indian history the informal sector participation was written into the law. This means that informal sector recyclers who establish a legally recognized association and/or cooperatives will have an opportunity to participate in collection, refurbishing and dismantling of e-waste. Better explanation on the roles of manufacturer and means of adopting EPR is done in the paper “Extending Producer Responsibility: An Evaluation Framework for Product Take-Back Policies by Michael W. Toffel Antoinette Stein Katharine L. Lee”.

**Industries currently practicing Reverse logistics**

The logistics market in India is highly fragmented with several thousands of unorganised participants holding the dominant share of the market. These include unregistered transporters, storage providers and freight-forwarding agents. New Delhi-based RT Outsourcing, Kolkata-based Aforeserve.com Ltd, and Yantra Solutions Pvt. Ltd, the India business of Massachusetts-based Yantra Corp., are active in the business. Wipro Technologies, India’s third largest software services provider, has its own reverse logistics division. Future Group, which runs a number of retail chains across product categories including Big Bazaar, started reverse logistics in-house two years ago. It was also the first retailer in India to start such a unit and is considering offering its expertise to other retailers. The group currently offers product return facilities in its fashion and furniture businesses.

Reverse outsourcing could also receive impetus from government efforts to reduce e-waste that’s piling up as companies and consumers replace products ranging from mobile phones to computers that are becoming obsolete more rapidly. The Union ministry of environment and forests is on the verge of finalizing one of the most stringent e-waste disposal regimes in the world that will make manufacturers of products personally liable if they don’t have environmentally safe procedures for the disposal of e-waste in place.

**Conclusion**

Per the literature survey done as part of this paper preparation and the PEST analysis clearly indicates that there has been tremendous growth in the logistics industry and also substantial growth in the reverse logistics industry. It also shows that government have started realizing the need for regulations which are promoting the reverse logistics industry. The product manufacturers should stop thinking about adopting reverse logistics only for the cost benefit and business growth opportunities but also from the regulatory and societal perspective also.

With the growing emphasis on clean environment from government and society, increasing funding and focus from government on infrastructure development and growing forward logistics business, reverse logistics is tend to grow in volume. With this growth expectation forward logistics companies will start expanding their fleet to the
reverse logistics area and in the same way product manufacturers expanding their supply chain to reaching their own end of life products.

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