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# SCM Analysis Paper – Amazon Incorporated

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**Abstract**

Amazon Inc., founded by Jeff Bezos in 1994, has grown from a small garage-based operation selling books into one of the world's largest companies, with a market cap exceeding $1 trillion. Today, Amazon boasts a robust global supply chain management (SCM) system, integrating advanced technologies such as robotics, artificial intelligence, and cloud computing to ensure efficient, timely deliveries. Despite its cutting-edge logistics network, the company faces significant challenges, including reliance on third-party carriers like USPS and UPS for last-mile deliveries, the "bullwhip effect" distorting demand forecasting, and high shipping costs impacting profitability.

This paper examines three potential solutions to address these challenges: increasing the use of Amazon Flex drivers for last-mile deliveries, integrating supply chain systems with suppliers, and automating warehouses with more robotic technology. Each solution is analyzed for its advantages, including improved delivery control, greater efficiency, and cost savings, as well as its drawbacks, such as increased operational complexity, high upfront investment costs, and potential labor issues. Drawing from personal experience as a trucking company assistant involved in Amazon's SCM, the paper provides a detailed discussion on the practicality of these solutions, emphasizing the importance of balancing efficiency and cost while maintaining customer satisfaction and protecting Amazon's reputation.

## Introduction

### Background and history of Amazon Inc.

Today, the retail giant Amazon Incorporated has an astonishing market cap of 1.045 trillion USD (CompaniesMarketCap, 2023). Like many others Amazon was started as a small business and it was established by young Princeton university fresh graduate – Jeff Bezos inside of a garage in Bellevue, Washington in July 5, 1994. When the company was founded, Jeff Bezos called it under “Cadabra Inc” but after several months the name switched to “Amazon Inc”. The aim of the company was to sell books and take the bookselling to the next level by delivering the orders to all the states and 45 other countries. First two years the company did not surpass the equilibrium and report losses. However, in 1996 after the web site was ready for consumers, Amazon Inc. showed signs in the third and fourth quarters of the year that the losses can be cut in half while doubling the revenues of the company. During that period, revenues of Amazon Inc. was doubled, $4.2 million and $8.5 million respectively, while decreasing the losses by almost $100,000 from each quarter following (Wilhelm, 2019). In 1998 the company extended its sales beyond books and by the end of the year, after the Christmas shopping season, Amazon Inc. reported that the company has generated enough revenue to cover all its losses and started making profits (ABC News, n.d). Amazon Inc. has been growing since then and has established services and software such as Amazon Prime, Amazon Web Services (AWS), Alexa and so on which in turn generated the company with outstanding profits putting the company among top 10 in the world (Hopkins, 2023). Currently, Amazon Inc. operates in 18 countries, and ships almost to 100 countries globally from 160 fulfillment centers in the world. The operating income of the corporation has gone up by 13.2 billion USD in the fourth quarter of 2023 (Amazon.com, 2024) alone which makes Amazon more attractive to investors.

### Description of the current situation.

Supply chain management in Amazon Inc. is found to be the most extensive globally (Banker, 2021) which encompasses a network of warehouses, suppliers, distributors as well as transportation system which results in faster and on-time deliveries. The company has a commitment to its customers that the deliveries of goods and services will happen on time, and they can rely on Amazon Inc on their next orders which are within two days in Amazon Prime which is possible thru established numerous distribution centers which stores the goods the customer might order, the inventory management within the company works in a multi-tier stage, the information systems that give real time data within its supply chain and transportation services that is effectively placed. Moreover, the main tool used by Amazon in supply chain is the advanced technologies such as cloud computers (AWS), machine learning, robotics and AI which modernize the whole

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process and initiate more cost effective and efficient ways enabling the company to adjust to a demand more quickly, provide on time distribution services and estimate the needs of clients precisely (Leclair, 2023).

The supply chain of Amazon depends on numerous carriers to deliver their packages to customers on time which includes their own delivery service – Amazon Logistics (AMZL) which covers 46 percent of the deliveries (Leclair, 2023). In addition, the corporation has partnered with 856 carriers containing big transporters such as FedEx, United States Postal Service (USPS) and UPS that has a massive impact on the deliveries made. Besides ground transportation, Amazon Inc. owns a fleet which is known as "Amazon Air" and it contains 70 cargo airplanes which cuts off the delivers times considerably which makes deliveries to fulfillment centers faster so that the company holds its promise of two day delivery for its customers.

**Methodology**

**Identification of problems with SCM.**

1. Amazon depends on transportation companies such as USPS, UPS and FedEX to a great extent. Recently, the brand of the company has been taken a hit by the service provided by these couriers due to irregularity of the last mile delivery happening not on time.
2. The SCM of Amazon has been experiencing "Bulwhip effect" which has resulted in distortion of demand.
3. Within the fiscal year of 2023 the shipping costs of Amazon were $7.2 billion USD. The main difference was that the costs that Amazon charges its customers and what it has actually paid the carriers were different bringing a loss of profit to the company (Bishop, 2023).

**Results**

**Identification of possible solutions for SCM problems**

1. The problem can be addressed by hiring more Amazon Flex drivers and placing them in the last mile deliveries instead of UPS, FedEx and USPS (Humphries, 2017). In other words, when every other component of SCM is effective and supplementing, but one part that is lagging can represent a bad reputation for the whole company. Thus, Amazon Inc. should place its own drivers with their/company's transportation so that every customer satisfaction is met. Moreover, Amazon cannot control the carrier partners' drivers, but they will have a direct interaction with its Amazon Flex drivers.
2. Amazon can develop its Supply Chain Management system by cooperating with its suppliers in a more sufficient way. This can be done by implementing the latest technology while sharing information among the company and its suppliers. Furthermore, this solution entails combining all the suppliers and stakeholders which are an essential part of the SCM.
3. Amazon should place more robots and automate every possible aspect within its warehouses as the error of the automated system is less than humans. With the help of more robots Amazon can get the deliveries completed much faster without errors. Moreover, the solution to this problem can be raising the subscription cost for Amazon Prime. By extending this fee the company can make more revenues that will cover the costs for its shipping partners and cover the gap.

**Analysis of the advantages and disadvantages of each solution.**

1.

**Advantages:** Firstly, Amazon Inc. will have extra control over the delivery procedure that results in more flexibility in routing and scheduling leading to effective and more faster deliveries. Secondly, by using its own network of workers, Amazon Flex drivers, the corporation can scale more deliveries especially during peak seasons to meet the unpredictable demand.

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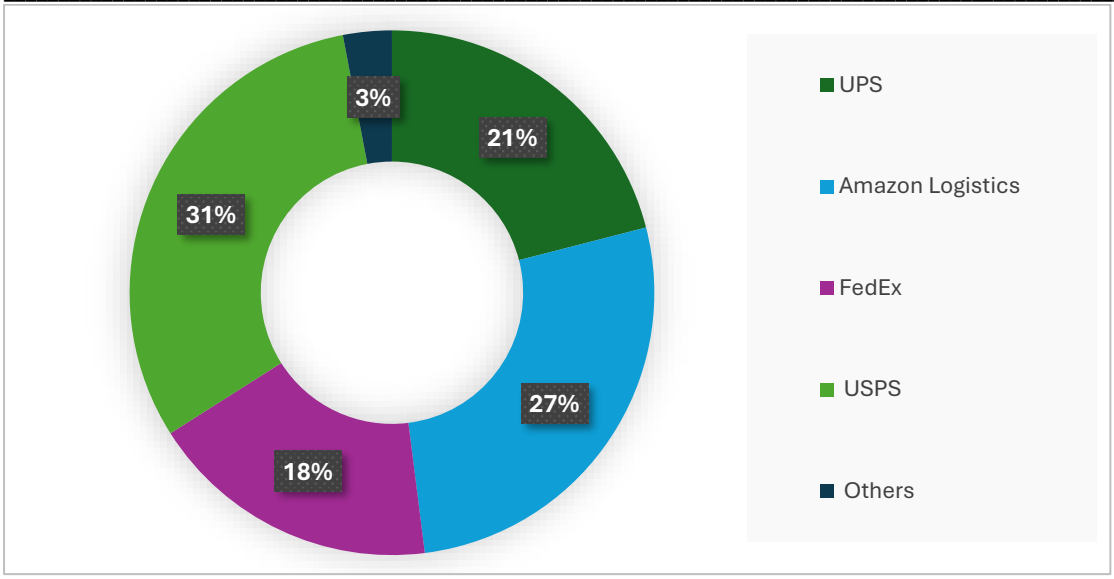


Graph 1. Carrier Market Share by parcel volume (2023). Source: Medium Corp, 2024.

According to graph 1, in 2023, the parcel delivery market was dominated by USPS with a 31% share, followed closely by Amazon Logistics at 27%. UPS accounted for 21% of the market, while FedEx held 18%. The remaining 3% of the market was divided among other carriers.

Thirdly, this approach will lead Amazon to save on the costs of deliveries made as those carriers charge Amazon more during peak seasons.

**Disadvantages:** First, Amazon Flex drivers are independent contractors meaning that if they are not available by the time Amazon needs them the service might be unreliable leading to inconsistent service. Second, increased operational complexity might arise for Amazon as it will have to control more dispersed and larger amount of workforce. Additionally, Amazon Flex drivers may have less experience and training compared to established curriers such as FedEx, UPS or USPS which will impact the customer experience and service.

2.

**Advantages:** First, it improves the transparency across the SCM which allows for better tracking of delivery timeline, production schedule and inventory levels. Second, by having a unified system with its suppliers, the company can cooperate closely on production planning and demand forecasting which will lead to reduced lead times.

**Disadvantages:** First drawback is confidentiality and date security concerns may arise resulting in intellectual property theft or data breach. Secondly, the latest technologies are not cheap, they may require Amazon to have upfront investment in software, training and infrastructure which can, in the short term, drain the company's financial recourses.

3.

**Advantages:** Firstly, greater efficiency could be achieved using robots by executing repetitive tasks where the tasks will be done more quickly and accurately than humans which will result in reduced labor costs and quicker order fulfillment. Second, the risk of mistakes will be minimized by using automated robots such as packing and picking errors which will serve for customer satisfaction and order accuracy. Third, Space utilization can be optimized by robots which will allow compact storage and more effective usage of available space, resulting in cost saving by reducing the need for additional warehouse.

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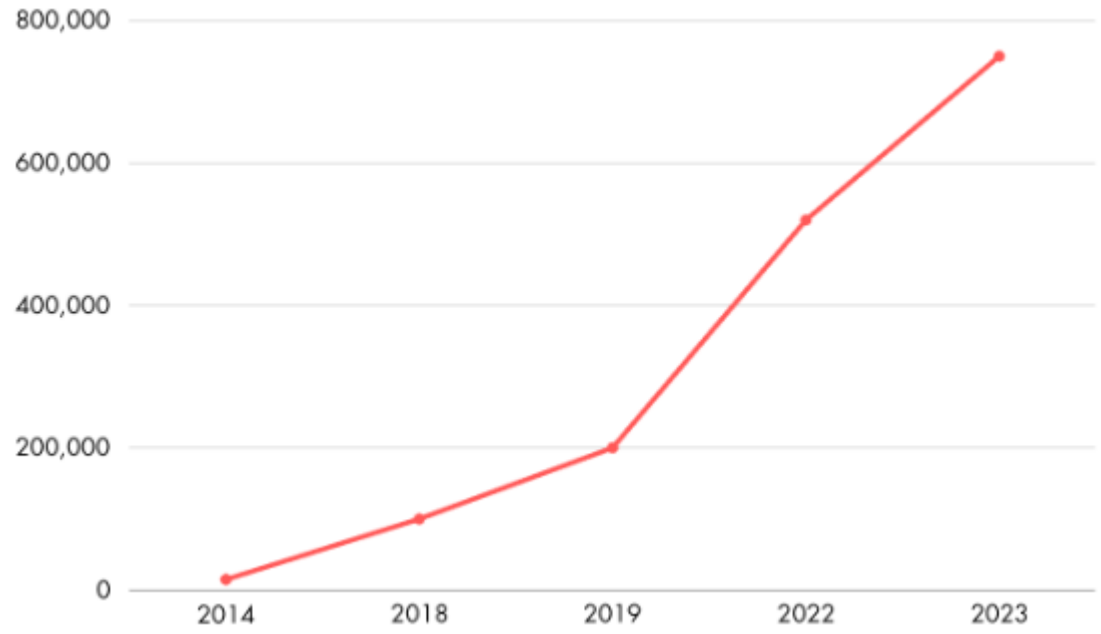


Graph 2. The number of robots at Amazon warehouses globally. Source: Gray, 2023.

According to graph 2, Amazon's use of robots in its warehouses has seen dramatic growth from 5 robots in 2014 to 100,000 in 2018. By 2019, the number of robots increased further to 200,000, and by 2022, it reached 550,000. In 2023, Amazon had 785,000 robots in its global warehouses, reflecting the company's significant investment in automation to improve efficiency and speed in its operations.

**Disadvantages:** Firstly, placing robots into action will require high initial investment and as a result it will be burden for the finance of a company. Secondly, integration of automated robots may cause labor disputes and morale issues among warehouse workers which might lead to negative impact on Amazon's reputation as an employer. Additionally, even though the robots might work with less errors, they are not immune to malfunctions, software glitches or technical failures which might delay fulfillment and order processing.

**Conclusion**

I work at a trucking company as an assistant to the operations manager and we have partnered with Amazon for the last four years. We usually deliver their interstate shipments. Being involved in the SCM process of Amazon, I can state that hiring more Amazon Flex drivers and placing them in last mile deliveries will work, only if Amazon can hire more independent contractors than it actually needs as there might be call offs or resigns, which is not the usual case with UPS, USPS or Fedex drivers. Plus, the risk of delivery delays or mistakes can be minimized if Amazon Flex drivers make the deliveries as Amazon's system will always monitor the location of the driver and the actual time the delivery was made. On the second alternative, I personally think it will cost Amazon more if they integrate the system with its suppliers and stakeholders. For this integration Amazon needs to hire more software developers and they need to be always aware of the data, if the data breaches it will serve for the disreputation of the whole company. On the third alternative, placing robots in place of human workforce seems a good solution, as they make less errors and can work in any shift. Nonetheless, it will be a burden for the company's finance and those automated robots should always be monitored closely, if any malfunctions happen, the company will loose client satisfaction and it will experience delays in operations.

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