Supply Chain Management and Mobile-Commerce Integration

[1]Sudhir Kumar Verma & [2]Dr. Sudhanshu Pandiya

[1]Assistant Professor, Institute of Business Management, C.S.J.M.U., Kanpur, Uttar Pradesh, India

[2]Associate Professor, Institute of Business Management, C.S.J.M.U., Kanpur, Uttar Pradesh, India

ABSTRACT: As wireless technologies evolve, the coming mobile revolution will bring dramatic and fundamental changes to supply chain management. When complete, the revolution will impact numerous facets of organizational life. It will provide important data in real time to assist decision makers, exert great influence on the ways businesses communicate and develop relationships with consumers and suppliers, and ultimately transform the way we manage the supply chain. This paper examines issues in integrating mobile commerce and supply chain management. Mcommerce, which stands for mobile commerce, is the ecommerce branch that uses mobile devices — e.g., smartphones and tablets — for the purchase and sale of products and/or services. These transactions can be carried out via a specific app or from the browser of the device itself.The popularity of smartphones and omnichannel have put mobile devices front and center when it comes to online shopping. Smartphones are ubiquitous, and nowadays, we use them to carry out all kinds of transactions. As a result, having an online store is no longer enough. Businesses that want to remain competitive must offer an optimal purchasing experience designed for smartphones, and logistics needs to be up to the task. Mcommerce can be defined as any commercial activity — purchase or sale — made from a mobile device. In other words, mobile commerce concerns online activities and transactions carried out by means of mobile devices and wireless networks. Mcommerce can take place between businesses (B2B mcommerce), businesses and end customers (B2C mcommerce), or between end consumers (C2C mcommerce).

KEYWORDS: mobile, commerce, supply chain management, integration, smartphones, transactions, online

I. INTRODUCTION

The main mcommerce sales channels are: websites with a mobile-optimized design (and that can work on platforms such as PrestaShop, Shopify, etc.), marketplaces and third-party websites that are already seamlessly integrated in the mobile ecosystem (eBay, Amazon, etc.), and stores' own mobile web applications. Mcommerce marketing campaigns, for their part, are aimed at users who shop on their mobile devices and are launched through these channels. An example of this would be text messages or segmented advertising that the user sees only when they connect from a mobile device.[1]The ubiquity of smartphones in all segments of the population and the consolidation of 5G open the door to a greater share of mcommerce among ecommerce sales. A study by Insider Intelligence finds that by future, two out of three US mobile owners will use a mobile device to make online purchases.[2] Mobile devices also enable more direct communication actions with end customers, such as push notifications in the form of alerts or product recommendations based on each customer's search history. Mcommerce has led to another market trend: nowadays, customers demand an omnichannel experience that allows them to purchase products from a smartphone and pick them up at a brick-and-mortar store. These new business standards complicate logistics operations because there are now many more shipping destinations (last mile delivery to end customers and middle mile delivery to micro-fulfillment centers and dark stores).[3]Employing smartphones and tablets as purchasing devices opens up opportunities — and creates complexities — for logistics management. The logistics challenges of mobile commerce are closely related to those linked to the rise of ecommerce:

- Optimize delivery times.

- Organize the dispatch process efficiently.

- Minimize order picking errors.

- Integrate online points of sale (POS) with in-store stock. [4]

Managing goods manually will no longer cut it when it comes to performing the logistics operations of companies with mcommerce transactions. Among many other functionalities, implementing software that automates stock control and organizes the operation of one or more of the company's warehouses — multi-location inventory management — becomes a necessity. A warehouse management system (WMS) such as Easy WMS has a specific module for responding to mcommerce challenges: Marketplaces & Ecommerce Platforms Integration. This program syncs the digital catalog for the various online POS — apps, ecommerce platforms, and/or marketplaces — with the physical stock in the warehouse(s).[5] This advanced feature prevents users from placing orders for items currently out of stock. Ecommerce retailer Global Freaks enjoys this advantage: the module automatically updates the stock on its webpage via the PrestaShop platform, as well as on eBay and Amazon, taking into account the actual stock in the warehouse. The Mecalux Group has outfitted multiple facilities for companies with mcommerce strategies. One example of this is the comprehensive solution implemented in the new warehouse of fashion retailer Espace des Marques in La Boissière-des-Landes, France.[6] This logistics facility combines shelving with raised walkways and conveyors for boxes with the Easy WMS warehouse management system from the Mecalux Group and its Multi Carrier Shipping Software module: "Since opening these two new warehouses, we've doubled our online business," says Development Manager Vincent Beaufreton. Another success story is the design and implementation by the Mecalux Group of multiple facilities for leading sporting goods retailer Decathlon. The company opened three logistics centers in the Italian towns of Brandizzo, Basiano, and Castel San Pietro Terme, respectively, which ensure efficient logistics service in an mcommerce sales context. [7]

In addition to these new facilities, the Mecalux Group has set up warehouses for Decathlon in the US, the UK, France, Germany, Poland, and Brazil. Particularly, the new distribution center (DC) in Barueri (São Paulo, Brazil) is facilitating Decathlon's expansion both in physical sales throughout the country and in ecommerce: "The new DC in Barueri has consolidated Decathlon's expansion in Brazil; we've opened more points of sale all around the country, and our online orders have increased.[8] With the storage solutions from the Mecalux Group, we've raised productivity by reducing the number of movements operators make in the warehouse," says Thiago do Nascimento, Logistics Manager at Decathlon Brazil. Mcommerce represents one step further in the revolution brought about by the consolidation of ecommerce in traditional warehouses. Nowadays, to be competitive, it's no longer enough to just have a website. Businesses need to ensure that the mobile shopping experience is optimal and that its subsequent logistics management is satisfactory.Customers [9]demand short delivery windows to multiple destinations and the ability to track their packages. To deal with these complexities, it's necessary to digitize the organization of your facility with a logistics program, i.e., a warehouse management system. At Interlake Mecalux, we've optimized processes in over 1,000 centers in 36 countries with our Easy WMS warehouse management software. If you're interested in minimizing errors in your logistics operations, don't hesitate to contact us. One of our expert consultants will advise you on the best solution for your company.[10]

The progression of wireless technologies will dramatically and fundamentally transform the supply chain management, through the imminent mobile revolution. Many aspects of organizational life will be impacted by the revolution. Firstly, the crucial data will be presented in real time to help the decision makers while the ways businesses communicate, and the relationships with consumers and suppliers will dramatically change, all of which, will transform how the supply chain is managed. Issues related to the integration of Mobile Commerce (M–

Commerce) and Supply Chain Management (SCM) including the death of killer applications, mobile device limits. Mobile commerce is expected to become a $250-billion market by latest with an increasing number of sales being done via smartphone apps.According to the 2017 UPS Pulse of the Online Shopper, shoppers make 25 percent of online purchases with apps, a number expected to spike quickly in coming years.[11]

II. DISCUSSION

Apps are considered superior to websites because of speed, user experience, and accessibility. It's insightful that four-in-five smartphone users have accessed a retailer using a smartphone app instead of a web browser.However, it's the one-in-three smartphone users who often/always use these apps that should pique the attention of retailers who may be on the fence about the role apps can play in bolstering business.What's more, this isn't a millennial-only trend: While 92 percent of millennials shop using retailer apps, so do 82 percent of Generation X, 66 percent of Baby Boomers, and 47 percent of seniors, representing a large swath of diverse demographics.[12]

When retailers think about what to include, survey respondents listed the top requested features as: high-quality product images; mobile coupons; product reviews; product search providing relevant results, and access to loyalty points/status.Retailers should also note that smartphone app users value saving money and gravitate to apps offering rewards such as free shipping and product discounts, the survey found.Almost half of smartphone users who do not use retailer apps say they simply prefer using websites, [13]and 37 percent cite security concerns, an increase of six points from the previous year. As a result, savvy retailers should emphasize that apps are safe and secure. Meanwhile, 17 percent of survey responders reported that they don't want to download separate apps for multiple retailers, showing there's potential for companies with more than one brand to combine apps.[14] E-commerce is not a new business strategy, but it is one of the top sales catalysts in today's distribution operations.Your customers want to buy through multiple distribution channels. This is why it's imperative for distributors to integrate their e-commerce system with the rest of their software into a single database. E-commerce is the most popular distribution channel because it's easy for customers to use, and it reduces distributors' costs for getting information to the customer and securing orders from them.The influx of e-commerce and even mobile commerce has "revolutionized" distribution, according to Supply Chain Brain. [14]A Jones Lang LaSalle report found that today 92 percent of retailers sell online, 68 percent maintain brick-and-mortar stores and 64 percent use catalogs."Smart retailers are tapping multiple channels to sell their merchandise — from traditional stores, by catalog, through the Internet and increasingly via smart phones and tablets," the article continues. "Technological advancement means that the store is now everywhere, in consumers' pockets, at their homes and at the mall."[15]

Distributors Make the Most of E-Commerce Strategies

1. Increase Worker Productivity

Being more productive boils down to keeping labor costs under control. You want to try to conduct business with the same amount or even fewer people. Depending on the type of business, 60 to 65 percent of gross profit dollars can get eaten up in labor compensation. Your employees shouldn't waste time manually re-entering data or suffer with inefficient processes. Most businesses that operate only with e-commerce as their distribution channel do so with a relatively low employee headcount.[16]

2. Integrate Seamlessly

The last thing a distributor needs is to get bogged down with too many databases. Eliminating multiple databases should be high priority to distributors. Maintaining multiple databases is an expensive, error-prone, time-wasting headache. It's cost-prohibitive and difficult. Distributors need to integrate their back office system with their e-

commerce system so they're not maintaining a customer database and a product database on their e-commerce system in addition to a customer database and a product database in their back office system.[17]

3. Provide Simple Access to Customer Data

Key business and customer information needs to be accessible. Your customer business data needs to be shared throughout the company with the people who need that data. Customer relationship management (CRM) software is the ideal portal for capturing, analyzing and viewing customer data. It provides real-time, visible and accurate customer data.[18]

4. Be Flexible

Multi-channel marketing gives your customers options for how they want to place an order. Maybe last week it was easiest for them to visit your website and place an order digitally. But tomorrow they might be on the road and realize they need to order more products, so they call your phone center. It's very important that distributors stay flexible so customers have options.[19]

5. Pay Attention to Your Cost-to-Serve Reports

Distributors must avoid the pitfall of losing money in the logistics costs of e-commerce. They could be losing money trying to compete by offering free or discounted shipping, for example. Those selling costs may be the biggest cost for some distributors doing business.Distributors need to control the cost to serve their customers. You have to map out the cost to serve each customer, highlighting the services they're willing to pay for. The challenge is to match up the cost to serve with customers' needs and what they're willing to pay. It makes no sense continue providing services the customer ultimately doesn't really want or need. Sometimes this means rethinking a pricing program or, in an e-commerce distribution channel, altering shipping and handling costs.[20]

6. Use Third-Party or Fourth-Party Logistic Providers

3PLs or 4PLs are a big factor in e-commerce, and you should be considering them for e-commerce fulfillment. These public warehouses make shipments for you, but they do it in your name. To the customer, it appears that the product came from the distributor, but it was actually fulfilled and shipped by a 3PL or 4PL. While the 3PL or 4PL may handle all the parts, the distributor still handles the back-office details.In nearly all situations, there's an obvious advantage to minimizing distributors' fixed costs through a 3PL or 4PL. Your needs aren't really predictable, and rather than committing to long-term capacity, through a 3PL or 4PL a distributor can adjust its capacity based on the needs of the customer.The bottom line? Distributors that aren't embracing e-commerce as an effective, low-cost tool are missing out. Integrating your e-commerce system with the rest of your databases will make your business thrive.[21]

Apply E-Commerce to Distribution Sales Management

E-commerce is a key part of distribution sales management, but it's important to remember that it's a transactional tool and not a strategy. Industrial Supply lists some of the transactional benefits of e-commerce, including the separation of purchasing and selling, customer convenience and thorough product information.What e-commerce does so well is separate the purchasing activity from the selling activity. The purchaser can make the decision to buy the product 24 hours a day, seven days a week from wherever they are. They can buy anytime they want to, and the technology of e-commerce enables the distributor to provide all the important information — the price, whether it's in stock and the technical specifications — very efficiently.Although e-commerce itself isn't a strategy, it does make some new strategies possible. We've seen it with AmazonSupply.com, Grainger and MSC Industrial Direct. Those

ISSN: 2395-7639

companies developed a distribution sales management strategy based on not using salespeople to find new customers or not using salespeople to handle large customers. That's the strategic application of e-commerce — finding ways to do business with customers without using salespeople.Meanwhile, technologies like handheld devices are really driving the e-commerce trend. These devices help the customers locate the products they're looking for without having to drive around to find it.So, will e-commerce create some strategic opportunities for distributors? Yes, for sure. It already has, and it will create more.However, as the article explains, the concept of e-commerce still isn't catching on with some distributors who could benefit from changes to their sales management: "Far too many distributors dismiss the technology and stick with the tried-and-true model of belly-to-belly seller to account model replete with local branches."But it's a fact that distributors will need to embrace more efficient uses of technology to survive in today's business environment.Integrating e-commerce into your supply chain management strategy can be beneficial, but it's unwise for most distributors to rely too heavily on it.[15]

E-commerce is a useful tool, as it allows consumers to make purchases anytime, anyplace, among other advantages. An article on the Industrial Supply magazine website reports that e-commerce first arrived on the distribution scene in the late 1990s, yet only 25 to 35 percent of distributors have an e-commerce capability today.Wholesale distributors have some choices if they want to use e-commerce as part of their supply chain management strategy, one of which is to just make it a service for their existing customers. That way, customers can order 24 hours a day, seven days a week through the website. That can be done very crisply with the right distribution software. ERP software is well-suited to seamless e-commerce and can be purchased by the distributor.The idea that they're going to use e-commerce as a way of attracting new customers who they've never met before — through search engine optimization or trolling for small orders from faraway customers — is something that wholesale distributors really don't entertain. They're mostly looking for an excellent way for their existing customers to do business with them on a 24/7 basis using e-commerce.The best strategy for distributors is to buy, rent or lease the best available interface that they can afford. Ideally, it would be one that works seamlessly with their distribution software.To put it simply, distributors should not attempt to reinvent the wheel themselves. Trying to compete with a company like Amazon is not just a mistake—it's a dangerous supply chain management plan. But as the Industrial Supply magazine article explains, it's also not smart to ignore the technology and run away from e-commerce entirely.[17]

III. RESULTS

The Internet revolutionized how people form and foster relationships. For years, companies have sought to translate this unprecedented customer connectivity into business success. Today, online and mobile commerce gives consumers the satisfaction of a quick and effortless shopping experience. In turn, this has transformed how companies manage their supply chains, since inventory availability and shipping times severely influence customer purchase decisions. To remain relevant, companies must understand these trends and how they are impacting traditional supply chain solutions. E-commerce, the process of buying or selling goods over the Internet, has altered how consumers shop . Instead of traveling to stores, they are comfortable buying and receiving products in the comfort of their homes, despite additional shipping expenses. In 1991, the National Science Foundation allowed commercial businesses to operate over the Internet for the first time . Companies immediately incorporated the Internet into their business models and the e-commerce revolution began. After the turn of the century, the trend briefly plateaued as ill-conceived supply chain models landed some companies in bankruptcy. As a result, manufacturers and retailers took a step back to address logistics, privacy protection and accessibility problems. Today, e-commerce has grown into a giant income stream that is expected to generate more than $370 billion U.S. sales by 2017 . U.S. consumers aren't alone in embracing the ease and accessibility of e-commerce; China's online retail market is expanding quickly due to more than 78 percent annual growth . While commerce conducted through desktop computers remains the preeminent choice for online shopping, the use of mobile devices is the new frontier.[19]

The e-commerce boom started with the new millennium, but the use of mobile devices for online shopping, known as m-commerce, is still an emerging trend. As technology evolved to offer Internet connectivity on cellular devices and smart phones made the Web more accessible, users began to shop beyond the confines of their computer screens. The introduction of tablets and other midsize mobile devices furthered the trend by accommodating users uncomfortable with small cellular screens. The ease of accessibility and user-friendly interfaces made 2013 a year of strong growth for m-commerce. In 2013, Black Friday weekend mobile shopping more than doubled from the previous year . While it's a growing trend, m-commerce is still in its infancy. A survey conducted by Statista found that only 10 percent of U.S. consumers make purchases from their mobile devices . This statistic is expected to change in coming years, as businesses develop mobile-friendly websites and consumer confidence in mobile purchasing rises.

E-commerce and m-commerce have forced companies to alter their business models to offer less traditional shopping options, such as online ordering from the store and site-to-store shipping. These options blur the lines between mobile, instore and at-home shopping, forcing companies to move away from the traditional B2B and B2C mindset and develop supply chains solutions for a variety of fulfillment paths.[20]

In addition to changing the consumer shopping experience, omni-channel commerce also impacts the supply chains that service them. Omni-channel commerce has resulted in several substantial changes for companies and their supply chains, including: Increase in direct-to-consumer shipping The traditional supply chain model revolved around transporting bulk product to brick-and-mortar retail stores or distribution centers that would handle small volumes of direct-to-consumer catalog orders. The ease and convenience of online shopping altered this model by significantly increasing the amount of direct-to-consumer orders. As a result, retailers are mitigating the high carrying and employment costs associated with brick-and-mortar retail stores by emphasizing online, direct-toconsumer shopping. High consumer expectations Shipping time is a decisive factor for buyers making an online purchase. Buyers are not content to wait for inventory to arrive in a store. Instead, they will search the Internet and find a competitor offering quick delivery. This means a proactive and responsive supply chain is the key to maintaining market relevancy.[11]

IV. CONCLUSIONS

Today, companies face the task of fostering loyalty among customers who have never stepped into a store. To counteract the impersonal online shopping experience, companies must now reflect their brand identity in every part of order fulfillment. From customized packing slips to gift-wrapping, the most effective supply chains accommodate branding requirements. The three trends listed above are impacting supply chains overall. As a thirdparty logistics provider, MD Logistics helps its customers adjust to small but impactful changes in the traditional work and labor models, such as: Workflow changes Online orders have been shown to spike at the beginning of the week, reaching a peak on Mondays and slowly declining through the middle of the week . Small pick-and-pack orders Before online shopping boosted direct-to-consumer shipping, manufacturers mostly shipped bulk orders to warehouses or retail distribution centers. Today, efulfillment solutions focus on effectively moving small pick-and-pack orders of one or two items. Freight evolution. [18]The traditional supply chain model was built upon moving large shipments exceeding 30 lbs. Today, companies are tasked with fulfilling pick-and-pack orders that average one pound. This means that postal services, and not traditional freight carriers, may offer the most economical transportation rate. In response, traditional parcel providers such as UPS and FedEx are developing postal solutions that accommodate lighter parcels with quick shipping options. E-commerce orders come in quickly and can rapidly overbear an inefficient process. In today's fast-paced online shopping environment, being stagnant and unprepared will cause consumers to effortlessly take their business elsewhere. The secret to mastering omni-channel logistics in the mobile world is a lean supply chain infrastructure that mitigates carrying costs and remains supple to logistics needs. MD Logistics specializes in

helping customers develop customized fulfillment solutions. From special packaging needs to direct-to- consumer orders, MD Logistics offers seamless solutions that can help companies embrace the fluctuating industry.[21]

REFERENCES

[1] Benbasat, I., Goldstein, D. K., & Mead, M, 1987. The case research strategy in studies of information systems. MIS Quarterly, 11(3), 369- 386.

[2] Chau, P. Y. K., & Tam, K. Y, 1997. Factors affecting the adoption of open systems: An exploratory study. MIS Quarterly, 21(1), 1-24.

[3] DePietro, R., Wiarda, E., & Fleischer, M, 1990. The context for change: Organization, technology, and environment. In L. G. Tornatzky & M. Fleischer (Eds.), The processes of technological innovation (pp. 151-175). Lexington MA: Lexington Books.

[4] Fichman, R. G, 2004. Going beyond the dominant paradigm for information technology innovation research: Emerging concepts and methods. Journal of the Association for Information Systems, 5(8), 314-355.

[5] Frambach, R. T., & Schillewaert, N, 2002. Organizational innovation adoption: A multi-level framework of determinants and opportunities for future research. Journal of Business Research, 55(2), 163-176.

[6] Jeyaraj, A., Rottman, J. W., & Lacity, M. C, 2006. A review of the predictors, linkages, and biases in IT innovation adoption research. Journal of Information Technology, 21(1), 1-23.

[7] Kalakota, R., Robinson, M., & Gundepudi, P, 2003. Mobile applications for adaptive supply chains: A landscape analysis. In E.-P. Lim & K. Siau (Eds.), Advances in mobile commerce technologies (pp. 298-311. Hershey, PA: Idea Group.

[8] Lau, H. C. W., Lee, C. K. M., Ho, G. T. S., Ip, W. H., Chan, F. T. S., & Ip, R. W. L, 2006. M-commerce to support the implementation of a responsive supply chain network. Supply Chain Management, 11(2), 169-178.

[9] Rangone, A., & Renga, F. M, 2006. B2e mobile Internet: An exploratory study of Italian applications. Business Process Management Journal, 12(3), 330-343.

[10] Russell, D. M., & Hoag, A. M, 2004. People and information technology in the supply chain: Social and organizational influences on adoption. International Journal of Physical Distribution & Logistics Management, 34(2), 102-122.

[11] Shankar, V., & O'Driscoll, T, 2002. How wireless networks are reshaping the supply chain. Supply Chain Management Review, 6(4), 44-51.

[12] Thong, J. Y. L, 1999. An integrated model of information systems adoption in small businesses. Journal of Management Information Systems, 15(4), 187-214.

[13] Yin, R. K, 2003. Case study research: Design and methods (3rd ed.). Thousand Oaks, CA: Sage

[14] Merriam-Webster Dictionary http://www.merriam-webster.com/dictionary/e-commerce

[15] "The History of E-commerce" from How Stuff Works http://money.howstuffworks.com/history-e-commerce1.htm

[16] "US Online Retail Sales to Reach $370 Billion by 2017" from Forrester Research http://www.forrester.com/US+Online+Retail+Sales+To+Reach+370+Billion+By+2 017/-/E-PRE4764

[17] "E-Commerce is the Next Frontier in Global Expansion" from ATKearney http://www.atkearney.com/paper/-/asset_publisher/dVxv4Hz2h8bS/content/ecommerce-is-the-next-frontier-in-global-expansion/10192

[18] "US Mobile Shopping Offsets Drop in Last-Minute Mall Traffic" from Mashable http://mashable.com/2013/12/24/paypal-holiday-shopping/

[19] "Less than 10% of US Internet Users are Mobile Shoppers" from Statista http://www.statista.com/topics/1185/mobile-commerce/chart/1457/1-in-10-usinternet-users-shops-online/

[20] "Amazon vs. Walmart: E-Commerce vs. Omni-Channel Logistics" from Forbes http://www.forbes.com/sites/stevebanker/2013/10/04/amazon-vs-walmart-ecommerce-vs-omni-channel-logistics/

[21] "Why Monday is E-retailers' Favorite Day of the Week" from TIME http://business.time.com/2012/01/09/why-monday-is-e-retailers-favorite-day-ofthe-week/