

# Case Study: The Uberisation of Supply Chain

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## Abstract

Uber, a technology company, provides a platform for customers who wish to source a taxi ride on their smart phones. This case study analyses the impact of Uberisation on supply chains and addresses the risk Uberisation entails for traditional firms that are unable to leverage the smartphone app technology. This development based on app technology has necessitated innovations across the supply chain.

**Keywords:** Innovations, Supply Chain, Technology, Uber, Uberisation

## 1. Introduction

Uber is a well-known taxi aggregator that is famous across the globe for its path-breaking service process innovation. Uber, a technology company, provides a platform for customers who wish to source a taxi ride on their smart phones. Due to digital matching of demand and supply, capacity utilization of the vehicle is optimum and this leads to an affordable pricing mechanism for the services. This creates a win-win situation for the taxi aggregator services, customers and drivers.

The Uber model has become so popular that it has spawned several imitations of app-based services of various types. Demand uncertainty has always been an Achilles' heel for supply chains. The Uber model has, through real-time digital matching of demand and supply, managed to address the problem of demand uncertainty in the supply chain.

In an era of uncertainty, implementation of strategy should not follow a 'command and control' approach. Ground level people must be involved in the action and they must be encouraged to provide inputs that can help greater level of visibility in information sharing. The objectives have to be clear to everyone only then strategies to reduce uncertainty in supply chain will lead to success.

## 2. Literature Review

The objective of this review is to trace the evolution of technology based apps.

The World Bank's "ICT for Greater Development Impact" strategy seeks to transform delivery of public services, generate innovation and improve competitiveness<sup>2</sup>.

Software development has flourished along with the development of smart phone technology. Transportation industry has benefited from this new smart phone app technology. In a smart phone the apps provide utilities like built in maps, traffic and parking information, public transportation, taxi services, airlines and data collection. The app has revolutionized the interactions that people have with each other. In transportation, apps have streamlined the information we need to move ourselves and our goods<sup>3</sup>.

The role of technology in socio-economic development is at the heart of ICTD [Information Communication Technology Development]. History has justified the role of ICTs in socio-economic development. Digital interactions via smart phones have pervaded not only the developed world but also the developing economies<sup>4</sup>.

Mobile phones have played an important role in networking society. People are able to negotiate their day

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to day mobility with increasing fluidity. The contextual awareness capabilities of smart phone technology are enhancing this ability. Smart phone app development has redefined travel across the globe<sup>5</sup>.

### 3. Uberisation of Supply Chain

Supply chain is experiencing tremendous transformation due to digital technology. Today the competition is not between organisations but between supply chains. It is due to digital influence that electronic invoicing, computerized shipping and tracking and automation have become essential components of supply chain. Companies like Federal Express, UPS and DHL have been successful in leveraging technology.

The business model of Uber has now become so popular that many supply chain practitioners are talking about the Uberisation of supply chain. The Uberisation of services will become the norm in the future. The Internet-based matching platforms have reduced the transactions costs<sup>1</sup>. The People-to-People economy is one in which self-employed individuals offer services in transportation, accommodation, cleaning and dining through platforms that connect demand and supply. This economy will increase the efficiency of the economy as competition intensifies and there is optimal allocation and use of resources.

Monitoring of every link in the supply chain has become a distinct possibility as there are automated notification systems that can send a single message to many players. App technology has made Email communication somewhat redundant. Whats app is now available for free and so there is mass consumption however it will be interesting to see the consumer reaction if it becomes a chargeable service.

If we look at Uber, it does not provide the ride - it merely connects the driver and the customer as a platform<sup>6</sup>. The transaction cost is the sum total of cost of seeking and sourcing information, cost of bargaining and cost of enforcement. These technology-enabled services have empowered the customer who can write an unfavorable review if the service was unsatisfactory. These platforms are proving to be efficient because they enable the reduction in information asymmetry between the different actors in the supply chain<sup>1</sup>.

How is the emerging economy different from the one that preceded it?<sup>14</sup> It is the sheer scale with which self-employed individuals (or micro entrepreneurs) are

providing services to other people. This revolution in services is expected to spread to other sectors in the future like consulting, on demand doctors and video making<sup>1</sup>. Doctor on call services and a dentist on call services have already been introduced in Bangalore.

The size and scale of operations determines if technology adoption is going to increase profitability. Turnover, margins and ownership determine if the technology spend is an investment or an expense. The Indian logistic landscape is all about faster time-to-market as competition between the E-commerce players intensifies. Many organisations operate on hybrid supply chain models that combine paper-based and IT-supported processes.

Technologies like Radio-Frequency Identification (RFID), GPS and sensors have led to more flexible, open, agile and collaborative digital supply chain models. Digital supply chains help in automation of business processes and lead to greater flexibility of organization.

Companies need to internalize digital supply chain models as an integral part of the overall business model and organizational structure<sup>9</sup>. This helps in resource management and better capacity utilization. Fleet management is more efficient. Warehouse throughput increases as there is quality information about demand. Fill rates are better optimized.

The success of Uber supply chain can be attributed to the right service available at the right time at the right quality and right price. How can Uberisation benefit supply chain? The Uber phenomenon not only improves asset utilization but also labour utilization<sup>12</sup>. The mobile app captures the data and transmits it to interested parties in real-time. There is less paper work. GPS tracking has become the de-rigueur now. The information has to be used intelligently and the key is in creating smart networks that provide high quality accurate information. It has been predicted that smartphone apps will be used to connect the entire supply chain - including supplier, manufacturer, distributor and consumer in real time. The apps will help reverse logistics, warranty and order management.

Uberisation of supply chain is irresistible from the standpoint of asset utilization. Research and innovation policies have to be centered of socio economic change - in demographics, resource consumption, consumer expectations and technological disruption. In the future, focus will be on value added manufacturing with technology playing a significant role. Cost reduction will be achieved by reducing time to market by shortening supply chains.

Production volumes will be more synchronized with market demand. Technological advances like 3D printing, artificial intelligence, and internet of things will make their presence felt.

## 4. Uberisation of Logistics Services

India's logistics sector is highly fragmented and technology adoption in these services is rather tardy. But logistics service providers have now realized that technology will help them win a competitive edge in the market. Globalization has only made technology adoption all the more essential.

The mobile platform in logistics services can allow customers to track air freight, ocean freight and import shipments in real time and obtain signatures on delivery. The app incorporates elements such as dynamic route planning, pickup and delivery, route changes.

Smart phone apps have become so popular that they are now used for damage reporting and claims as well as for compliance issues<sup>15</sup>. Growth of e-commerce has led to the customer getting more and more used to the idea of using smart phones to buy products, services and also track the status of their order. As Uber has moved into logistics, the eventual Uberisation of supply chain appears to be a foregone conclusion.

In the automotive logistics supply chain, customers can use the app to track distribution of spare parts and timely delivery of shipments<sup>10</sup>. Technology app can enable tracking stock replenishment. In all these cases technology plays a greater role in dissemination of quality information and this is where there is greater value addition. The lead time is reduced and changes can be made rapidly in case of milk run deliveries or cross dock services in retail.

The Uberisation of logistics services will make express deliveries a reality. Service parts logistics will benefit from Uberisation due to the reduction in lead time. The additional advantage is the greater visibility Uberisation provides in terms of information on spare parts in transit and in inventory. The vehicle logistics sector is specialized and fragmented and this may pose a challenge for successful implementation of Uberisation in logistics services.

In the trucking market, companies operate multiple trucks and employ company drivers or independent owner/operator drivers under contract. Trucking

companies assume responsibility for assigning loads and monitoring driver operations and safe delivery of the goods. Independent truck owners can contract directly with the shippers. However, due to the difficulty of obtaining loads at the right time, the independent truck drivers have to depend on a broker who helps the small operators to find loads. As aggregation of demand is done by brokers, inefficiency often creeps in<sup>13</sup>.

In such cases, the apps can provide a low-cost searchable platform for loads and help the drivers to complete the booking process via smart phones. The apps put buyers and sellers in direct contact with each other. Trucking apps will encourage freight brokers to become more competitive and improve the quality of their services. It will also motivate them to develop their own apps and use technology to bring a set of drivers closer to them.

In the trucking business, transaction costs can be reduced by obliterating the role of truck brokers who find carriers for shippers' loads. Digital matching of supply and demand is expected to revolutionize the logistics services in the future. However, this is easier said than done. Truckers are subject to higher safety standards and they need to have a license. Training them in app-based technology will need intense effort at least in a country like India where most truck drivers are illiterate. Scaling up these services can indeed be a challenge. However, the idea is worthy of exploration. Technology can help consolidate demand and help in its allocation. This can ensure that assets never remain idle.

Organized trucking system enables identification of the driver and better discipline. Fuel levels are recorded. It is possible to use technology as a base to provide solutions.

## 5. Retail Industry - Learning Lessons from Ride Sourcing Services

Carrefour, the retail chain, developed an innovative approach that was based on the "fuzzy integration" of its supply chain. The goal was to find out a trade-off between information acquisition and control<sup>7</sup>. Carrefour organized a special program of cooperation with the Farmer's Association of Malaysia. The vegetable distribution system in Malaysia was heavily dependent on middlemen - who operated in different layers - with each layer charging 20% premium and adding to the inefficiencies.

The Malaysian state gave Carrefour tracks of land to grow fruits and vegetables and farmers were encouraged to join the project. Carrefour made an agronomist available to farmers and guaranteed a transparent pricing system. The company provided trucks and drivers, advised on packaging and built washing stations for farmers.

Vegetables would be washed and packed at the farm in plastic crates which would be displayed in stores. This simplified the handling process. Products were fresh and had more shelf life. Carrefour thus discovered a way of having better control over the value chain.

Closer home, ITC e-choupal has successfully used technology to educate and train farmers, obliterate the role of middle men and make pricing more transparent. But scaling up of operations is still in its stages of infancy.

Carrefour's success in Malaysia encouraged Walmart to try it out in China and Tesco was motivated to adopt the model for Thailand. Countries like Sri Lanka are attractive destinations for retailers to deploy such fuzzy integration strategies.

Amazon wishes to recreate Uber like experience for its customers. Customers can download the Amazon Prime Now mobile application, search for the items they need and order them through the app. Amazon then dispatches a bike messenger with goods to the customer's door. There are separate delivery charges for this so only those who can afford this service can use the service. Thus, this service comes at a price. Retailers want to improve the last mile experience. This means that the savvy, smart-phone app enabled customer will start expecting and demanding more.

Amazon aims to target its efforts in achieving the goal of delivering everything to everyone at all times. Amazon Flex encourages people to use their own cars and smart phones to deliver parcels. This is another example of Uberisation of supply chain.

Instacart has employed app-enabled private contractors for last mile delivery service to customers' homes<sup>18</sup>. Retailers are finding this convenient because they need not dedicate inventory, space or staff. Customers benefit due to convenience and affordability<sup>17</sup>.

Retailers like it because they need not dedicate inventory, space or staff to have a solid footing in e-commerce. Customers like it because of the convenience and reasonable cost-value trade-off. Most important, however, the shoppers like it because the work fits their schedules and lifestyle<sup>11</sup>.

## 6. Uberisation of Health Care Supply Chain

Future healthcare will be based on customized rather than personalized models, driven by big data and integration with the insurance industry. The cost of healthcare services, a shortage of qualified workers and technology advances will lead to radically new business models such as the 'uberisation' of healthcare. Procedures will be automated, as diagnostics procedures and medical care will be assisted by artificial intelligence.

In future, healthcare will be based on customized models. It will be driven by big data and integration with the insurance industry<sup>8</sup>. The cost of healthcare services, a shortage of skilled workers and technology advances will eventually lead to a radically new business model. This can be aptly termed as the 'uberisation' of the health care supply chain. Medical care can be guided by artificial intelligence and patients can walk into a clinic without any paper records but with their smart phone. Diagnostic procedures can be automated and will benefit from the deployment of big data.

## 7. Comparison of Uberisation in Manufacturing versus Uberisation in Services

As of now, Uberisation seems to be more applicable to services than manufacturing. In simple terms, Uberisation is nothing but digital matching of demand and supply using a smart phone app. Within a manufacturing organisation, the data on demand is shared between sales and production in a dyadic manner, so the use of a smart phone app may not be useful. However, the sales teams can use a smart phone app to capture the demand uptick through a smart phone app with the distributors, wholesalers and retailers. Area wise demand can be collected through the app and the area sales executives can share the data with the regional sales office which can then co-ordinate with production after arriving at the consolidated demand figure product wise. As data is collected electronically, inaccuracies in demand forecast can be minimized to a great extent. Retailers and wholesalers can share the inventory information and this can be consolidated at the regional level by sales team. The sales team can thus perform a value added function in terms of analysis of demand generated; inventory information at the store

level and this input can be matched with production inventory. This will help in production planning and control. But the success of this process greatly depends on the technology algorithm and the manufacturer's ability to train people on using the app. Using predictive data modeling, information can replace inventory and this can lead to better inventory management. This can eventually lead to lesser inventory and hence adoption of lean manufacturing.

Additionally the production department can work with purchase to have a smart phone app with suppliers so that demand can be placed with suppliers. This can help in avoiding excess stock of raw materials and suppliers can deliver raw-materials just in time.

Services involve co-creation of value by customer and service provider. Services cannot be inventoried. However, Uberisation can help achieve a better match between demand and supply in certain specific services like logistics, health care, travel and tourism.

## 8. Limitations of Research and Future Research Directions

This research suffers from the limitation of not having conducted an empirical study or use of a real life case study. As Uberisation in supply chain is an emerging area of research, future academic research can follow the exploratory method of research to get a better perspective of solving last mile delivery issues in a specific service sector. This can later be followed by an explanatory study to investigate the benefits reaped by firms that have adopted Uberisation as a business process. It will also be interesting to study the impact of Uberisation on the performance of service supply chains and also investigate sectoral challenges in adopting Uberisation.

## 9. Conclusion

As per a report in the Times of India dated 26<sup>th</sup> December 2015, India is projected to grow at 7% and has the potential to be the world's fastest growing economy till 2024 far outpacing China. The prediction for India is positive because of increasing sophistication of industry; services led industrialization, ability to adapt to changing global demand and variety in exports. India has made productive gains in manufacturing and services. It has diversified its exports into more complex products. The report says

that gains in economic complexity will lead to higher incomes. In the economic complexity index, India's ranking is 42. In this economic climate, it is no surprise that taxi aggregators like Ola and Uber, food aggregators like Swiggy, Food panda, Fresh Menu and hotel aggregators like Goibibo, Trivago and Oyo rooms are doing very well. Technology is playing a greater role in new business development.

A report in the Times of India dated 25<sup>th</sup> December 2015 states that Uber is setting up its first engineering center in India in Bengaluru to customize solutions for the local market. Uber is planning to hire software engineers and product managers in Bengaluru who will work closely with the on-ground operations teams and product engineering team in San Francisco. This center will be responsible for projects related to growing Uber's business.

Uberisation reflects a radically new business model. It is triggering a social revolution. This poses a serious competition to traditional businesses that are unable to leverage the benefits of smartphone applications. Customers are more empowered now. The success of Uber has spawned other businesses who are motivated enough to pursue a similar strategy – medical services for non-emergency cases and legal support<sup>19</sup>.

The taxi aggregator services like Uber and Ola have proved to be successful as their service innovations have disrupted the market. These innovations have changed the dynamics of business in a radical manner.

But a survey of supply chain professionals revealed that the "sharing economy" apps were mostly dismissed by them as trivial (Kevin O'Marah). One reason why services like Uber (taxi aggregator) and Airbnb (room sharing) have become popular is due to the fact that they are able to reduce the role of middlemen and brokers.

Uberisation restructures supply and demand and creates entrepreneurship at the local level. Uberisation is associated with collaboration, agility and greater levels of trust in employees. Data driven decision making is the hall mark of Uberisation. The problem of uncertainty in demand can be resolved through use of technology.

Though companies recognize the need to transform their business model, they falter in identifying the technology that is critical to changing the business model. In the Internet era, customers expect solutions. Traditional businesses have to be prepared to handle the risk of their being "Uberised".

Aggregation using technology can render some people jobless but this is the price that they have to pay for

inefficiency. In the internet-era, survival of the fittest has assumed greater importance. The app-based aggregator services also called as sharing economy needs to be in the agenda of supply chain strategists for long term sustainability.

Uberisation can influence supply chain performance by helping businesses focus on last mile delivery. Supply chain activities like sourcing of suppliers and purchasing of raw-materials can benefit by deployment of technological screening - however the role of purchasing executives will continue to be more pronounced. Data based decision making will increase the efficiency of supply chain professionals. Manufacturing and quality monitoring are activities that can only be enabled by technology and smartphone apps are thus more suited to the logistics services. An Uber-like model for trucking can enhance the agility of supply chain deliveries.

The performance of computing technology is increasing exponentially. Uberisation is symptomatic of the velocity of change in business in the last few years. This meteoric revolution in the form of Uberisation is fast becoming an integral component of the business landscape. Uberisation is leading to a user generated market where entrepreneurs at the local level can collaborate and develop their business with a greater level of autonomy.

Risks have become an inevitable part of any supply chain. Some natural calamities such as the Chennai monsoon floods were rather unexpected. Supply chain professionals need access to topical, quality data to deal with contingencies. Data is important to reduce the vulnerability of supply chains.

Network connected mobile devices are powerful communication and sensor platforms. They are the means to engage every actor in the supply chain. Virtual partnership of actors is now a reality due to smart phone app based technology. Transportation services are highly inefficient. Using mobile technologies, independent contractors can now be linked more efficiently which in the case of Uber could result in the disintermediation of legacy carriers in logistics services. Thus, Uberisation is where the future efficiency and effectiveness of supply chains lies.

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