

# **Symbiosis Institute of Computer Studies and Research**

**Subject : Data Visualization**

**Topic : Ecommerce and Logistics Case Study  
Assignment**



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## Facts :

- XYZ LTD is a well established(25 years) company settled in Western India.
- Have 7 retail outlets in Western India.
- Entered e-commerce in 2019 to expand its customer base.
- After two years of operation, they're facing a 30% drop in e-commerce sales which has been related to its poor delivery services(eg: wrong items delivered, missed delivery etc.).

## Assumptions:

This case study will only focus on the delivery issues of the company, that said we won't be considering a special case of the pandemic situation to be a reason for the drop in e-commerce sales.

Other assumptions that are considered for the case study and why it's important:

- The ecommerce online services has proper identity verification in place:
  - When a consumer enters the ecommerce website/app and signs up, we need to make sure that it's a legit person who wants to buy. This way we prevent fraudulent accounts and bots which could result in revenue losses mainly with the cash-on-delivery(COD) purchases.
- We're ignoring the competitive nature of the ecommerce in terms of price, and product quality:
  - Since ecommerce is one of the most competitive industries, and there's multiple parameters that can affect the sales, we'll only be considering the delivery service as the main cause of drop in sales.

## Analysis :

- Sellers now compete mainly on customer experience, having the lowest price or best product no longer guarantees you a sale, therefore the ecommerce delivery services play a major role in whether a customer decides to buy.

- With no time in hand for the majority of the working class, retailers are falling short on meeting customers expectations. In many cases, shoppers are turning to online marketplaces to make their purchases. According to the “UPS Pulse of the Shopper” the top two reasons that consumers decide to buy from a marketplace are better prices and free discounted delivery rates.

What the customers want from eCommerce delivery :

- Customers want affordable prices, flexible delivery options and fast delivery.
- Checking a sample stats with respect to eCommerce delivery :

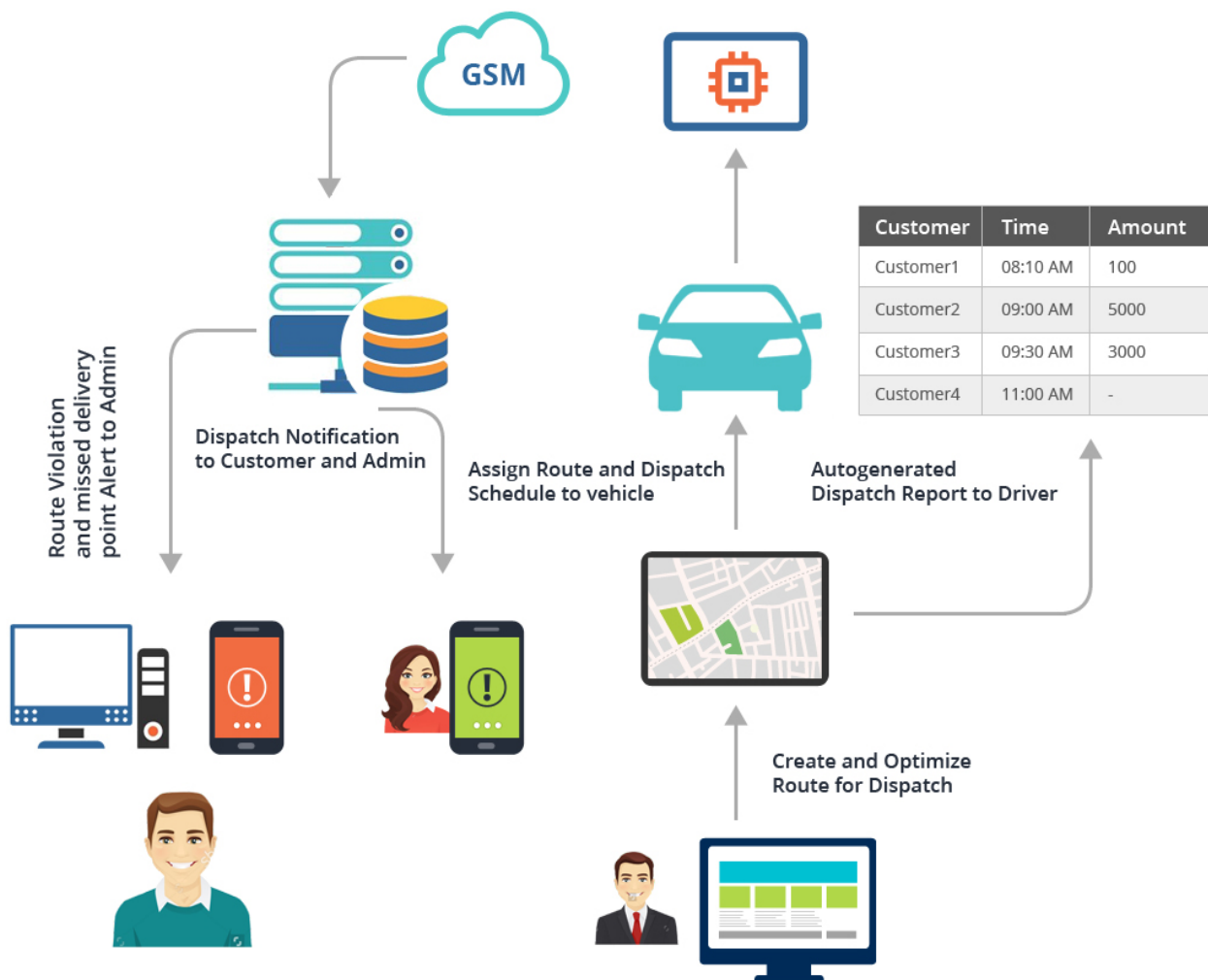
- 45% of U.S. consumers expect that orders placed by 1 PM to 4 PM are eligible for [next-day delivery](#).
- 52% of U.S. consumers are interested in shipping to [alternate location](#) with extended hours for reduced fees.
- The [maximum number of days people are willing to wait for an item](#) to be delivered in exchange for free shipping has decreased from 5.5 days in 2012 to 4.1 in 2018.
- Almost 2 in 3 people have used [Buy Online, Pick-Up In Store](#) programs. Their main reasons for doing so are to avoid shipping fees, immediacy and convenience.

Similar to the above stats, the company will have to do research and analyse to understand what the customers need from the data they have, this include processing the huge amount of unstructured data they have with tools like hadoop to get insights and forecast data that helps with user experience, then visualizing the real time data that they have in databases with tools like PowerBI to make understand where are they lacking in the business.

**Solutions :**

**1. To have a dedicated vehicle service for delivery owned by the company that is allotted to different areas.**

- a. This will include many responsibilities like have additional softwares to:
- Find the optimal route for a delivery date, in such a way that maximum orders are covered with efficiency, considering the real time weather and traffic conditions.
  - Advanced notification system that notifies the user about the delivery date in advance, then minimum 1hr prior to the expected delivery time and after successful delivery asking for feedback/replace/refund options within a given time period. This can help with reducing the missed deliveries.
  - Identity verification procedure that verifies and authenticates the user while the item is delivered using OTP/Pin/Password/QR code etc., this prevents wrong items being delivered to the users.



Pros:

- Better control, outsourcing the delivery services takes away the control of schedules, costs, and product handling controls.
- Cost effectiveness, if there's a constant amount of orders that are in bulk having an in house logistics can be very cost effective.

Cons:

- Expensive for small scale orders.
- Maintenance charge for the physical and software assets.

## **2. Hire an external courier service.**

Pros:

- Lesser responsibilities
- Reliable, time-sensitive.
- Good choice if there's we're looking for a reliable source for delivery while having less number of orders.

Cons:

- Expense when there's a bulk of order.

## **3. Indian postal service.**

Pros:

- Lesser responsibilities.
- Cheap
- Good choice if the company is hard on money.

Cons:

- Least reliable in terms of efficiency and reducing missed deliveries.
- Bad user experience, due to lack of customer service, infrequent tracking etc.

A comparison between 3PL(3rd Party logistics) and Self-logistics:

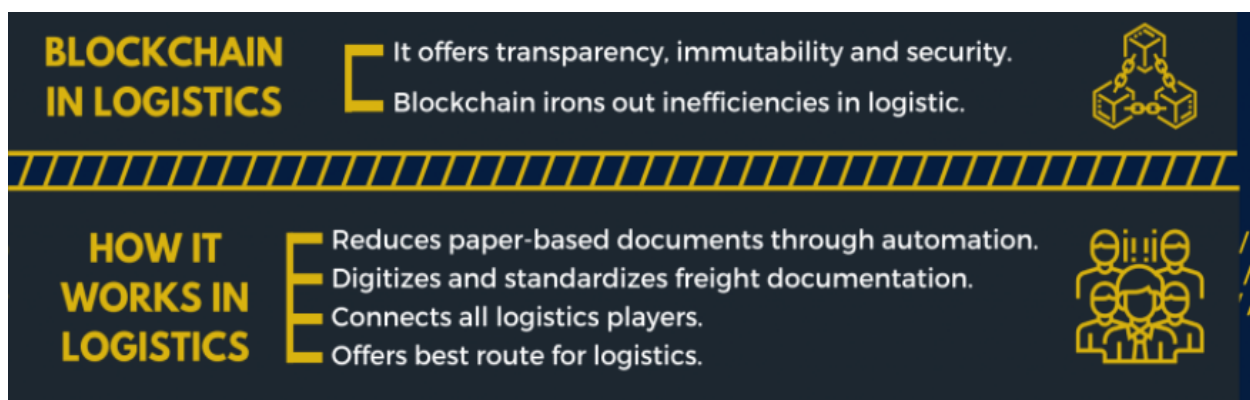
	3PL	Self-logistics
strengths	Cheap, low investment, remote areas	Improve company image, delivery faster, returned customers
shortcomings	Infrastructure lagging, high COD, bad service	Resource waste, lack of fixed employees

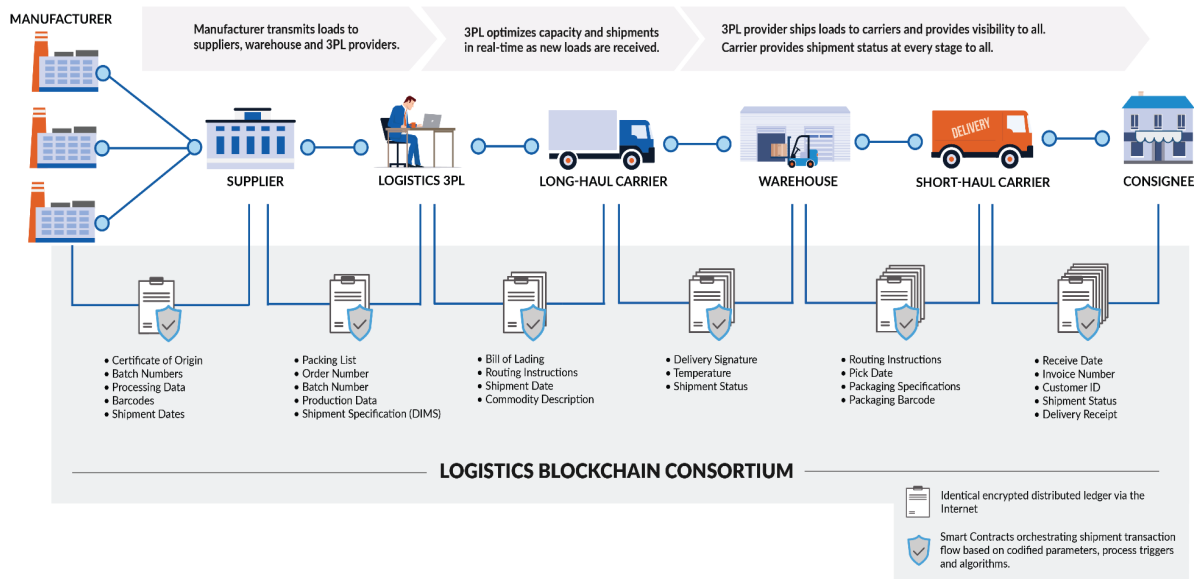
### Selected solution from the proposed solutions :

For the XYZ LTD company I would suggest to go with the solution number one of having a dedicated vehicle service for delivery owned by the company that is allotted to different areas as they'll have more control of the process and can get better user insights, or if they need time to sort out this service they could adopt the Courier service till they have a concrete delivery service on their own.

### Future roadmap :

This is just a proposal which I believe would be an ideal solution for logistics in the coming future, given they have a good amount of user base(enough orders and services to support given the complexity of this solution). This would be to use the Blockchain technology for the eCommerce logistics. Blockchain network being decentralized offers a transparent and fool proof way of communication and transactions without the need of a centralized authority.





#### Pros :

- Its decentralized nature brings in many benefits, including immutability, transparency, and security, mainly the blockchain can help logistics solve its inefficiencies.
- At the core, it is the lack of a single source of truth and complex process that brings the whole logistic process down. There is a need for a decentralized entity that can process all the transactions and also act as a center to verify and improve the whole process.
- It will handle everything, including providing the means to record transactions, create an efficient and transparent system, and also track assets with all required documentation.
- As blockchain is digital in nature, documentation needs to be done online, giving everyone access to the data from anywhere they want.

#### Cons :

- It's hard to tell what's the scenario in the future, but for the next 5 years the demand for the blockchain developers will be very high, given less experts in the field it'll be expensive to create an in house logistics using this solution. Creating a blockchain based application heavily relies on writing and deploying smart contracts on the blockchain network that takes care of all edge cases in the process and to automate the entire pipeline.
- Complex solutions will take time to implement. Not worth the complexity if there's not enough user base.

## References :

- <https://acquire.io/blog/ecommerce-challenges/>
- [Benefits of Blockchain In Logistics Industry - 101 Blockchains](#)