Chapter 10

Network Cooperation in Cross-border E-commerce: A Conceptual Model of a Logistics Platform

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Chapter 10

Network Cooperation in Cross-border E-commerce: A Conceptual Model of a Logistics Platform

Arkadiusz Kawa

1. Introduction

E-commerce is one of the main factors leading to prosperity and competitiveness in the digital era. It has significant potential that may contribute to economic growth and employment. Its further development is expected to have far-reaching effects, perhaps even exceeding changes in trade over the past several decades. Being physically present whilst shopping is becoming less and less important. Customers buy products, placing orders electronically, and the purchased goods are delivered to their workplaces, homes, pick-up drop-off points, or parcel lockers. Placing orders in this way replaces a trip to a store, and the delivery of the consignment eliminates the trip back. Goods are delivered most frequently by logistics service providers, especially courier, express, and postal (CEP) companies.

Recently, more attention has been paid to expanding business activities beyond the borders of a single country. Sellers look for new buyers abroad, whilst customers want to have a wider choice of suppliers. Cross-border e-commerce is based on selling products to customers in another country, which is one of the most important e-commerce trends along with same-day, on-demand, reverse, and crowdsourced delivery, and it has huge potential.

Although cross-border e-commerce is more evident in many countries, it has problems. Delivery – lack of it or delays – remains one of the most important barriers to fast, low-cost cross-border flow. The high cost of delivery is associated with the problem of the last mile, but also with the small flow of goods between countries through a single CEP operator; economies of scale are not present yet, especially in the case of micro, small, and medium-sized logistics companies.

A network approach could be taken to answer the question - how can the costs of international transport in the e-commerce logistics chain be reduced whilst maintaining quality of delivery? It assumes cooperation between separate and independent companies, which can be each other's suppliers, receivers, and even competitors.

They exchange knowledge and experience and share their resources to carry out specific tasks. Such cooperation may embrace an unrestricted area of activity, in terms of both spatial (relations between enterprises increasingly go beyond the borders of one country or even continents) and subject dimensions.

This research aims to develop a model facilitating network cooperation between e-commerce entities (e-tailers, logistics service providers, customs agencies, etc.) dealing with cross-border e-commerce. The model is based on a logistics platform that consolidates shipments from many retailers and delivers them to many clients all over the Association of Southeast Asian Nations (ASEAN) region.

The research relied on direct observation and analysis of primary and secondary sources. Primary materials included data obtained from companies providing logistics services in the ASEAN region, and the secondary ones were reports, studies, and Internet sources. Informal interviews were conducted with representatives of companies that offer cross-border logistics services.

Section 2 describes e-commerce logistics: four forms of organisation and the hub-and-spoke (H&S) concept used by CEP companies. Section 3 introduces cross-border e-commerce, especially the value of this market and the reasons retailers sell and customers buy abroad. Section 4 presents the challenges to cross-border e-commerce: delivery cost, time and quality of delivery, communication in a foreign language, payment currency, payment terms, legal and tax conditionings, and return services. Section 5 describes the logistics of cross-border e-commerce. To demonstrate how the distribution system works in cross-border e-commerce, section 6 shows some examples from the ASEAN region. Section 7 proposes the logistics platform, especially the assumption of the conceptual model, and describes the expectations and the benefits for customers and e-tailers. Section 8 identifies challenges and limitations related to the presented solution and indicates future work.

2. E-commerce Logistics

Internet sales differ from traditional-channel sales in that they also sell the promise to fulfil the customer's order in the right place, quantity, condition, at the right time and cost, apart from the products themselves. E-commerce management therefore requires tools specifically adapted to it. One is logistics (Colla and Lapoule, 2012). Thanks to the availability of goods, different forms of delivery, and low shipping cost, e-commerce attracts new customers, but timeliness and compliance of goods with the order help retain them.

E-commerce has four forms of logistics organisation: insourcing logistics, dropshipping, fulfilment service, and one-stop e-commerce (Kawa, 2017a):

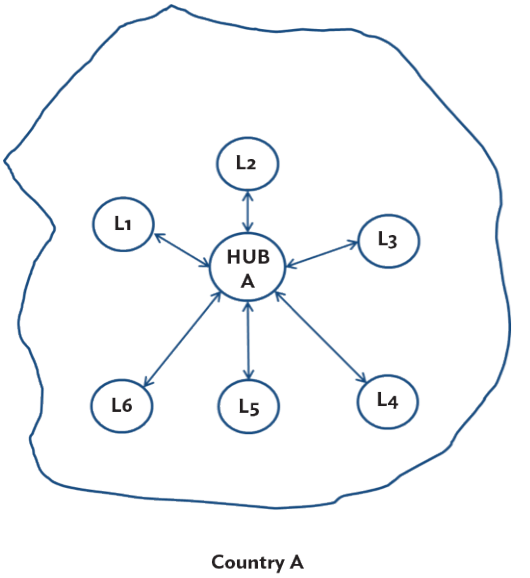
- In insourcing logistics, e-tailers conduct most of the processes on their own. This is effective for micro and small enterprises, whose scale of activity is too small to profit from the use of external logistics companies.
- Dropshipping involves shipment of goods directly from the warehouse of an external entity (the manufacturer, the distributor) to the client without the need of the vendor's warehouse (Zając, 2014). The dropshipper stores the products, takes orders and completes them, issues sales documents, and ships packages to customers (Khouja, 2011).
- Fulfilment involves delegating part of the logistic processes to an external operator. Goods ordered by the online shop are sent to an operator's warehouse, and then unloaded, inspected, stored, picked up, and shipped (Isac, 2014).
- In contrast, one-stop e-commerce is an extension of fulfilment by additional services. This concept implies support not only in the field of logistics (as fulfilment does) but also in customer service, marketing, IT solutions, and finance and accounting by one company (Agatz, Fleischmann, Van Nunen, 2008).

The e-tailers do not distribute the goods themselves but use the services of CEP operators and, to some extent, logistics service providers (particularly for deliveries of goods on pallets). Customers can choose from a wide range of delivery or reception services. Postal services are more economical and slower but courier services are more reliable. Customers can also collect shipments from parcel lockers or pick-up drop-off points.

CEP companies' operations are based on the H&S concept, which involves a main cargo terminal (hub) and a series of smaller local cargo terminals connected by transportation lines (spokes). In the terminals, freights are assembled or dispersed. This system is mainly used to distribute small or light loads. As opposed to point-to-point (direct) deliveries, hubs connect shipment locations (Figure 10.1). H&S is simple and new spokes can be created easily, but it is inflexible because replacing a hub or changing a single route can affect the whole network. Almost every shipment must pass through the hub before reaching its destination, resulting in a longer journey (Hein, 2009).

The main objective of the H&S concept is to minimise storage costs and reduce the transportation costs of individual parcels. Although a single parcel might be transported over a long distance, the total distance for all shipments counted separately is shorter than in the case of direct deliveries. H&S works well when a large number of items are sent and received in multiple locations. An example is distribution within a country where most large cities are connected with one another by means of one or more hubs (Kawa, 2017b).

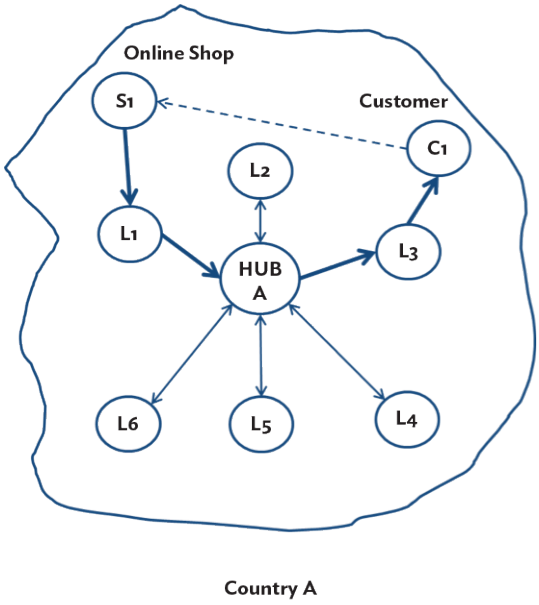
Figure 10.1: Hub and Spoke System



L = location.
Source: Author.

Figure 10.2 shows the domestic delivery distribution system within country A using H&S. Customer C1 buys products via the Internet at store S1. After receipt of the order, S1 confirms it, then picks and packs the product, and orders company A to transport it. A driver picks up the package and transports it with other shipments to the original local cargo terminal L1. Then the consignment, together with items from nearby cities, is delivered to hub A. Shipments from all terminals across the country are consigned to hub A. They are then sorted and transported by line-hauls to local-destination terminals. The package goes to local cargo terminal L3. The next morning, the shipment is collected by a driver from the local branch and delivered to customer C1. Obviously, the route travelled by a consignment seems more complicated and more time-consuming and costly than if it were to travel directly from S1 to C1. H&S results in a longer journey and, in effect, delivery time, but it significantly reduces the unit cost thanks to consolidation with other shipments. Customers have to wait until the next working day but, in return, delivery cost is several dozen times lower than direct delivery of a single package (Kawa, 2017b).

Figure 10.2: Hub and Spoke System in Distribution Within a Single Country



C = customer, L = location, S = store.
Source: Author.

H&S is extremely efficient in transferring a large number of consignments between hub and local terminals. When the number of shipments is smaller, however, cargo space in light commercial vehicles and trucks is underutilised, causing the unit cost of transportation to increase significantly. The total cost of delivery of a small consignment also rises considerably when it passes through many local terminals and hubs because of additional costs of sorting and handling. Section 5 will discuss how complex and costly cross-border transportation can be.

3. Cross-border E-commerce

E-commerce, like the Internet, is borderless, allowing customers to shop from the farthest corners of the world. Although most online customers choose national Internet shops, business activities are expanding beyond national borders (Kawa and Zdrenka, 2016). Sellers look for new buyers abroad, whilst customers want to have a greater choice of suppliers, which is why cross-border e-commerce and logistics services are trending upwards (Cho and Lee, 2017). Buying goods abroad or selling products to foreign contractors over the Internet is becoming increasingly popular. According to Accenture and AliResearch (2016), cross-border trade will reach up to US$1 trillion in 2020 from US$0.5 trillion in 2017.

Cross-border trade is not a new phenomenon (DHL, 2017b). A few thousand years ago, people in different countries exchanged spices, vegetables, fruits, and other valuable products. Trade has been shaping international cultural and economic links and created many important trade routes that still exist today. Over the centuries, however, the means of transport, types of products sold, and the scale of activity have changed. The most recent significant impact on trade is e-business. The ubiquity of the Internet has allowed companies to compete on a global scale. They can present their offerings in the same place (the Internet) without having to pay much money, which levels the playing field. Each company can sell its products globally without a global distribution and sales system, which are needed for traditional trade. The smallest companies, which often do not have financial resources for international expansion, are experienced in Internet business, are more likely to break barriers, and are increasingly competing with traditional national retailers. Manufacturers can sell directly to end customers, eliminating the cost of multilevel distribution and retail (Accenture, 2016).

Cross-border e-commerce is dominated by global marketplaces such as Alibaba, Amazon, and eBay. Other companies, however, especially traditional retailers and smaller online shops, are becoming more interested in cross-border e-commerce. Retailers sell abroad because they can

- become more competitive through internationalisation,
- enter a global market without any physical presence or trademark licence,
- access new customers,
- build their image before going to the traditional market,
- easily offer products abroad without knowing the local market characteristics, and
- fill the sales channel (towards multiple channels).

Cross-border e-commerce is also being influenced by digital natives – people who grew up in the Internet age – looking for new experiences and products and who do not want to be limited to e-tailers from one country. These customers can satisfy their desire through the Internet, which is their natural environment; they have no problem trusting foreign sellers. Customers buy abroad because of

- lower prices,
- higher quality of products (premium brands),
- access to new products or products unavailable in their countries,
- the wider range of products, and
- the need for new shopping experiences.

Although cross-border e-commerce is becoming more widespread, it has several problems.

4. Challenges of Cross-border E-commerce

E-shops engaged in cross-border e-commerce struggle with delivery cost, time and quality of delivery, communication in a foreign language, payment currency, payment terms, legal and tax conditions, and return services (Kawa and Zdrenka, 2016) (Figure 10.3).

Figure 10.3: Cross-border E-commerce Challenges

Source: Author.

One of the greatest barriers is delivery cost, which, depending on the country, can be up to over a dozen times higher than the cost of a consignment realised within the country. The lower price of the product does not often compensate for the cost of delivery, which may discourage customers from purchasing from shops abroad. Consumers and small enterprises say that delivery problems, particularly high prices, prevent them from increasing sales or purchases. Because of the smaller volume of parcels they send abroad, small and medium-sized enterprises (SMEs) are not able to negotiate with logistics operators as big enterprises do. Due to lack of scale, SMEs face higher delivery costs. Research suggests that 90% of consumers are more willing to re-purchase from the same seller if they are satisfied with the delivery cost (Copenhagen Economics, 2013). Foreign exchange in e-commerce could be completely different if these costs were significantly reduced. Detailed delivery costs in cross-border e-commerce in the ASEAN region is presented in section 6.

Another important hurdle is delivery time and quality. Due to the long distance between seller and customer, and the more complex sorting and handling operations, satisfying the customer is more difficult. Besides time, the certainty of delivery is crucial for customers. They are concerned not only about when the product will be delivered but also if it will be delivered at all and in what condition. According to The European Consumer Centres Network (2011), 49% of consumers decide not to order from foreign shops for fear of possible delivery problems. ASEAN country citizens are concerned, too.

For example, almost half of Singaporeans indicate delivery as the main reason they do not shop online (AT Kearney, 2015).

The next challenge for e-shops is communication in different languages. Only some offer information in more than one language (The European Consumer Centres Network, 2011). An offer in a language that the customer cannot speak discredits the seller at first contact. Websites, especially in the ASEAN region, should be run in multiple languages (those native to the customers, and international ones like English).

After language, an important factor affecting customer satisfaction is the currency in which the products are offered. Customers are more willing to pay in their national currency. One-third of consumers leave the website of an e-shop presenting prices in a foreign currency only, and almost 40% of consumers declare no desire to return to such websites (E4X Cambridge Mercantile Group of Companies, 2013). ASEAN countries have different currencies, which causes some problems and requires additional fees (i.e., commissions).

Another issue is the form of payment. The lack of familiar payment options can cause a consumer to abandon a purchase. Although international payments have recently improved (simplifying payment procedures, reducing transaction fees, and increasing the popularity of credit and debit card payments), not all online stores offer generally accepted forms of payment. The ASEAN region also has a high rate of 'unbanked' citizens. In Singapore, Thailand, and Malaysia, at least two-thirds are 'banked', but in the Philippines, Viet Nam, and Indonesia, only 20%–30% of adults have bank accounts (AT Kearney, 2015), which is why many customers choose to pay cash on delivery (COD); 70% of e-commerce transactions in Thailand are paid COD (Acommerce, 2017). E-payment (non-cash transactions) should be promoted.

Laws and taxes are another issue since they are still not clearly and unequivocally defined in cross-border e-commerce. Uncertainty of the total price of a product, taking into account all taxes, duties, and bank charges, discourages customers from buying from foreign sellers; 57% of customers do not shop online because of concerns about returning goods and faulty products (FTI Consulting, 2011). In ASEAN countries, value-added taxes and duties are high, especially in Thailand, Indonesia, Viet Nam, and the Philippines. They differ for product types. Duty-free limits are different, too. In Singapore, it is SG$400 Singapore dollars (about US$290), whilst in Malaysia it is RM500 (about US$120) (A.T. Kearney, 2015).

Another important challenge is the return services' delivery cost and time. Customers often have to return the products at their own expense and are reimbursed only after the seller receives the returned product, which makes cross-border online shopping unattractive. In 57% of cases, customers do not receive the compensation they are entitled to. In ASEAN

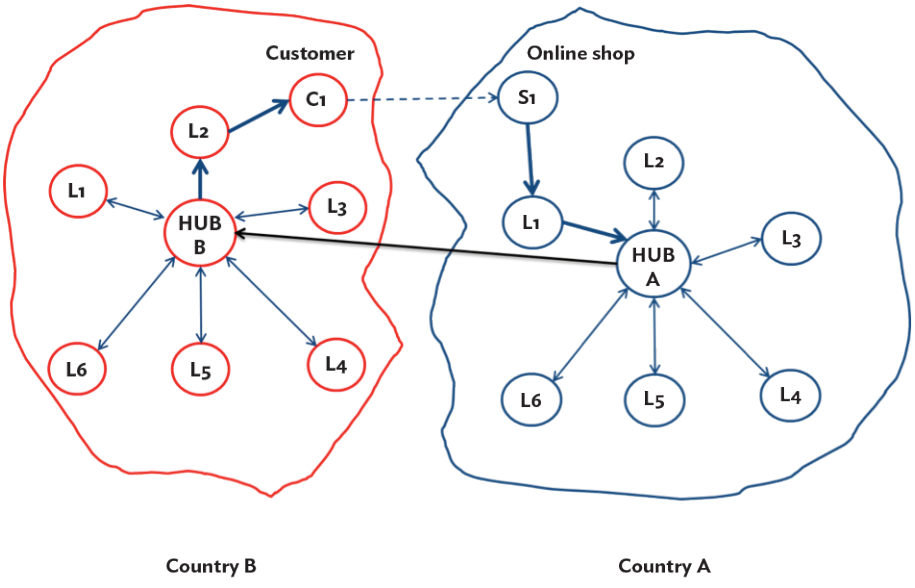
countries with high import fees (Thailand, Indonesia, Viet Nam, the Philippines), reclaiming duties are either impossible or overly expensive (AT Kearney, 2015).

Eliminating the abovementioned issues is a prerequisite for maintaining the dynamic growth of online shopping abroad. Public institutions and non-governmental organisations are working to make cross-border e-commerce more competitive (Kawa and Zdrenka, 2016).

5. Logistics of Cross-border E-commerce

Logistics operations in cross-border e-commerce are more complex and costlier than distribution within a single country. Figure 10.4 illustrates the delivery route of products bought by customer C1 at store S1. C1 is in country B, whilst S1 is in country A. Although the customer and the shop are close to each other, the product passes through individual points in the H&S system, especially the additional hub B. If the connection between countries A and B is not too popular, there is little flow of goods between hubs A and B, and cargo space is not fully utilised. Scant competition causes CEP operators to use their bargaining power, resulting in international freight rates that are several times higher than for domestic transport, discouraging customers and resulting in further underutilisation of cargo space.

Figure 10.4: Hub and Spoke System in Distribution Between Two Countries

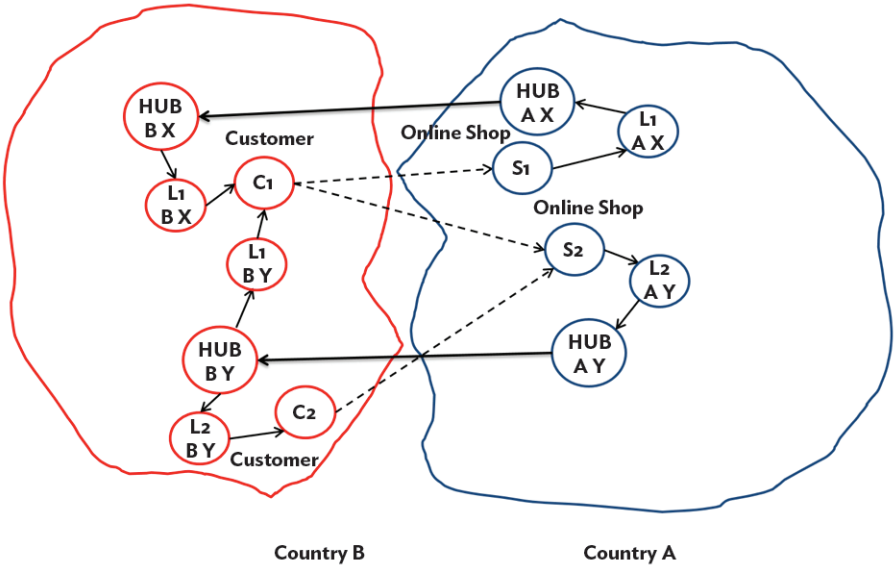


C = customer, L = location, S = store.
Source: Author.

The situation presented in Figure 10.4 can be more complicated when there is more than one customer and e-tailer from one country. Figure 10.5 illustrates a simplification of cross-border e-commerce with two online shops in country A (S1 and S2) and two customers from country Y (C1 and C2). C1 places an order at shops S1 and S2, whilst C2 buys from S2. Both stores are served by CEP operators X and Y; X delivers shipments to C1, Y to C1 and C2. Company Y benefits from economies of scale (Okholm, 2016) because it transports the products together to C1 and C2 from point S2 to hub B Y. Then the shipments are separated and delivered to points L1 B Y and L2 B Y.

The small flow of shipments between hubs A X and B X, A Y and B Y, and the existing separate systems of H&S in cross-border e-commerce are ineffective. High delivery costs appear due to underutilisation of cargo space and a large number of additional operations. A solution is needed to overcome this problem, reduce the number of the sorting and handling operations, and thus reduce the costs of cross-border deliveries.

Figure 10.5: Hub and Spoke System in Distribution Between Two Countries With Two Customers and Two Online Shops



C = customer, L = location, S = store.
Source: Author.

6. System of Distribution in Cross-border E-commerce in the ASEAN Region

Some examples from the ASEAN region will show how the system of distribution of goods in cross-border e-commerce works. Let us imagine that a customer from Sungai Petani in Malaysia wants to buy a specific product (e.g., a wooden mask) from Indonesia. After searching through the Indonesian websites, the customer finds the best offer (e.g., for US$40[1]) from a shop that promises to deliver it in up to 2 working days. This e-tailer has a warehouse in Yogyakarta. Regardless of the chosen logistics model (cf. section 2), products from each order have to be collected and packed. Then the products are picked up by the driver working for the external operator. In this case (and in most cross-border e-commerce shipments), the driver represents the international courier company. There is no great choice because we can indicate only three companies that have a global operational network covering most countries and territories: DHL, UPS, and FedEx. Some companies such as Pahala Express operate but they often cooperate with the three logistics service providers. DHL Express is used here because its DHL Capacity Tool provides rate and time quotes for cross-border shipments after one provides information about the origin country and city, the destination country and city, number of pieces, weight (kilogram [kg]), length (centimetre [cm]), width (cm), and height (cm), and, optionally, other shipment details such as shipping date and declared value.

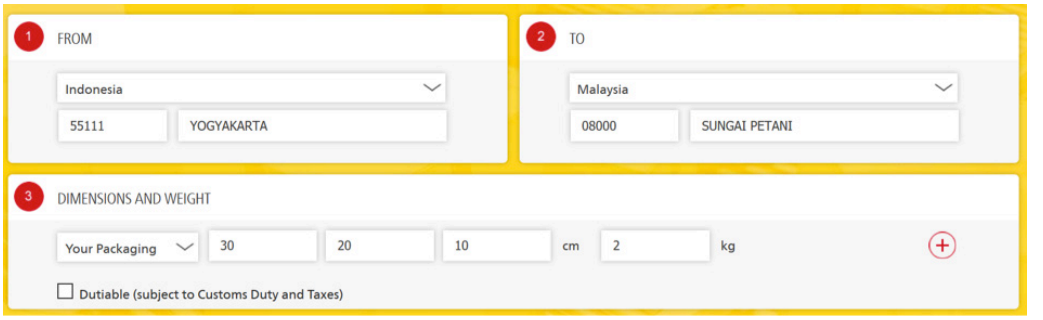
The shop orders a courier to pick up the package. After that, a consignment is handled and goes through different parts of the operational network (explained in the next section). Finally, the product is delivered to the customer in Sungai Petani in Malaysia.

The package is medium-sized: 2 kg; 30 x 20 x 10 cm. After the customer enters this information into the DHL Capacity Tool (Figure 10.6), it quotes the rate and time (Figure 10.7). The system proposes three types of services:

- Drop off. Documents and parcels are sent to the nearest DHL Service Point.
- Ship online. Documents and parcels shipments are ordered online; a courier to pick up the parcel from home or office is scheduled by the customer.
- Call for a pickup. Document and parcel shipments are ordered over the phone; a courier to pick up the parcel from home or office is scheduled by the DHL office with suggestions from the customer.

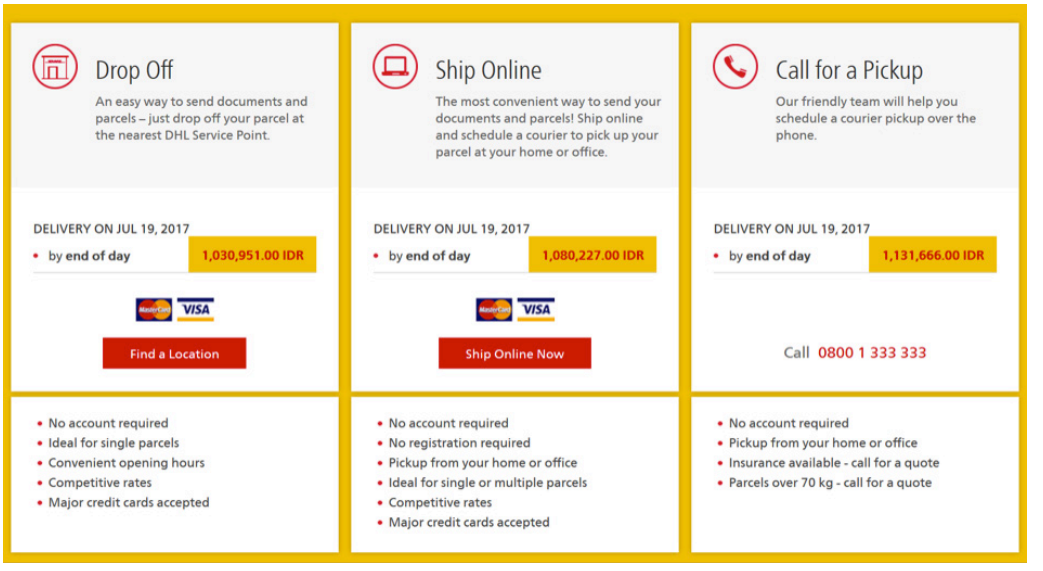
[1] Personal items and items of low value (about US$50 or below) should generally be duty free.

Figure 10.6: Information About the Origin, Destination, Dimensions, and Weight of Shipment



Source: https://dct.dhl.com

Figure 10.7: Delivery Options to be Chosen by Customers



Source: https://dct.dhl.com.

The 'drop off' option is the cheapest solution: IDR1,039,951 (about US$78). 'Call for a pickup' is the most expensive: IDR1,131,666 (about US$84.87) (Figure 10.7). Delivery time is the next working day but DHL Express notes that the transit time is indicative because it depends on the actual pick up time, service requested, characteristics of the shipment tendered, or regulatory clearance requirements. DHL Express also says that the prices quoted may not include duties, taxes, customs charges, or all surcharges and fees (DHL, 2017a). Regardless of these additional fees, the cost of delivery is twice the price of the ordered

product. The alternative, however, is postal service, which is cheaper but slower, less secure, and unreliable.

High delivery costs are characteristic of the ASEAN region. Rates from all ASEAN members (Brunei, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Viet Nam) are calculated on the basis of the DHL Capacity Tool (Table 10.1). The main assumptions are weight = 2 kg, length = 30 cm, width = 20 cm, height = 10 cm, no declared value, and no additional services. The package should be delivered from the capital of an ASEAN member to another by the end of the second working day. 'Call for a pickup' was chosen because 'drop off' and 'ship online' are not available in all the studied connections. The highest delivery costs are for shipment from Singapore and Brunei to other ASEAN countries. The lowest costs are for senders from the Philippines and Malaysia. The customers from Myanmar and Lao PDR have the highest delivery prices but are charged the least for shipments from Singapore and Thailand.

Table 10.1: Rates of Shipment Between the ASEAN Members States (US$)

From/to	Brunei	Cambodia	Indonesia	Lao PDR	Malaysia	Myanmar	Philippines	Singapore	Thailand	Viet Nam
Brunei	x	94.24	80.80	94.24	74.73	94.24	80.80	74.73	80.80	94.24
Cambodia	84.24	x	84.24	84.24	84.24	84.24	84.24	84.24	75.64	75.64
Indonesia	84.87	84.87	x	84.87	84.87	84.87	84.87	63.46	84.87	84.87
Lao PDR	77.53	43.41	77.53	x	77.53	43.41	77.53	77.53	43.41	43.41
Malaysia	53.35	58.75	53.35	58.75	x	58.75	53.35	33.01	53.35	58.75
Myanmar	65.98	65.98	65.98	65.98	65.98	x	65.98	65.98	60.47	78.52
Philippines	31.55	36.23	31.55	36.23	31.55	53.47	x	25.92	31.55	36.23
Singapore	71.09	122.64	71.09	122.64	45.76	122.64	71.09	x	71.09	71.09
Thailand	83.71	83.71	83.71	83.71	65.47	83.71	83.71	65.47	x	83.71
Viet Nam	69.03	69.03	69.03	69.03	65.09	91.10	69.03	65.09	65.09	x

Source: Author.

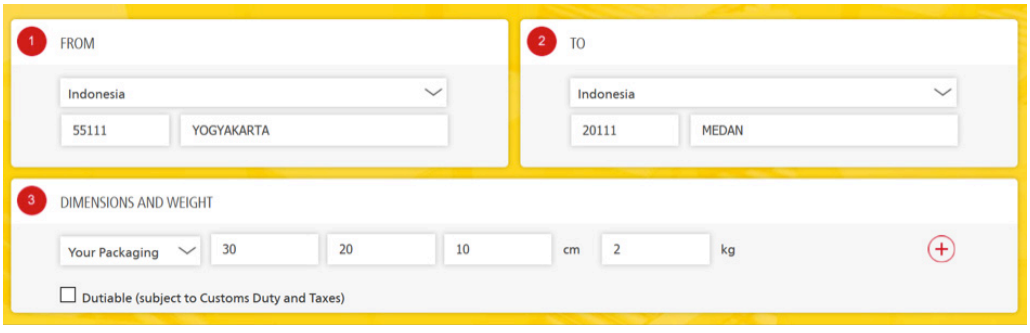
The lowest price is from the Philippines to Singapore (US$25.92) and the highest is from Singapore to Cambodia, Lao PDR, and Myanmar (USD$122.64), about 370% higher. The average price for cross-border shipment in the ASEAN region is US$70.31. It is a barrier to the development of cross-border e-commerce; the average order value is about US$80 (Statista, 2017) and only 10%–20% of cross-border purchases are worth over US$200 (DHL, 2017b). It is a great challenge for new initiatives to reduce these costs.

Another problem is the asymmetrical costs between the origin and destination countries. For example, the transport of a package from Lao PDR to Thailand costs US$43.41 but the same shipment in the opposite direction costs US$83.71 (Table 10.1). Singapore has the lowest import rates (average US$61.71) but it also has the highest export rates (average US$85.46). From a shipment-cost perspective, cross border e-commerce is more beneficial for Singaporean customers than for e-tailers. The lowest differences are observed in Viet Nam.

Interviews with representatives of logistics companies show that the main reason for the highest cost of cross-border shipment is not the distance between the sender and the receiver but the transfer between international gateways. The shipment from Banda Aceh in Indonesia to Denpasar (Bali) (over 2,700 km in a straight line) costs only US$6.52, but from Singapore to Kluang in Malaysia (under 100 km in a straight line) costs US$45.76, and from Bandar Seri Begawan in Brunei to Miri in Malaysia (under 120 km in a straight line) costs US$74.73. The cost of domestic delivery is relatively low whilst international service is expensive.

Let us come back to the example of the customer from Sungai Petani (Malaysia) shopping on a Yogyakarta (Indonesia) website and divide the shipment route into two domestic paths – Yogyakarta–Medan (Figure 10.8) and Kuala Lumpur–Sungai Petani (Figure 10.10) – and one international path – Medan–Kuala Lumpur. In Figure 10.9, the rate of shipment from Yogyakarta to Medan[2] is calculated. In the 'ship online' option it is IDR69,922 (US$5.24). Transport of the package from Kuala Lumpur to Sungai Petani costs 74.61 ringgit (US$17.41) (Figure 10.11). Total domestic shipments cost US$22.65. If we subtract this cost from the total cost of the cross-border shipment (IDR1,080,277 = US$81.02 in the 'ship online' option [Figure 10.7]), [3] the cost of the international transfer is US$58.37, which is too expensive, especially since there is a good flight connection between Medan and Kuala Lumpur (340 km in a straight line).

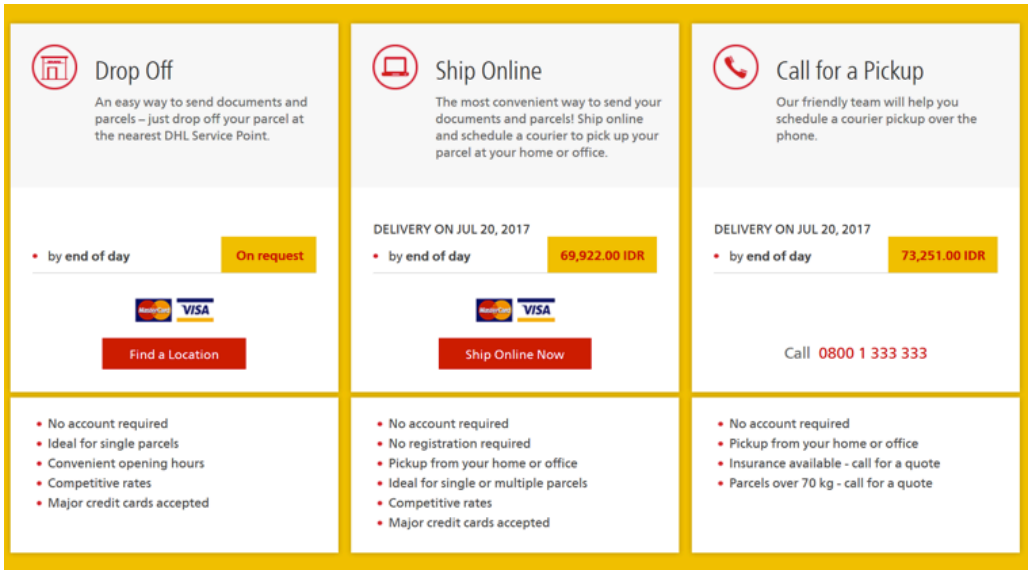
Figure 10.8: Parameters of Domestic Shipment from Yogyakarta to Medan



Source: https://dct.dhl.com.

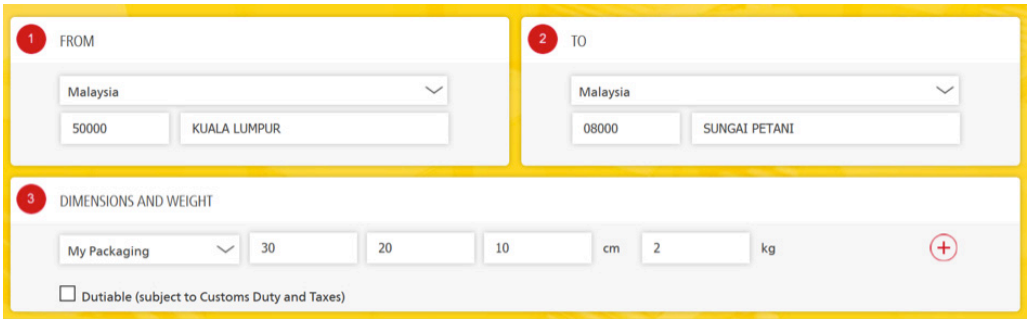
[2] In Medan, DHL Express has a gateway (http://www.dhl.co.id/en/country_profile/key_facts.html).
[3] The shipment rate for Yogyakarta–Sungai Petani is the same as for Medan–Kuala Lumpur.

Figure 10.9: Rates of Domestic Shipment from Yogyakarta to Medan



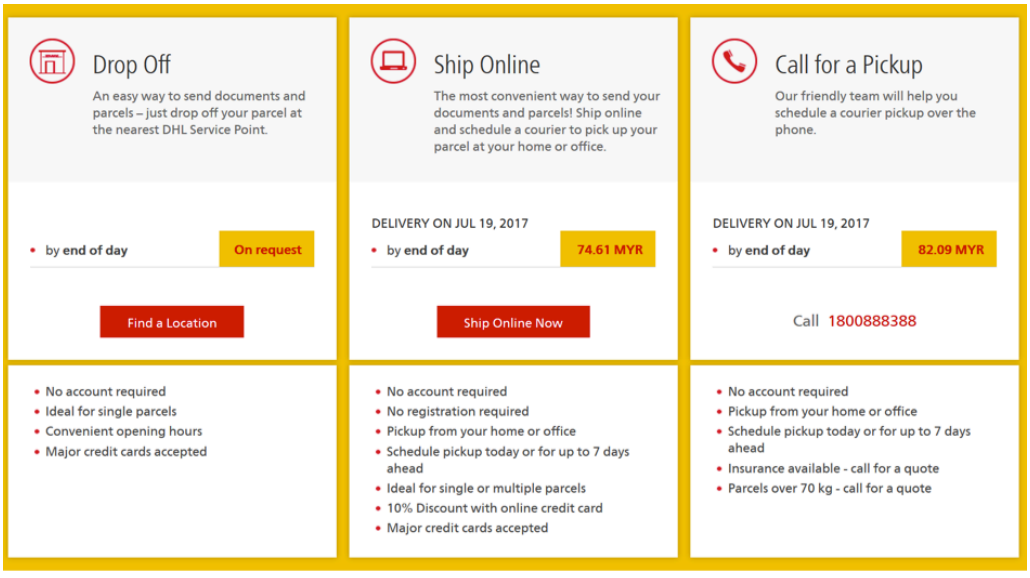
Source: https://dct.dhl.com.

Figure 10.10: Parameters of Domestic Shipment from Kuala Lumpur to Sungai Petani



Source: https://dct.dhl.com.

Figure 10.11: Rates of Domestic Shipment from Kuala Lumpur to Sungai Petani



Source: https://dct.dhl.com.

7. Logistics Platform Proposal

The high cost of delivery is mainly associated with the small flow of goods between countries, which is realised by a single logistics service provider along the whole route of the package. Thus, economies of scale do not take place, especially in the case of micro, small, and medium-sized logistics companies.

This problem can be solved by introducing a logistics platform, which starts from the assumption that a single company's capability does not necessarily imply the whole system's capability. Through cooperation, companies should rationalise their logistics processes, obtain cost savings, and reduce empty shipments. At the moment, companies are not collaborating as they are traditionally managed like family enterprises, which limits their opportunities.

The proposed logistics platform is a kind of a middleperson between the supply and the demand sides of the logistics service market, organising up-to-date information about CEP, transport, and forwarding companies and their services, capacities, and prices, which helps decide which company will deliver the shipments. The platform assumes cooperation between separate and independent companies, which can be each other's suppliers and receivers. These companies exchange information and share their resources to carry out specific tasks. Such cooperation may embrace an unrestricted area of activity, both in terms

of spatial (relations between enterprises increasingly go beyond the borders of one country or even continents) and subject dimensions (Kawa, 2012).

The proposed cross-border platform may seem similar to logistics intermediaries, already present in a number of markets for several years, because neither possesses any logistics infrastructure. The difference between them is that the intermediary only wins transport orders and passes them on to logistics companies, which decide how to transport the consignments, whilst the cross-border platform additionally allows selection of the transport companies.

The cross-border platform allows configuration of a temporary supply chain for the needs of a specific transaction, using the resources of other organisations. Its main goal is to choose the right transport companies assigned to individual routes and synchronise the time of operation of individual vehicles within the country and between countries. The logistics platform, receiving transport orders from many e-tailers, becomes a significant customer of CEP and logistics service providers, increasing its bargaining power and allowing much better cooperation.

The proposed solution is based on an IT system that integrates all physical resources of the engaged companies. Information about all terminals, hubs, and means of transport of many different logistics companies should be merged, requiring interoperability between systems and mutual access to data. Processes and infrastructure (loading units, labels, etc.) should be standardised. For example, shipments are transported in certain loading units, and the barcode labels describing the shipment (details of the sender and recipient, terms of delivery, etc.) must be processed by the various entities dealing with the shipments (Kawa, 2017b).

The proposed logistics platform will allow consolidation of shipments from many retailers and delivery to many clients scattered around ASEAN's 10 member states, which could create 10 domestic connections and possibly 90 international ones with each other (Table 10.1). The proposed logistics platform has to include offers from logistics service providers that cover all those directions. Domestic services can be offered by local couriers and smaller transport and forwarding companies. They should have good connections with international airports in their country from where consignments are picked up and at where they are dropped off. International logistics service providers or forwarding companies can specialise in one or more international links. The connections between some countries can be served by road transport if the distance is not too long (e.g. between Singapore and Thailand, Lao PDR and Viet Nam). The international gateways should be in stable places such as the capital cities, and additional gateways may be available in larger or insular countries (e.g. Thailand or Indonesia).

Based on specific criteria such as place of origin and delivery and parcel dimensions and weight, the system takes into account transport connections of logistics companies and their capacities and gives users appropriate cross-border offers. The platform is similar to flight search engines (such as Skyscanner, Google Flights) but has more features.

It automatically recommends shipping options that are adjusted to the ordered products. For example, for a larger package, it suggests courier or mail services rather than delivery to a parcel locker. Depending on the planned date of delivery, the system may offer different prices. Express deliveries will be more expensive than regular transport.

An important feature of the logistics platform is flexible pricing. Traditional courier companies such as DHL, UPS, and FedEx have fixed shipping prices independent of market demand. On the logistics platform, shipping cost is dynamically determined and depends on the number of packages sent by or to the different companies. For example, where demand for a particular transport connection is high, the rate may be lower. The mechanism works similarly to that of low-cost airlines.

This platform enables users to not only find offers and compare them but also to monitor shipments and make payments. Customers always know where the consignment is and when it will be delivered thanks to the track-and-trace system, which also automatically generates the shipping documents (picking list to the warehouse, package labels). The platform includes information such as foreign trade rules and customs regulations, fees, and taxes, as well as customers' reviews of the services. It can be connected to e-shops, auction platforms, and search engines. After deciding to buy a product, the customer receives delivery service offers and can choose the best one.

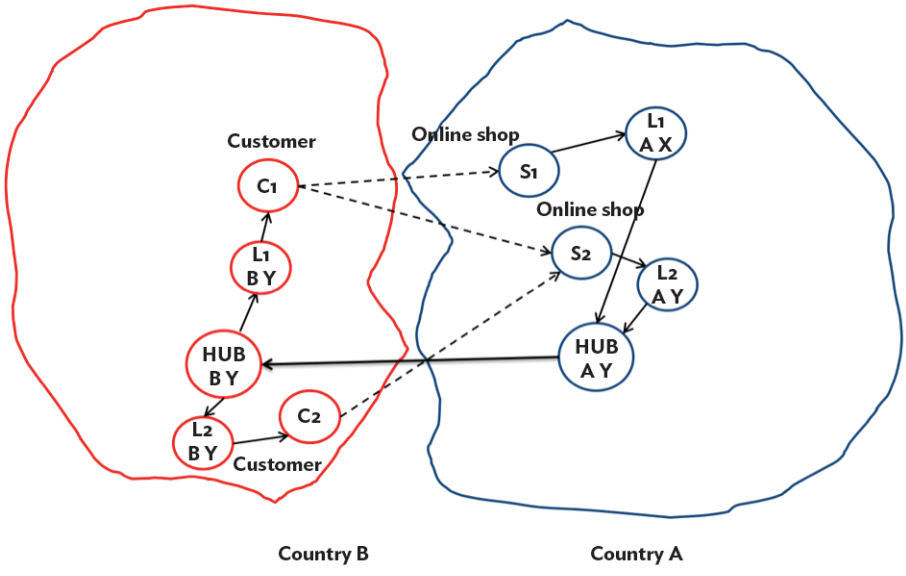
Transport companies may add fixed as well as time-definite or disposable connections to the logistics platform. They have a preview of other carriers operating in other markets, and even access to their timetables. For example, they know that Jakarta–Kuala Lumpur airplanes fly out at 1:00 AM, so they need to deliver the consignments to the airport by 11:00 PM.

Figure 10.12 presents the idea of a logistics platform operation based on the example from section 5. In each ASEAN country, local transport companies have access to the hubs (A Y and B Y), which are managed by separate logistics service providers. Within the countries, these hubs are connected to local terminals by domestic line-hauls, whilst between countries, they are connected by international line-hauls. The process presented in Figure 10.12 is a bit different from that in Figure 10.5: stores S1 and S2 are operated by separate local transport companies, which pick up and deliver goods to hub A Y through terminals L1 A X and L2 A Y, which may belong to one or two local carriers (depending on which carrier's offer will be better at a given time). The next process is the transportation of the consolidated shipments from the A Y hub to the B Y hub. It can be done by an international transport company, but

it can also be served by a CEP operator if that is a better solution. After the shipments arrive at the B Y hub, they are unloaded, sorted, and sent by one or two local carrier companies through their terminals (L1 B Y and L2 B Y) to customers A1 and A2.

Using the logistics service platform eliminates hubs A X and B Y, the local terminal L1 BX, and connections between them (compare Figure 10.12 and Figure 10.5), resulting in less handling and sorting and fewer line-hauls. By selecting offers that are competitive with those of the logistics companies, the system helps reduce transportation costs between terminals and hubs: e-tailers and their customers can get a lower price for foreign shipments.

Figure 10.12: Cross-border E-commerce with a Logistics Platform



C = customer, L = location, S = store.
Source: Author.

In conclusion, the proposed logistics platform offers advantages for customers and e-tailers. The main benefits for customers are

- possibility to buy products abroad with lower total costs (lower delivery costs),
- more predictable shipping costs,
- ability to decide on the time and cost of delivery, and
- access to current information about the delivery progress irrespective of the logistics service provider.

For the e-tailer the benefits could be

- greater possibilities to sell products,
- access to new customers,
- lower costs of international shipments,
- possibility to cooperate with more than one logistics service provider, and
- increase in consumers' confidence in e-tailers.

8. Summary

One of the biggest barriers to foreign trade conducted via the Internet in the ASEAN region is the cost of shipping, which, depending on the country, is several times greater than the cost of shipping within a country. The leading logistics companies (DHL, UPS, FedEx) provide expensive and premium services mainly reserved for e-commerce giants. Often, the high cost of shipping from smaller companies exceeds customers' savings from lower product prices.

The proposed logistics platform assumes integration along the whole supply chain of e-commerce. It enables logistics enterprises to cooperate, especially to gain access to data about customers' needs and about supply capacities. With all the necessary information such as purchase orders, terms and place of delivery, and payment confirmation, the logistics platform system can commission the best transport provider.

This platform is expected to help lower cost and accelerate delivery by significantly reducing sorting and handling operations, and by consolidating shipments from various senders depending on the country of delivery. Thanks to economies of scale gained by consolidating parcels from different e-shops, e-tailers will be able to negotiate rates and service terms with logistics operators. This solution is flexible because the logistics platform can adapt to variable demand by, for example, increasing or decreasing capacity or number of means of transport.

The presented idea faces challenges. It requires interoperability amongst all cross-border e-commerce actors and smart and coherent policies between countries. ASEAN should emphasise integrating companies' systems throughout the e-commerce supply chain, particularly amongst smaller logistics companies providing cross-border transport. Increased interoperability can accelerate the exchange of information; facilitate the consolidation of transportation, parcel delivery, and invoicing; develop multimodal transport; and reduce administrative costs (Kawa, 2017b).

To lift the barriers to cross-border e-commerce, policymakers can establish and harmonise regulations; promote non-cash transactions; improve logistics infrastructure (invest in roads, transport infrastructure, warehouses, distribution centres); and encourage partnerships between retailers, suppliers, and logistics service providers. Governments can provide

subsidies or tax breaks to logistics and transport companies focusing on online retail (A.T. Kearney, 2015). Understanding cultural differences, social trends, and generation gaps is important, too.

An independent entity should provide the proposed platform. ASEAN would be a better choice than a commercial company. The project would be non-profit and more transparent. It would require a lot of investment and time. Many potential stakeholders would need to be convinced, taking into account local regulations and conditions. The project would also require large-scale operations in ASEAN countries. The massive undertaking is worth considering because there is no retreat from cross-border e-commerce.

The proposed logistics platform, however, has limitations. The needs of e-commerce and individual stores vary significantly and this solution will not meet every e-tailer's requirements. Customers of the logistics platform may mainly be micro, small, and, partly, medium-sized companies that run their business via the Internet. Large-scale e-tailers can negotiate rates with leading logistics service providers and cooperating with smaller carriers may not be profitable.

A further direction of this study will be to develop and test a prototype of the platform. Countries besides ASEAN members can be included in the model; a reverse logistics process may be added; or start-up companies and crowdsourcing solutions can be used to provide local courier services, among others.

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