E-Commerce support on Reverse Logistics in India

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Abstract - We examine how Information Technologies are being used to support reverse logistics. We also consider the role Electronic Commerce plays and can play for Reverse Logistics in India provides a roadmap to the reader about what aspects of reverse logistics are implemented and what remains to be addressed in the future.

Key Words: E-Commerce, Remanufacturing, Reuse

I. INTRODUCTION

Environmental concern which has already resulted in legislation, and financial interests in the reuse of products, parts or materials, have all contributed to reverse logistics recent popularity in India. In a broad sense, reverse logistics stands for all operations related to the reuse of products and materials in India. Reverse logistic activities include collection, disassembly and processing of used products, product parts, and/or materials, in order to ensure a new use or an environmentally friendly recovery. From a research point of view, reverse logistics brings new elements in collection/distribution management, production planning/remanufacturing, and inventory control. Besides, there are interesting relations with business economics, environmental management and information technology.

We focus our attention on the relation between reverse logistics activities and information technology with the objective to examine and evaluate existing applications of Ecommerce in this field. At large, E-commerce is defined as sharing business information, maintaining business relationships, operating business negotiations, settling and executing agreements by means of telecommunication networks, often the Internet, in order to achieve effective business.

In light of the reverse logistics context, E-commerce is examined in terms of technologies and emerging services, which are used to improve trading of used products and parts, including marketing, purchasing, sales and post sales. Also, systems that can facilitate data collection for used products at the collection stage and IT applications to support remanufacturing and re-distribution activities

II. IT SUPPORT ON REVERSE LOGISTICS

The recurrent reverse logistics activities include collection, inspection/separation, reuse, remanufacturing, recycling, re-distribution and disposal.

Major Issues

The main concept is that products are brought to the market through some conventional supply chain. The majority of products are used in their original functionality; i.e. a company buys a state of the art computer for their virtual reality project. After a while, the product is not useful to the original user. The industry standards have evolved and that computer can no longer support them. Frequently, the product is traded in a marked down price once or several times. In our figure, this is denoted by the
loop between original use and trade. It is worth to point out that through the repetitive changes of ownership, the product is still used in its original functionality the computer might be bought for personal use or for entertainment, before it actually reaches the end-of-use return flow.

The main idea for reverse logistics is to promote and support alternative uses for the product. The computer’s keyboard could be directly re-used; its motherboard may be remanufactured in an electronic toy, whereas other parts could be recycled. Anyway, with new or old functionality the product enters the market again where it may also go through several trading cycles.

Traditional supply chain, from the reverse perspective, the flows for production waste and commercial returns are very important, because these two combined with the end-of-use return flow are all input flows in the recovery chain. Production waste includes the remains of raw materials / intermediates that is lost in the production, i.e. a part of steel sheet that is too small to be used in the manufacturing of a product, and the side products that come free during production. A commercial return would be any unsold product that a supplier has agreed to take back from the retail customer. Warranty returns of failed products were not explicitly mentioned in the picture, but should be added to the commercial return stream if the products can no longer be repaired. The same holds for all perishable products which can no longer be sold. An end-of-use return, as explained in our example, is either the turn-in of a product to the seller/OEM, because its use has been terminated and the seller is forced to take it back or the collection of the product by a waste collector.

The main part in the reverse logistic process is collection, that is, all those activities that are necessary for reclaiming returned products, surplus or by-products and transporting them to a place, where they will be subjected to further examination and processing. Locating such products, purchasing, transporting them and storing them at a collection point, are all activities related to collection.

Major problem in collection is the encountered high uncertainty regarding the locations from where used products need to be collected, quantity and process. These create severe difficulties in planning and controlling collection processes. Uncertainty factors are detrimental to the integration of forward and reverse distribution networks, which is a very important issue if we consider that the additional transportation induced by return flows is a negative element in the overall ecological assessment of industrial reuse activities.

Another major issue for products entering the reverse logistic chain is that of their quality. This issue is central at the stage of selection, where a decision must be reached as to whether a product will be reused, remanufactured, recycled or disposed. Physical inspection is necessary for determining further processing for most commercial products. The alternative of remote monitoring and control, those are currently available for certain products have not yet been employed to improve the reverse logistics operations.

Remaking is a series of steps necessary to transform a part or product that has been used into one that is usable again. Some typical activities in remanufacturing include cleaning, disassembly, replacement and re-assembly. However, remaking is so product dependent that it can barely be characterized by typical activities.

For remaking an unresolved issue is centered on decision making for dismantling or dis-assembling a product. In general, dismantling everything up front is a labor-intensive task, while on the other end, on-demand dismantling requires extensive storage capacity, has uncertain yields and variable throughput times. For many companies remaking is a very sensitive issue. Re-processing is so product specific that if a third party is involved at this stage, in-depth information about a product can be easily gathered. In this respect this process is very similar to reverse engineering; thus, it is possible to
provide grounds to product pirating, namely, to develop a new product based on the technical specifications derived from re-make products.

Re-use refers to cases where returned products have such a good quality that they can be reused almost immediately in the same or an alternative market. This happens for reusable bottles, containers and most leased or rented equipment. It may also happen for surplus goods.

### III. REVERSE LOGISTICS E-COMMERCE IN INDIA

In India, the most popular model for E-commerce for reverse logistics is Electronic Marketplaces, which are used for both new and used products. Then, there are sites that use the Web to offer used parts or remanufactured equipment. Finally, there is also a Web based paradigm that incorporates collection, selection, reuse and redistribution.

**Electronic Market**

A common feature of electronic marketplaces is the fact that they are product-centred. Various used products are for sale in these sites and potential customers have a chance to get relevant information on them, declare their interest and possibly buy them. The concept and the design of an electronic marketplace may vary greatly depending on a number of factors. We have examined sites based on geographical location of their servers, sectors represented in the site, access rights, price determining mechanisms, logistics aspects, and guarantees for customer satisfaction.

Logistics aspects of electronic marketplaces cover a great variety of services including inventory management, virtual warehousing, transportation, scheduling and routing, location identification, setup and operational specifications. To simplify the logistics operations of the electronic marketplace, subcontracting third parties to do some or all of the described logistic functions is a common tactic in many electronic marketplaces.

**Supply Business Model for Used or Remanufactured Products**

The main difference between sites for promotion of remanufactured parts or equipment and those for newly produced goods seems to lie in the fact that the first are customer driven whereas the latter are normally supplier driven. In the first case a potential customer provides details for the items in request and the supplier performs a search and provides the procurement details. Based on this orientation, two main characteristics emerge for this model. First, E-commerce for supply of used parts is region bounded, that is, suppliers usually serve a range of parts or equipment over a more or less defined geographical region.

**Complete Ecom Solutions for Reverse Logistics**

Complete Ecommerce solution model does not view E-commerce as a migration of existing practices and services over a new infrastructure, but rather as a new tool to restructure a business activity and offer new services. E-commerce complete solutions for reverse logistics run across the reverse logistics network in a particular industry/sector.

Through this model, customers have two options. First, they can describe their returns, request a quote and upon agreement on the price, sell their products. Or, they may request a quote for an order they plan to place.
It is interesting to note that re-use of the returns is less demanding than supporting remanufacturing, for example. An E-commerce model for complete reverse logistics solutions that could offer a combination of all reverse logistics activities could be a niche market by itself.

IV. DEVELOPMENT OF REVERSE LOGISTICS IN ECOMMERCE

A. Establish return policy:

Marketing companies sell the product which value is relatively low, or some one-time consuming goods, then the business and customers will lose much if the return policy is also taken, at this time a zero return is possible. Business give discounts and Range for products, company no longer accept the return through this economic compensation. Businesses achieve zero returns that reducing management costs, consumers to buy their products on the Conditions the products can’t be returned before they buy, so this reduced the possible disputes when return.

B. Supporting mechanism of right manpower

Human resources are the source of development reverse logistics which can’t be separated from the development of human resources planning mechanism. Human resource of reverse logistics is currently relatively weak; the total amount of small, the average level of education and title is low. It is difficult to adapt the needs of the development of reverse logistics. It is lack of some talents who have modern concept of reverse logistics, who is familiar with the operation of modern reverse logistics, who have the knowledge of this field and related businesses. So measures should be taken timely to plan efficient introducing mechanisms and reserving mechanism to meet the urgent needs of talents.

C. Stronger attention of reverse logistics

Enterprise senior management should return full attention to reverse logistics and returns management, Business should strengthen the co-operation with retailers and service providers. Enterprise information management need speed up the pace, so that all the logistics business activities will be finished under the guidance of information system, in order to achieve timely and accurate feedback, analysis, forecast. Business should strengthen the staff's awareness of reverse logistics cost management, make costs reducing from the work of the reverse logistics management extended to all business sectors.

V. BUSINESS DEVELOPMENT WITH REVERSE LOGISTICS

It is fundamental to take care of aftermaths of post sales of any product. Reverse logistics help in doing the same with ease. This gives you a security that your products shall be handled carefully and shall reach the desired destination in time. In case of E commerce fulfillment, the product must reach its final destination right on time and in the best condition. E commerce fulfillment manages the entire inventory handling aspect of any business.

Reverse Logistics have gained a lot of energy right from its inception and has also helped various business entities with its benefits. While any business may require reverse logistics, the overall advantages remains same and works wonders for all types of business. When it comes to E commerce execution, shipment, delivery and managing inventory is a huge accountability and is very well taken care of with this service.

All business needs differs from each other and the services like reverse logistics and E commerce fulfillment are customized and provided to customers to suit their requirements. There is various service providers you offer various solutions to uplift and improve business conditions.
VI. CONCLUSION

Reverse logistics provides a stage for companies to better communicate with customers; the e-commerce atmosphere is a more efficient tool and infrastructure for reverse logistics. With the further development of e-commerce, the reverse logistics will become a huge aggressive advantage for e-commerce. Study on reverse logistics, set reverse logistics approach, improve the reverse logistics system will be benefit for the vigorous development of e-business. India's e-commerce companies need to seriously study the experience of reverse logistics, pay attention to the value of reverse logistics, and construct e-commerce reverse logistics system.

VI. REFERENCES