

Editorial Article The Expansion of E-commerce Market from Air to Sea

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The e-commerce market worldwide is growing explosively at 21.2%²⁾ each year. In particular, China is leading the global e-commerce market with its growth rate being more than double that of the US, driven by consumption of young generations. Changes in buying patterns and consumption-oriented behaviors of young consumers in the country and around the world have major impacts on the global distribution and logistics industries, bringing significant changes. The recent growth of distribution industry is mainly based on platforms of e-commerce companies equipped with technologies of the 4th Industrial Revolution. As consumers are increasingly demanding secure delivery of their goods at low cost and at any time they want, distribution and logistics companies have to actively respond to their demand to survive the market. According to IPC, a global survey provider, fast delivery and low cost are equally contributed to consumer purchasing preferences. That is, the two possibly conflicting factors of delivery are equally preferred by consumers. In general, we have to pay high delivery fees to receive goods quickly or opt for cheap delivery options with slower shipping times. However, self-interested consumers want both in addition to accuracy and security of delivery.

In order for distribution and logistics companies to satisfy the two contradictory demands of consumers at the same time, they have no choice but to rely on the power of information and technology. In fact, smartphone technology played an important role in making consumers reign over distribution and logistics companies by opening up a new channel to various purchasing options. The information provided by smart phone applications allows us to compare and purchase items delivered in the fastest and cheapest way. In other words, when a person purchases a product, he or she browses websites of department stores, shopping malls and discount stores using his or her smart phone, checks the

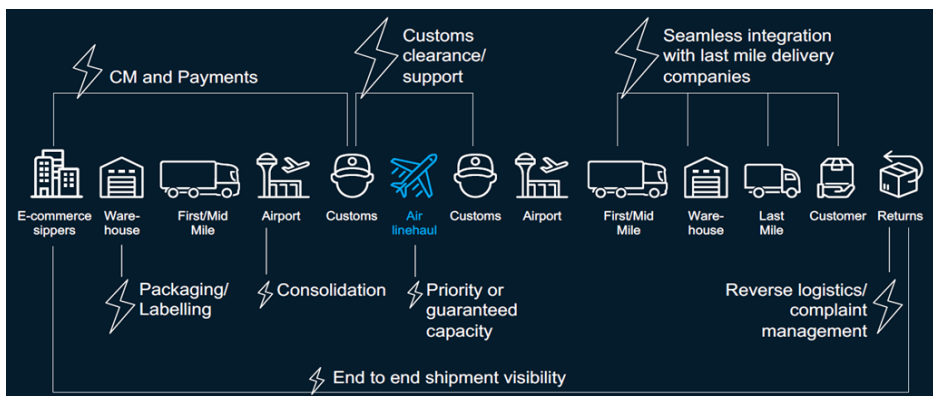
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2) The state of Ecommerce Order Fulfillment & Shipping, 2017.9, (www.eFulfillmentService.com)

condition, features and quality of items, looks for the place where those items are sold at the lowest price and makes an instant payment through a mobile payment system. In the end, the existing distributors spending a lot of money in displaying goods such as department stores and shopping malls piece off their profits to e-commerce platform companies. This is possible thanks to support of technologies including smart phones. These changes in consumer purchasing patterns are letting smartphone platform companies take the lead in e-commerce and driving more frequent online shopping.

Changed purchasing patterns of consumers affect the distribution system, which in turn impacts on the logistics market and eventually gets people to make different choices in terms of methods of logistics. Most of the products sold in e-commerce now are small-sized products such as books and clothes, but they are gradually shifting to medium and large-sized product groups including furniture and electronics. In addition, nearly 80% of e-commerce products are shipped to consumers worldwide by air. This is mainly because of rapid delivery, but there is also a realistic reason that air freight is one of the few options for many of them to be transported crossing continents. However, it is true that consumers want cheap delivery as well as fast delivery as discussed earlier. E-commerce and logistics companies should follow customer preferences to survive in the end. Air logistics that is commonly used for e-commerce has disadvantages of customs clearance and security, and therefore the effect of time-saving is relatively small compared with cost. As shown in Figure 1, air logistics is subject to rigorous customs clearance due to the possibility of terror against people, buildings and specific areas. Even when loaded to an aircraft, transported and unloaded from the aircraft, goods pass through strict inspection, metage and quarantine procedures. In contrast, goods delivered by shipping are subject to less rigorous customs clearance. This is because ships just move in and out of limited and

Figure 1 Air Logistics in E-Commerce



Source : IPC 2019, McKinsey & Company, March 2019

separated space of ports while airplanes are much more easily exposed to terror as they fly overhead. This limitation makes cheap shipping more cost-effective than expensive air in some cases as a result.

In conclusion, in order to meet consumer needs, logistics companies combine the cheapest and fastest methods of delivery and apply the optimal logistics system to e-commerce across countries or continents. Therefore, a multi-modal mode that mixes local conditions and buyer needs is established rather than an air-oriented logistics system. Still, shipping logistics has a weakness of longer delivery time. A solution to this question is fulfillment centers exclusive for e-commerce. There are currently few ports or port hinterlands that have the dedicated e-commerce logistics center. But if fulfillment centers function properly, they can serve as an important means of logistics. For example, Amazon pursues better services and lower costs than its competitors at the same time by building a strategic logistics system utilizing fulfillment centers at its major logistics hubs. If fulfillment centers are created in ports adjacent to consumers and store goods using big data, IoT, etc. and the goods are delivered quickly from the unmanned logistics centers equipped with AI or robotics technologies as soon as the consumers place an order, it may be possible to overcome disadvantages of the current shipping logistics system. Ultimately, the future will require the logistics system to be tailored to the needs of consumers and the conditions of their places. It means transformation from the current air-oriented e-commerce delivery system to a multi-modal mode that includes means of shipping logistics. Moreover, if cutting-edge fulfillment centers are established in ports and port hinterlands to secure competitiveness of e-commerce logistics systems, it may maximize the level of services provided by the systems.

The future is unpredictable but the direction of change is predictable: the e-commerce market will continue to grow, consumer needs will have a greater impact, and technology will keep evolving. In this context, we can expect how e-commerce logistics systems and means of logistics will change. If the e-commerce logistics systems are built in a multi-modal mode with the help of 4th Industrial Revolution technologies in the near future, airports and ports will change a lot and ports in particular will have a quite different form from the current one. It may simply connect automated ports and state-of-the-art fulfillment logistics centers. But if going further, it may be equipped with hardware connected to unmanned ships, smart ports, unmanned logistics centers, IoT-centered equipment maintenance systems, drone-based port management systems, unmanned trucks, etc. and software including big data-based consumer purchase pattern prediction, block chain-based trading systems. If it is realized, future ports will look similar as what we saw in sci-fi movies. Anyway, distribution and logistics companies will continue to make efforts to increase their competitiveness in order to satisfy the needs of demanding consumers and

new forms of distribution and logistics systems will be created and realized earlier than we expect if those efforts accumulate. Therefore, a number of companies, experts and government officials involving in port-related logistics industry need to predict these changes in advance. They need to pay attention that ports are not just places to handle large-sized, heavy-weight or large-volume cargo but places that can be developed as centers of new types of consumer distribution and logistics and as global logistics control towers creating added-value with the help of the 4th Industrial Revolution technologies.