

Over Tipping Point for Digital Disruption: E-Commerce & Omni Channel Working Together Within the Acceleration of the Digitization of Customer and Supply Chain Interactions



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Abstract

There is no doubt that retailers are embracing Omni channel within the sizeable shift to e-commerce and digitalization as a key driver of the Supply Chain Resilience. They are struggling to find the right answer to the new requirements of the Supply Chain 4.0 (applying Industry 4.0 innovations) & Value Chain 4.0 (generating and capturing value in the whole chain using technology usually associated with Industry 4.0 everywhere), while implementing the ECR philosophy in order to obtain a rigorous answer to what kind of problems are consumers facing with the second wave of COVID-19. We are witnessing both a strong focus on e-commerce and m-commerce in today's digital-native climate, and an increasing interest in responsible investing in Customer Data Platforms, AI, ML, and Deep learning. And as people and data are at the heart of the digital transformation which needs to be holistic, enterprises need to struggle to ensure a seamless, streamlined user experience by a better working together of digital commerce and digital workforce based on holistic, harmonized and integrated information.

Keywords: E-Commerce & Omni channel; SCM & ECR; Digitalization & Supply Chain Resilience; CDP, AI, ML, and Deep Learning

JEL Classification: D83; L81; L86; M15; M31; M7; O32; O33

Retailers are embracing Omni channel within the sizeable shift to ecommerce and digitalization as a key driver of the supply chain resilience

In our last HMM issue (July 2020) we pledged for a better understanding that digital transformation is essential for a resilient organization within the current full digital acceleration of the business world caused by the new coronavirus crisis (Negricea & Purcarea). In October this year, on the occasion of the traditional Academic & Business Partnership 2020 SCM for ECR Conference – with the theme “The Management of

Digitization in Supply Chain with Shoppers and Users” – we started in our presentation (see the figures below) from how does the digitization and the 2020 pandemic impact the supply chain (Purcarea, 2020).



Figure no. 1: The Management of Digitization in Supply Chain with Shoppers and Users

Source: Purcarea, 2020. The Academic & Business Partnership 2020 SCM for ECR Conference, HMM, October

AGENDA

1. How does the digitization and the 2020 pandemic impact the supply chain?
2. Understanding why micro-segmentation and customization are important in supply chains
3. AI and how it helps in increasing sustainability in the supply chain digitization in the context of a pandemic
4. Strengthening the global supply chain network by building smarter supply chains with blockchain

Conclusions

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Conclusions

- Resilient supply chains focused to circular business models (producing net zero waste for instance), even though all companies were affected by the unexpected results of the pandemic, resilient supply chains were not that much affected and managed to return to the baseline production faster
- All industries face a constant state of instability, and there is no other choice but to keep redesigning strategies and adapt to the changing behaviour of the consumers
- COVID-19 highlighted the market unpredictability and the limitation of the human workforce, accelerating the rise of digitalization in Supply Chain, so companies have to adapt now in order to navigate disruption.
- The world has changed, on the digital roadmap, people discover now more productive methods to perform same tasks and companies shift from traditional conferences and meetings to virtual live streaming
- When operating in a global pandemic, actions like negotiating with suppliers due to the higher demand are not effective enough to safeguard the supply chain, companies have to order with a certain level of elasticity
- As shown by McKinsey's analysis: blockchain has strategic value for companies by enabling both cost reduction without disintermediation as well as, in the longer term, the creation of new business models, existing digital infrastructure and the growth of blockchain as a service (BaaS) offerings have lowered the costs of experimentation, and many companies are testing the waters

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Figure no. 2: How does the digitization and the 2020 pandemic impact the supply chain?

Source: Purcarea, 2020. Increased Sustainability through Artificial Intelligence and Blockchain in Supply Chain Digitization, The Academic & Business Partnership 2020 SCM for ECR Conference, October (work cited)

In November 2020, on the occasion of the prestigious 7th International Conference - ESPERA 2020 “30 Years of Inspiring Academic Economic Research – From the Transition to Market Economy to the Interlinked Crises of 21st Century”, organized by the Romanian

Academy, the “Costin C. Kiritescu” National Institute of Economic Research (INCE), the National Bank of Romania, and the Centre for Economic Information and Documentation (CIDE), we presented a Conference paper (see the figure below) in which we focused on Innovation in Distribution by approaching E-Commerce (a Disruptive Innovation & Technology) & Omni channel, taking into account retailers’ imperative to better answer to the new requirements of the Supply Chain 4.0 (applying Industry 4.0 innovations) & Value Chain 4.0 (generating and capturing value in the whole chain using technology usually associated with Industry 4.0 everywhere), while implementing the philosophy of the ECR concept (Efficient Consumer Response, as a strategic partnership between Producer, Distributor and Consumer) in order to obtain a rigorous answer to what kind of problems are consumers facing with the second wave of COVID-19 (Ioan-Franc & Purcarea). The above mentioned Conference paper has opened Session 3: Knowledge, Innovation, Smart Development and Human Capital, which was moderated by Valeriu IOAN-FRANC and Luminița CHIVU, “Costin C. Kiriteșcu” National Institute for Economic Research, Romanian Academy (INCE), who kept the listeners engaged, clearly summarizing the key findings, and opening the video debate, allowing the clarification of questions and concerns within the framework of the traditional lively discussions.

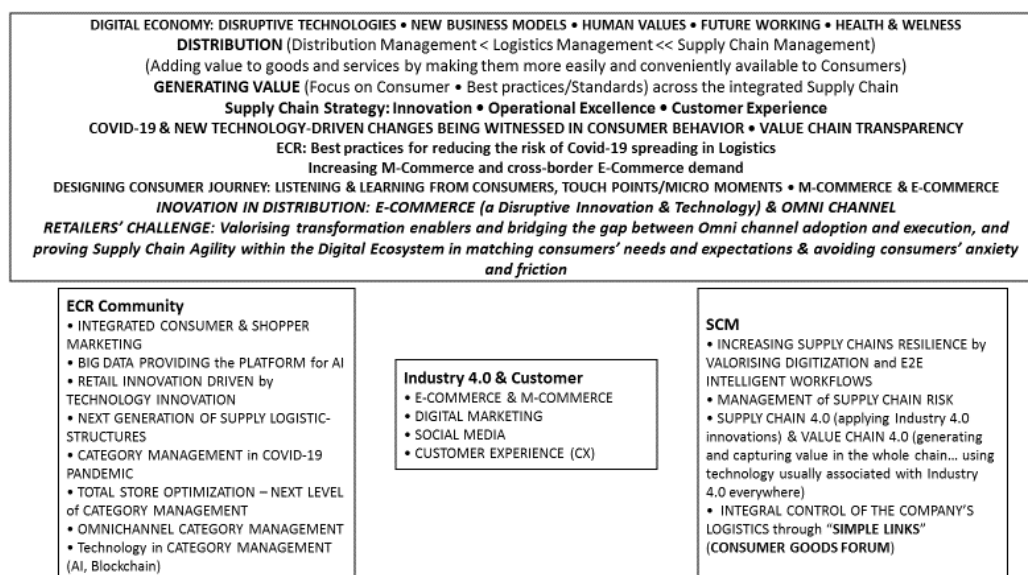


Figure no. 3: Innovation in Distribution: E-Commerce (a Disruptive Innovation & Technology) & Omni channel. Matching consumers’ needs and expectations & avoiding consumers’ anxiety and friction

Source: Ioan-Franc & Purcarea, 2020. The gait of ideas and of economic reflections on the path to the next normal and the touchpoint between citizens and their local community represented by a retail progressively adapting to the technology trends, Conference paper presented on November 27, at the 7th International Conference - ESPERA 2020 “30 Years of Inspiring Academic Economic Research – From the Transition to Market Economy to the Interlinked Crises of 21st Century”, Romanian Academy, INCE, National Bank of Romania, CIDE, Session 3: Knowledge, Innovation, Smart Development and Human Capital (work cited)

On November 24, 2020 the MIT Technology Review Insights (the well-known custom content arm of MIT Technology Review) attracted the attention on the importance of a better understanding of the necessary digital infrastructure in approaching both the potential supply chain breakpoints, and the agility to navigate them effectively. It was underlined within the current general context: the real need to both anticipate and prevent supply

disruptions by developing data capabilities and analysis tools ensuring an E2E Value Chain increased visibility, and rapidly mobilize an effective response to the Supply Chain disruptions adequately managing the whole ecosystem of suppliers; the significant role of the so-called Kearney's Resilience Stress Test which allows a comprehensive assessment of the supply chain resilience by measuring the degree of critical digitalization in each of the eight dimensions which can be seen in the figure below (MIT Technology Review Insights a, 2020).

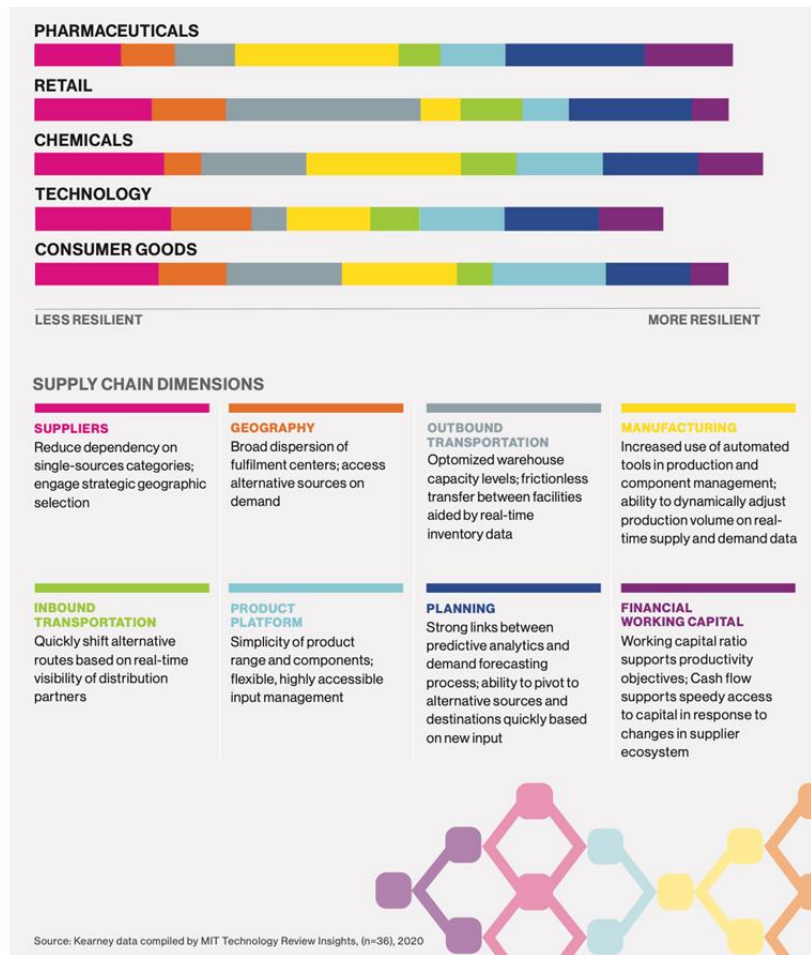


Figure no. 4: Kearney's Supply Chain Resilience Stress Test score by industry (a higher score in each category correlates to greater supply chain resilience)

Source: MIT Technology Review Insights, 2020. Building resilient supply chains, MIT Technology Review Insights in association with Kearney, November 24 (work cited)

In a Foreword to the MIT Technology Review Insights Report produced in association with Kearney, Suketu Gandhi and Steve Mehlretter, Partners at Kearney, showed that: *“With the large quantities of data it gathers, digitalization allows for more accurate predictions of potential crises and greater agility in responding to disruptions that could occur anywhere. Understanding the growing need for digitalization, companies are making the challenging shift to Industry 4.0 tools (including automation, IoT networks, AI, and robots) and smart manufacturing solutions”* (MIT Technology Review Insights b, 2020).

E-commerce and m-commerce in today's digital-native climate. Customer Data Platforms, AI, ML, and Deep Learning

E-commerce and the online marketplace are already confirming the working together in building tomorrow's ecommerce marketplace. In the same time the mobile wallet (payment card information stored on mobile devices; it allows in-store payments etc.) industry is witnessing the determined efforts made by the market-leading wallets' providers (Apple Pay; Google Pay; Samsung pay; Starbucks; Venmo; Zelle; Square Cash; Amazon pay) to deal with the mobile payment convergence, while facing the increasing competitive pressure within the evolution of m-commerce, mobile proximity payments, and mobile peer-to-peer (P2P) payments, taking into account the trending access of services remotely via mobile phone, confirmed recently by the payment offerings from US Top mobile wallets shown in the figure below (Business Insider a, 2020). And this within the context in which last year, in August 2019, CNBC attracted the attention that the adoption of mobile payments in US was way behind compared with other parts of the world, such as China and India (Rooney, 2019).

PAYMENT OFFERINGS FROM TOP MOBILE WALLETS								
	Apple Pay	Google Pay	Samsung pay	Starbucks	venmo	zelle	Cash App	amazon
Proximity	✓	✓	✓	✓				✓
M-commerce	✓	✓	✓		✓			✓
P2P	✓	✓	✓		✓	✓	✓	
Other	✓		✓	✓	✓		✓	
BUSINESS INSIDER INTELLIGENCE								

Figure no. 4: US payment offerings from Top mobile wallets

Source: Business Insider, 2020). To capitalise on rising mobile wallet usage, players across the industry need to prepare for shifts in how..., Newsletter, November (work cited)

Another November's newsletter from Business Insider informed us how by using new technologies (such as AI and its subset ML, customer engagement being delivered this way with chatbots and virtual assistants) the conventional processes of the insurance value chain are examined thoroughly and improved accordingly so as to both increase efficiency and enhance CX. Within this framework there were underlined the growth opportunities within Usage-Based Auto Insurance (UBI), a business model going beyond the use of demographic information and enabling insurers to charge customers both per mile they're driving, and based on customers' driving behaviour. In other words, this type of (pay-per-mile, pay-as-you-drive, or pay-as-you-go) policies have allowed the personalization of the formerly impersonal business of auto insurance (Business Insider b, 2020).

As argued recently by Tealium, the driving force behind any digital transformation strategy is to adequately manage and utilise data (whose cleanliness is impacting company's success with AI and ML), connecting them in real time, and customer data across an organisation can be orchestrated by Customer Data Platforms (CDPs, defined by Gartner as “a marketing system that unifies a company's customer data from marketing and other channels to enable customer modelling and optimise the timing and targeting of messages and offers”) technology, making distinction between data-first CDPs and specialised CDPs (the two major types of CDPs, see the table below). The dynamic of customer interaction, understanding, and relationship will be changed fundamentally by the ML-driven insights (Tealium, 2020).

Table no. 1: Characteristics of data-first CDPs vs. specialised CDPs

	Data-first CDPs	Specialised CDPs
Priority/ focus	Data quality first to support optimised execution	Execution-led
Silos	Builds an independent data layer that provides a single source of truth for data-driven-processes across the enterprise; breaks down silos, resulting in complete data picture	Specialised to execute functions associated with specific departments and use cases; slightly expands silos
Departments using	Connects all departments deploying CDP data	Primarily used by a single department
Solutions ecosystem	Vendor-agnostic, works with a wide range of solutions, fits with existing tech stack	Limited third-party integrations, may only support limited vendors
Future	Scalable enough to serve use cases that haven't been thought of yet	Too specialised to adapt to many future use cases
Governance	Enables strong governance of data collection and management processes across the organisation	Enables limited data governance for specific use cases it handles, little flexibility to address future regulations

Source: Tealium, 2020. *State of the CDP. How Organisations Buy, Implement and Use Customer Data Platforms, Europe*, p. 10, November (work cited)

But speaking about AI and ML, let's not forget Deep Learning as a subset of ML, as a ML technique which instructs computers (enabling them to solve more complex problems) to do what comes naturally to human. The difference between AI, Machine Learning, and Deep Learning has been clearly represented in the picture below by Oracle (Jeffcock, 2018):

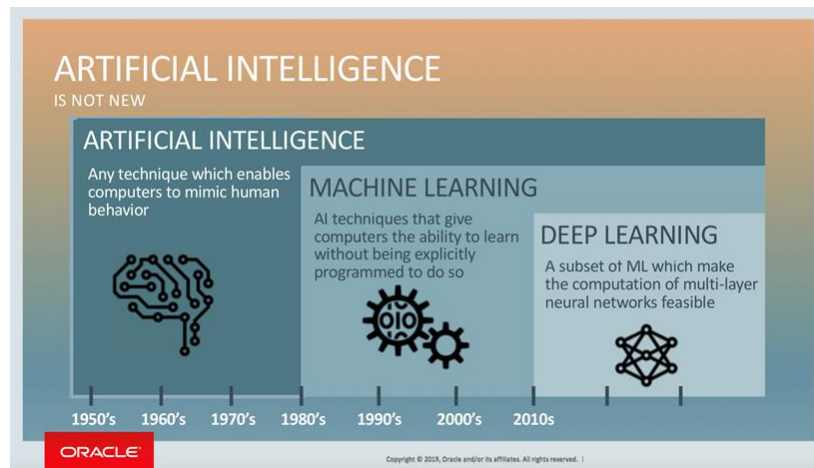


Figure no. 5: The difference between AI, ML, and Deep Learning

Source: Jeffcock, 2018. What's the Difference Between AI, Machine Learning, and Deep Learning? Oracle, July 11 (work cited)

Last year, the reputed professor involved in deep learning since the 1980s, Geoffrey Hinton (an AI pioneer, also known for his pioneering results within the revolutionary annual ImageNet competition starting in 2012), was awarded the Turing Award, annual award given by the prestigious Association for Computing Machinery (alongside other AI pioneers Yann LeCun and Yoshua Bengio). This year, in October, on the occasion of the MIT Technology Review's annual EmTech MIT conference, Hinton stated that *"deep learning is going to be able to do everything, but I do think there's going to have to be quite a few conceptual breakthroughs... Neural nets are surprisingly good at dealing with a rather small amount of data, with a huge numbers of parameters, but people are even better... Most of my contrarian views from the 1980s are now kind of broadly accepted"* (Hao, 2020).

People and data are at the heart of the digital transformation which needs to be holistic. Ensuring a seamless, streamlined user experience by a better working together of digital commerce and digital workforce based on holistic, harmonized and integrated information

In December 2017, we showed both how digital customer experience (DCX) is evolving step by step (digital marketers being aware of the role of CX as the top digital transformation priority), and how consumers' technology adoption (hyperadoption being already a defining characteristic) is powered by emotion (Negricea & Purcarea, 2017). We also made reference to research findings recommending where to focus resources to implement digital transformation, knowing that improving CX (CX and brand working together) is a very important benefit of digital transformation.

This year, on October 22, 2020, the CEO of Earley Information Science, Seth Earley – who is the author of the new book *"The AI-Powered Enterprise: Harness the Power of Ontologies to Make Your Business Smarter, Faster, and More Profitable"* (Earley a, 2020) – pledged for:

- Considering very carefully (without accumulating friction introduced by compromises and adequate rather than perfect results) the works of the digital machinery that drives CX (and without neglecting the internal customer), avoiding to adversely affect the internal efficiencies (the employees, an important customer segment representing the embodiment of the enterprise); as enterprise workforce became remote instantly within the context of the new coronavirus crisis, they need to get the information (managing information for humans being the same thing as managing the information used to train AI-based conversational assistants and cognitive technologies) so as to answer questions or solve problems within a reasonable time frame;
- Encouraging a more holistic view of enterprise information flows, and this by focusing on the ways which upstream and downstream systems manage and organize data; and this is open the way of a better impact on the customer, on the strength of the improved flows between various tools and platforms, by a better working together of digital commerce and digital workforce on this basis, as shown in the figure below (Earley b, 2020).

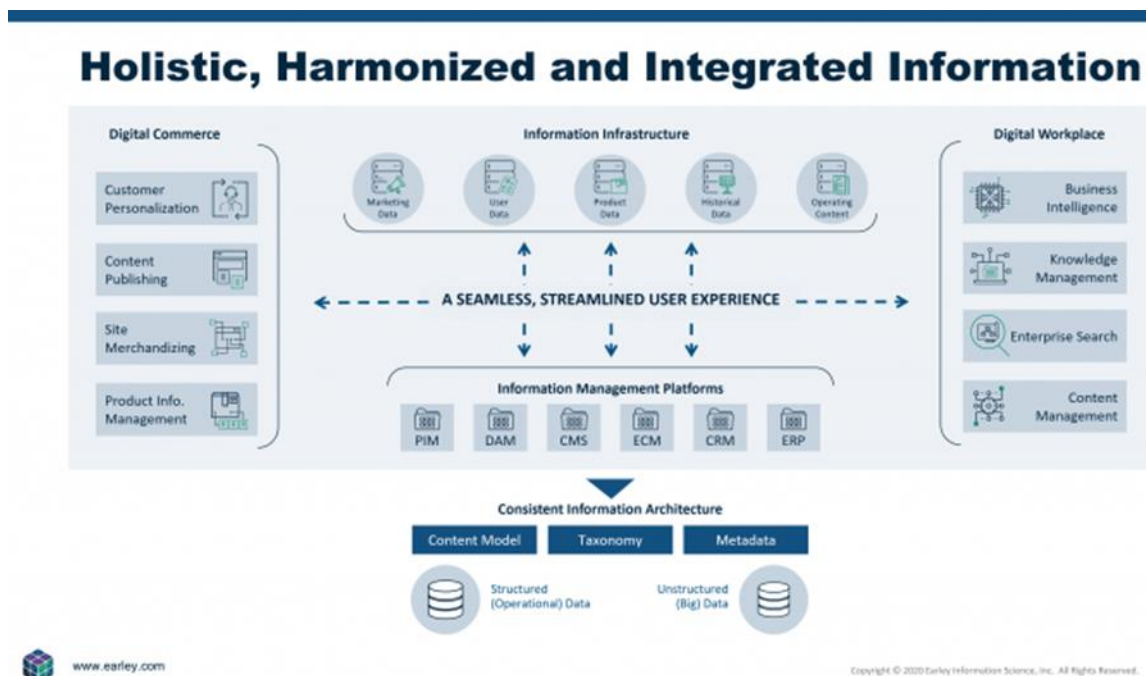


Figure no. 6: Holistic, Harmonized and Integrated information

Source: Earley, 2020. *How to Fix Broken Digital Transformations: "Acts of Heroics" is Not a Viable Customer Experience Strategy*, CustomerThink, October 22 (work cited)

Conclusions

Learning is a must within the context of the uncertainty of the COVID-19 crisis, and there is no doubt about the key factors of success such as the new technology capabilities, the use of disruptive technologies, and the proper culture to quickly implement the technology-driven strategy, as revealed very recently by a new McKinsey Global (online) Survey of C-level executives and senior managers (LaBerge et al., 2020). We are witnessing a transformation of the retail labour model in which customer satisfaction and business success

are driven by analytics and technology, retail being reinvented with state-of-the-art technology on the basis of employing design thinking (Simon, Tufft and Zampella, 2020). Retailers are under pressure of both investing in new digital methods of communication and payments, and prioritizing digital security (KPMG, 2020).

In order to deliver more value to Supply Chain participants and consumers data ecosystems (closed data ecosystems, strategic partnerships, open data ecosystems; they are evolving, more data sets being shared) are a true window of opportunity (Aaser et al., 2020). Forced by the continuing COVID-19 pandemic to succeed in achieving the right balance between safety and sales, retailers must continue to quickly shorten the time to Omni channel completion within their businesses, blending digital and physical, ensuring convenience and a seamless and consistent experience across all channels and devices used within the Omni channel customer journey, anytime and anywhere, accelerating both the prioritization, and implementation of the Omni channel capabilities (BOPIS, BOPAC curbside pickup, BORIS, live web chat, contactless payments, appointment scheduling and remote customer service etc.), engaging customers empathetically (NewStore, 2020). Paying attention to consumers' perceptions (regardless of their location in the customer life cycle or across the customer journey) with regard to their interactions with a company (regardless of its location in supply chain, and without neglecting the internal customer, the employee) is increasing the possibility of both a faster CX improvement, and a better integrated e-commerce with the whole Value Chain so as to match consumers' needs and expectations & avoiding consumers' anxiety and friction.

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