BIG DATA IN LOGISTICS: LAST MILE APPLICATION

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Big data is revolutionizing many business areas, including logistics and business processes in it. The complexity and dynamics of logistics, coupled with the reliance on many movable parts, can cause bottlenecks at any point in the supply chain, making big data application a vital element of effectiveness in logistical processes design and management. For example, big data logistics can be used to optimize routing, simplify factory functions and give transparency to the entire supply chain, from which both logistics companies and shipping companies may benefit. The third-party logistical company and a transportation company may agree on this issue. Though big data require a large number of high-quality information sources to work effectively.

The first question which might arise in this concept is : where all these data come from. This research paper on big data in logistics provides a large number of possible data source options, including:

- Traditional enterprise data from operational systems
- Traffic & weather data from sensors, monitors and forecast systems
- Vehicle diagnostics, driving patterns, and location information
- Financial business forecasts
- Advertising response data

Obviously, there are many ways to provide the required information to the data system. Like in many other industries, data collection and data management are becoming increasingly essential in supply chain management, and professionals in logistics may need help from IT professionals.

There are following big data benefits in logistics and the explanations of how they can improve the processes within supply chains:

1) Last-mile delivery efficiency will increase;

It is known that the last mile of the supply chain is inefficient and may incur the costs of as much as 28% of the total package delivery cost. There are many factors that contribute to this situation, including:

- Challenges in arranging parking facilities for delivery trucks in proximity to urban areas. The driver usually has to park temporarily and then perform delivery, sometimes manual one, of the package to the final address. Then,

they may have to go up many stairs or wait for an elevator in a high-rise building.

- Obligatory delivery confirmation by customers manual signature on the delivery document, but if the customer is not at home, the item cannot be delivered.

Thanks to the popularity of low-cost and fast mobile Internet and GPS-enabled smartphones, and the popularity of the Internet of Things through sensors and scanners, shippers are able to understand the delivery process from beginning to end-even in the last miles of the process.

2) Transportation reliability transparency will increase;

As sensors become more common in transportation vehicles, transportation, and throughout the supply chain, they can provide more transparent data than ever before.

This transparency is very valuable to shippers, carriers and customers. If the shipment is going to be late, the carrier wants to know as soon as possible so that it can prevent bottlenecks downstream in the supply chain. The carrier company can use the data in the summary to show how often the shipper delivers on time, thereby negotiating with the shipper.

3) Routes will be optimized;

In the 3PL survey, 70% of respondents stated that "improving logistics optimization" was the best use of big data in logistics. Obviously, optimization is on everyone's mind. [1]

Big data and predictive analytics provide logistics companies with the additional advantages they need to overcome these obstacles. Sensors on delivery trucks, weather data, road maintenance data, fleet maintenance schedules, real-time fleet status indicators, and personnel schedules can be integrated into a system that can view past historical trends and provide corresponding recommendations.

UPS is a real-life example of the huge savings brought by big data logistics. After checking their data, UPS found that it would cost a lot of money for the truck to turn left. In other words, UPS found that entering traffic flow would cause a lot of delays, fuel waste and safety risks.

Big data is changing the nature of logistics.. Big data in logistics can be used to reduce inefficiencies in last-mile delivery, improve supply chain transparency, optimize delivery, protect perishable goods, and automate the entire supply chain.

Logistics companies are aware of these possibilities and are working hard to make more data-based decisions. Visionary companies have combined sensors and the Internet of Things with business intelligence software, reducing costs and increasing customer satisfaction.

List of contents:

1. 3PL Survey - https://www.3plstudy.com/
2. 5 Examples of How Big Data in Logistics Can Transform The Supply Chain - https://www.datapine.com/blog/how-big-data-logistics-transform-supply-chain