Improvements made to International Logistics with the Use of the Internet

Term Paper

GraceAnn Carroll

IBUS 550

The University of Louisiana at Lafayette

March 7, 2023

Abstract

The internet has created advances in efficiency and productivity in the international supply chain through improving logistics processes. Western Nations are highly connected to modern technology by making use of the internet in all aspects of their business models. In international businesses, the level of connectivity varies across other countries in the world. The future of global markets is being created using the internet and all aspects of the supply from procurement to delivery will be changed and improved. The changes affect businesses in all industries including governmental agencies, private organizations, and large wholesalers. The benefits of prioritizing connectivity include reduced costs, quick transactions, reliable transportation, and accessible communication 24/7.

The global supply chain has become increasingly more collaborative with innovative technology and systems. Collaboration is the key to success when developing a company in global markets while producing profits. Company goals are satisfied by the integration of the internet into supply and procurement functions. E-commerce, communication, transparency, logistics, competition, and risks are all results of introducing the internet.

Introduction

The International supply chain has made great improvements since the 1990s by incorporating the internet into supply chain systems. Companies have been able to reduce costs, increase efficiency, and overall improve customer service. The internet has been incorporated into every aspect of the supply chain including procurement, manufacturing, communication, vehicle tracking, and transportation schedule. This paper will explore the specifics of how the internet has changed the processes in every branch of the supply chain for international distribution. The internet will be examined in terms of disintermediation and reintermediation.

All cited sources are used to support the idea of changes made to logistics by incorporating the internet and modern technology into supply chain processes.

Methods

The global supply chain has had significant innovations since the introduction of e-commerce and the boom of internet purchasing in the last ten years. The interactions between the goods producer and consumer and defined by using the processes of reintermediation and disintermediation. Reintermediation is "the addition of intermediaries to distribution channels" and disintermediation is "the removal of intermediaries from distribution channels" (*Wood, 2002).* In other words, reintermediation adds new elements to processes in the supply chain while disintermediation removes elements. The consumer distribution channel or CDC includes the producer, wholesaler, retailer, and consumer. Figure 1 shows a guide on how intermediaries can be added and taken out of the process with the incorporation of the internet and advanced technologies.

Figure 1: Consumer Distribution Channel (CDC)
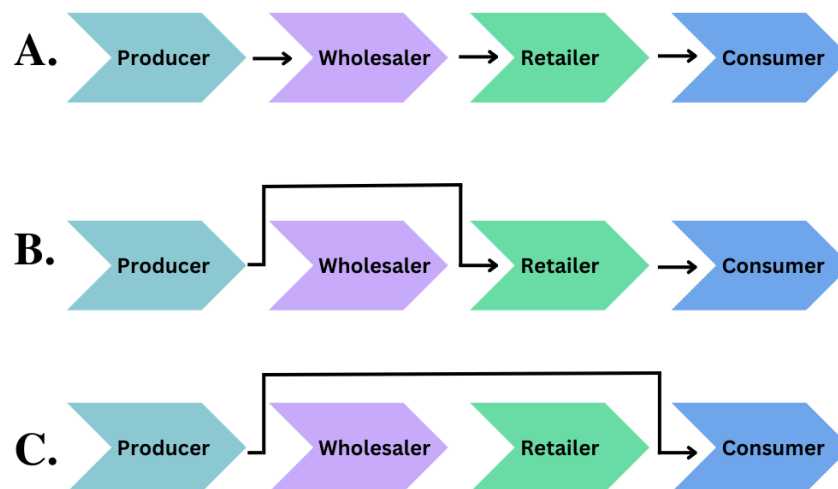
Disintermediation

Examining figure 1, line A shows the original sequence that occurs during the distribution process. Line B shows how using disintermediation eliminates the wholesaler from the process while line C omits both the wholesaler and the retailer. Disintermediation is also commonly known as "taking out the middle man". Moving towards the future, wholesalers have become obsolete because producers are able to use websites to directly sell their products to consumers and retailers. A customer is able to go online and purchase the same product directly from the producer that they would normally purchase from a wholesaler or retailer. Companies are now pressured to incorporate disintermediation into their distribution supply channels because it "creates a competitive advantage forcing companies to find ways to reduce payments to intermediaries" (*McCubbrey & Taylor, 2005).*

Disintermediation provides the benefit of reducing costs for producers by paying fewer fees to wholesalers and retailers creating a larger profit margin. Also, the producer is now able to have contact with the end consumer through a direct communication line. The regular interactions allow the producer to be more aware of the actual demands of the customer with complete access to customer information. The producer is now better suited to improve customer satisfaction and meet their requirements. Disintermediation produces more processes for the producer to conduct because they must complete all activities associated with presales and post-sales that in the traditional model would be the responsibility of the wholesalers or retailers.

Reintermediation

Opposite of disintermediation, in terms of the distribution channel, reintermediation is the "realignment of wholesalers" adding a new element to the supply chain (*Techopedia, 2023).* E-commerce has created new opportunities for various intermediaries to enter the process of

providing efficient and better-managed services. Examples of new intermediaries are websites that provide consumers with information such as product evaluations, cost comparisons, and supplier searches. Further examples of emerging intermediaries can be found in Figure 2. Manufacturers benefit from using online intermediaries because they are able to sell their products to a more diverse public scope. Affiliate marketing programs online assist manufacturers by allowing their products to be sold by anyone for a commission. The programs help reduce the overall cost for producers because they no longer have to allocate significant funds for marketing and instead only pay when the product is actually sold. Intermediaries are the best way to help a company reduce its costs and increase profit margins. A company should invest in "any intermediary that adds more value to a product than it charges for the service" or "more widely markets" the product than the current procedure (*Steele, 2009*).
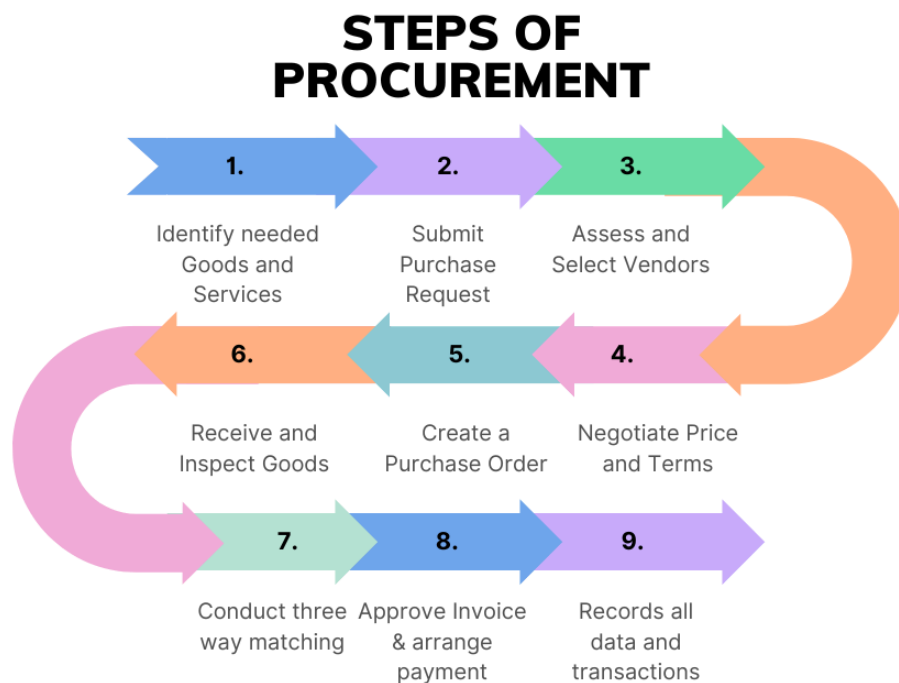
Figure 2: New Internet Intermediaries Produced by Reintermediation
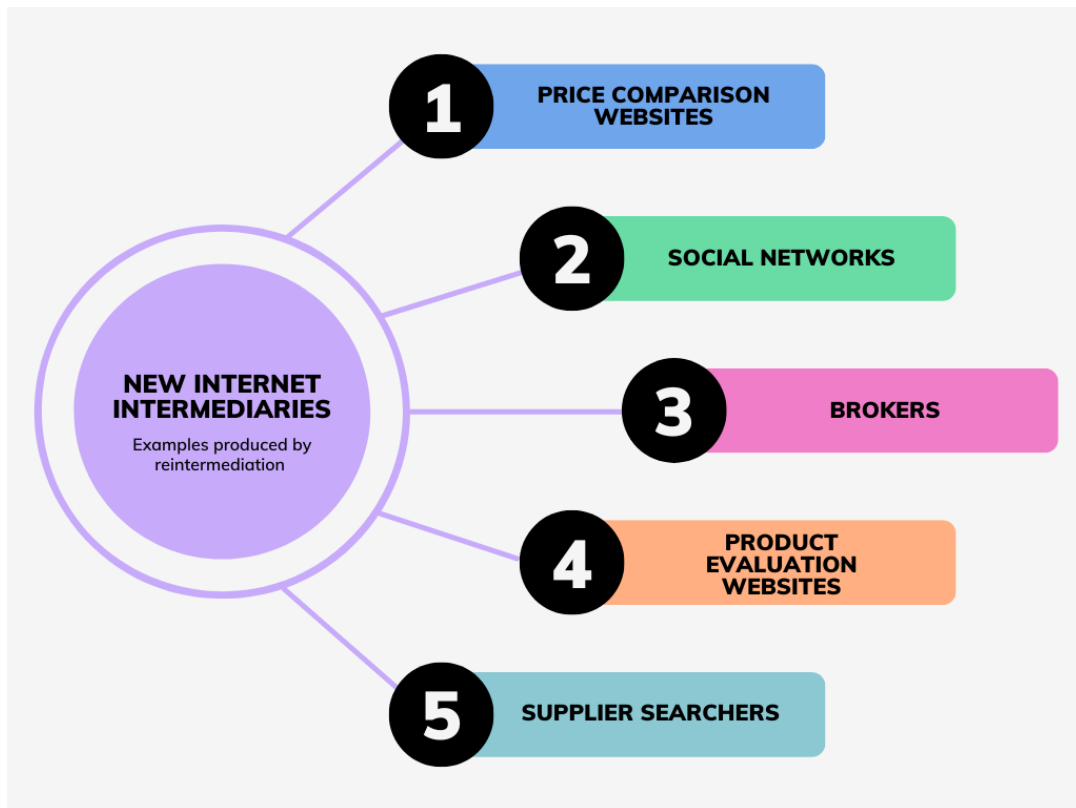
Procurement

In international business, procurement refers to activities that acquire goods, services, or works from suppliers and producers outside of the buyer's country of origin. Procurement is the first process in the creation of products that "encompasses all activities involved in obtaining material and services and managing their inflow into an organization toward the end user" (*Segev et al, 1998).* This step includes identifying suitable suppliers, negotiating contracts, managing relationships, and monitory delivery. Specific steps are outlined in Figure 3.

Figure 3: Steps of Procurement

STEPS OF PROCUREMENT

1.	2.	3.
Identify needed Goods and Services	Submit Purchase Request	Assess and Select Vendors

6.	5.	4.
Receive and Inspect Goods	Create a Purchase Order	Negotiate Price and Terms

7.	8.	9.
Conduct three way matching	Approve Invoice & arrange payment	Records all data and transactions

The internet has changed the process of procurement by becoming more efficient, cost-effective, and transparent. Internet-based procurement has made it easier for organizations to identify and communicate with potential suppliers around the globe. The internet provides

access to diverse forms of information that can be used to identify which producers will best accommodate a company and the best communication methods to be used with such suppliers. An organization can find information based on the producers' reputation, financial stability, previous performance, and reliability. The data gained will reduce the risk level for business collaboration. Improvements to procurement include decreased administrative overhead, higher service quality, timely location, and flexibility. The changes are made by incorporating IT systems into procurement processes such as the Electonic Data Interchange (EDI) systems.

<div align="center">Manufacturing</div>

Globally, nations are entering or have already experienced the 4th industrial revolution which includes the introduction of manufacturing systems such as Industry 4.0 technologies. Industry 4.0 refers to the integration of technological advances such as the internet of things, cloud computing, artificial intelligence, and big data analytics. Companies are encouraged to incorporate "wireless networks, computing, cloud infrastructures along with big data and artificial intelligence" into their manufacturing processes (*Kumar, 2018*). Physical advancements in smart materials, nanotechnology, and 3D printing are also becoming more prevalent.

Smart manufacturing is the key element of Industry 4.0 that creates more intelligent and interconnected systems by using sensors and IoT devices to collect data for identifying inefficiencies and optimizing production. Embedded sensors enable manufacturers to monitor equipment for predictive maintenance to reduce downtime and enhance effectiveness. Automation and robotic augmentation involve the use of robots and automated systems to perform common activities such as packaging, control, and assembly. Manufacturers are able to use these techniques to reduce labor costs and improve productivity while also upgrading product consistency and quality.

Communication

Incorporating the internet into the logistics of a business speeds up communication between customers and their suppliers, improving service quality, and reducing costs. Companies are able to avoid global language barriers such as translations between a Native English speaker and a Native Spanish speaker. Sellers can "communicate with vendors, customers, etc. regarding supply issues on a seven-day/24-hour basis via e-mail" (*Rahman, 2004)*. The internet has made it easier for sellers, producers, and consumers to exchange digital information including invoices, tax documents, intersections, and bills of lading in a quick and accurate time period reducing the need for manual entry or physical paperwork.

Scheduling can be simplified using the internet by creating more accurate time changes and immediate responses to forecasts for freight forwarders and partners. Companies can now communicate with anyone globally using the internet to send emails, host video calls, send direct messages, and create website platform chat rooms. Cloud-based software is most efficient in sharing messages and documents globally with examples such as G-Suite and Slack. The software allows businesses to communicate with partners and customers who are located in different time zones. Customer relationship management software (CRM) is essential to the efficiency of communication because it usually includes information such as contact management, sales tracking, and market automation. Relationships are managed in multiple countries by using CRM "storing contact information, sales data, and communication history in one central location (*Simon & Simon, 2023)*. Artificial Intelligence is most commonly seen in communication with international businesses as a chatbox. Customers are able to connect with a server 24/7 to help answer basic questions regarding the products and services of the business.

To ensure that technology is efficient in conducting communication between representatives and customers globally, the systems and physical products must be user-friendly. Staff should be trained to use each website or domain the company chooses to incorporate. The technology should have high viability, meaning it can be used in numerous nations globally and is reliable in predictable circumstances.

<div align="center">Vehicle Tracking</div>

In the context of international business, vehicle tracking has seen significant improvements brought about by the internet. Companies can now track their vehicles in real-time and get accurate information about their location, speed, and other important data with the help of internet-enabled devices. Shipments and equipment locations can be tracked on a variety of transportation modes including truck, rail, and air transport. Internet-enabled vehicle tracking lets businesses better manage their supply chains, which is one of its main advantages. Companies can identify potential delays and mitigate them by tracking the movement of their vehicles. After submitting a purchase, customers are able to "check the status of orders placed with vendors" (*Qazizada, 2023*). This can assist with further developing conveyance times and lessen the gamble of item harm or misfortune. The most popular application of the internet with vehicle tracking is "monitoring of pickups at regional distribution centers by carriers" (*Qazizada, 2023*).

Companies can monitor driver behavior and vehicle performance with internet-enabled vehicle tracking, which is an additional significant advantage. Companies are able to identify areas for improvement and implement changes to increase efficiency and reduce costs through the analysis of data such as fuel consumption, speed, and engine performance. Internet-enabled vehicle tracking has also contributed to higher levels of customer satisfaction. Companies can improve customer trust and loyalty by offering better transparency and visibility into the delivery

procedure by providing real-time tracking information to customers. Vehicle tracking has increased the reliability performance of carriers by meeting their arrival times more frequently. In general, the internet has revolutionized international vehicle tracking, providing businesses with a wealth of data and insights that can be used to improve customer satisfaction and optimize operations.

<div align="center">Transportation Scheduling</div>

The process of transportation scheduling is aimed to improve both vehicle utilization and schedules so that every dollar in the budget is well-spent. The use of the internet in transportation schedules has brought about several changes that have benefited international businesses. These changes include real-time tracking, improved communication, increased efficiency, and greater transparency. With the help of the internet, businesses can track their shipments in real-time, which helps them to optimize the route, reduce delivery times, and improve customer satisfaction. Tracking helps develop a schedule for drop-offs at distribution centers. The internet has improved communication between businesses and transport providers, allowing for more efficient coordination of shipments and better responsiveness to changes in demand. The internet has enabled businesses to automate many of their transportation processes, such as booking, billing, and tracking, which has led to increased efficiency and reduced costs.

Route scheduling is a subset of transportation scheduling that "organizes each destination by a specific date and time" *(Beheshti, 2007)*. The internet has brought greater transparency to the transportation industry, allowing businesses to access more information about transport providers, rates, and routes, which helps them to make better decisions. Route optimization is an effective method "to plan, manage and map routes that helps you to create the most efficient routes based on other factors and constraints besides distance" *(Van Der Heijden et al, 1970)*.

Empty vehicle management is a process that "aims to reduce the number of empty trucks or containers on the road by finding opportunities to fill them with cargo" (*eLogii, 2023*). This process helps to improve the efficiency of transportation, reduce costs, and lower carbon emissions. The internet has brought about several changes to transportation scheduling in international business, including real-time tracking, improved communication, increased efficiency, and greater transparency. With the help of the internet, businesses can more easily identify opportunities for empty vehicle management by accessing real-time information about available capacity and shipment needs.

Risks

Mass incorporation and new technology and internet processing systems create risks for global companies. Online scams, data breaches, and cybersecurity threats challenge businesses. The internet also brings problems of system reliability such as the possibility of a service provider experiencing a "crash" when processing online payments or sending order errors to manufacturers. The best way to ensure system reliability is to "keep all operating systems and APIs updated" (*Pong, 2022*). There is a privacy issue for customers who input their data into information systems which can be used for scamming or identity theft. Companies also pose the risks of threats on their intellectual property by creating the opportunity for others to use their designs, brand, images, or logos without permission. Warehousing logistics must also be throughout to ensure when an order is placed, the items are stocked and a parcel is delivered in the time promised.

Conclusion

The internet, has had a significant impact on the global supply and distribution chain in relation to international commerce. Businesses are able to expand their market reach, optimize

logistics processes, improve transportation transparency, and create competitive industries. The benefits also come with new risks that companies must understand in order to prepare for attacks and avoid destruction. As technology continues to evolve, the internet will continue to hold priority on the supply chain producing opportunities and challenges for businesses to gain success in global markets.

References

Beheshti, H. M., Hultman, M., Jung, M.-L., Opoku, R. A., & Salehi-Sangari, E. (2007).

Electronic supply chain management applications by Swedish SMEs. Enterprise

Information Systems, 1(2), 255–268.

https://doi-org.ezproxyprod.ucs.louisiana.edu/10.1080/17517570701273221

How has communication technology expanded international business? SIMON & SIMON.

(n.d.). Retrieved February 28, 2023, from

https://www.simonandsimon.co.uk/blog/how-has-communication-technology-expanded-i

nternational-business

How vehicle routing and scheduling work in Logistics. eLogii. (n.d.). Retrieved January 31,

2023, from https://elogii.com/blog/vehicle-routing-and-scheduling-in-logistics/

Kumar, A. (2018). Methods and materials for smart manufacturing: Additive Manufacturing,

internet of things, flexible sensors and Soft Robotics. Manufacturing Letters, 15,

122–125. https://doi.org/10.1016/j.mfglet.2017.12.014

McCubbrey, Donald & Taylor, Richard G. 2005. "Disintermediation and Reintermediation in the

U.S. Air travel distribution industry: A Delphi reprise". Communications of the

Association for Information Systems. Volume 15, 2005.

Pong, E. (2022, November 30). 10 inevitable ecommerce risks you should watch out for. Floship.

Retrieved February 28, 2023, from

https://www.floship.com/blog/_10-inevitable-ecommerce-risks/

Qazizada, N. (2021, August 26). INCOTERMS. Cargors. Retrieved January 30, 2023, from

https://cargors.com/incoterms/

Rahman, Z. (2004). Use of internet in supply chain management: A study of indian companies. Industrial Management & Data Systems, 104(1), 31-41. doi:https://doi.org/10.1108/02635570410514070

Segev, A., Gebauer, J., & Beam, C. (1998). Procurement in the Internet age-current practices and emerging trends (Results from a field study). University of California-Berkeley CMIT Working Paper WP-98-1033, August, 14-26.

Steele, D. (2009, December). Disintermediation and reintermed. Retrieved February 28, 2023, from http://faculty.cbpp.uaa.alaska.edu/afef/disintermediation_and_reintermed.htm

van der Heijden, M., Ebben, M., Gademann, N., & van Harten, A. (1970, January 1). Scheduling vehicles in Automated Transportation Systems. SpringerLink. Retrieved January 31, 2023, from https://link.springer.com/chapter/10.1007/3-540-26686-0_11

What is reintermediation? - definition from Techopedia. Techopedia.com. (n.d.). Retrieved January 31, 2023, from https://www.techopedia.com/definition/27162/reintermediation

Wood, D. F. (2002). International Logistics: Vol. 2nd ed. AMACOM.