

## 11. Advancing Technologies in Commerce for Sustainable Practices

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**Abstract:**

*This abstract offers a glimpse into the dynamic landscape of commerce, showcasing recent advancements that have propelled the field into new dimensions. The paper explores innovative trends, emerging technologies, and evolving paradigms that shape the contemporary commerce landscape, contributing to its resilience, efficiency, and transformative potential.*

*This study delves into the digitalization of commerce, highlighting the integration of cutting-edge technologies such as blockchain, artificial intelligence, and the Internet of Things. These advancements are examined for their role in enhancing transaction security, optimizing supply chain management, and revolutionizing customer experiences. In the realm of e-commerce, the abstract discusses the impact of augmented reality and virtual reality on consumer engagement, creating immersive and personalized shopping experiences.*

*The advent of mobile commerce and innovative payment systems further accelerates the shift towards seamless and convenient transactions. The paper explores sustainability as a pivotal theme in recent commerce advancements, investigating eco-friendly practices, ethical sourcing, and the integration of circular economy principles into business models. The role of commerce in addressing global challenges such as climate change and social responsibility is a crucial aspect of this exploration. Furthermore, the abstract discusses the evolution of data analytics and its profound influence on commerce strategies.*

*Big data, predictive analytics, and machine learning are examined for their capacity to unlock valuable insights, enhance decision-making processes, and fuel targeted marketing efforts. As commerce continues to evolve in response to technological, societal, and environmental shifts, this paper aims to provide a comprehensive overview of the recent advancements that define its current trajectory. By understanding and embracing these innovations, businesses and professionals in the commerce domain can navigate the complexities of the modern market and harness the full potential of recent advancements for sustainable growth and success.*

**Keywords:**

*Block chain, Fintech, Digital Transformation, E-commerce Trends, Technological Integration, Augmented Reality, Sustainable Commerce, and Data Analytics in Commerce, Big Data Insights, Predictive Analytics, and Supply Chain Optimization*

**11.1 Introduction:**

Commerce, as the heartbeat of economic activity, has undergone a profound metamorphosis in recent times, driven by an array of innovative trends and technological breakthroughs. The traditional notions of buying and selling have been reshaped by the relentless march of digitalization, paving the way for a dynamic and interconnected global marketplace. This introduction provides a gateway into the exploration of the recent advancements in commerce, offering a panoramic view of the transformative forces shaping the contemporary business landscape. In the wake of rapid technological evolution, commerce has transcended its conventional boundaries, embracing a digital renaissance that permeates every facet of trade and transactions. From the adoption of cutting-edge technologies like blockchain, artificial intelligence, and the Internet of Things, to the immersive experiences facilitated by augmented and virtual reality, the commerce landscape has become a crucible of innovation and disruption. The burgeoning realm of e-commerce stands as a testament to this digital revolution, where consumer experiences are not just transactions but personalized journeys. Augmented reality has brought products to life, allowing consumers to envisage them in their daily lives, while virtual reality has ushered in a new era of interactive and immersive shopping environments. Mobile commerce, with its convenience and accessibility, has become a driving force behind the democratization of retail. Sustainability emerges as a central theme in recent commerce advancements, reflecting a conscientious shift towards ethical practices, eco-friendly strategies, and the integration of circular economy principles. The commerce domain is increasingly recognized as a powerful agent of change, capable of addressing global challenges such as climate change and contributing to socially responsible business practices.

**11.2 What Is Commerce?**

Commerce is the exchange of goods or services among two or more parties. It is the subset of business that focuses on the sale of finished or unfinished products rather than their sourcing, manufacturing, transportation, or marketing. Generally, commerce can refer to an exchange of goods or services for money or something of equal value. From the broadest perspective, governments are tasked with managing the commerce of their nations in a way that meets the needs of their citizens by providing jobs and producing beneficial goods and services. In the 21st century, commerce and management are facing a new set of challenges and opportunities. Advances in digital technology, changing consumer preferences, and global economic forces are all driving significant changes in the business landscape.

One of the most significant recent trends in commerce and management is digitalization. Businesses are increasingly relying on digital technologies to automate processes, improve efficiency, and enhance customer experiences. Digitalization has also enabled the emergence of new business models, such as the sharing economy and platform businesses. Another important trend is sustainability. With consumers demanding that companies adopt sustainable practices and address environmental concerns, businesses are responding by incorporating sustainable practices into their operations. This includes adopting circular economy principles, implementing sustainable production methods, and reducing waste. Innovation has always been an important driver of growth and competitiveness in business, and this trend has continued in recent years. Businesses are leveraging innovation to stay competitive and drive growth, particularly in the areas of technology, product design, and business models. Human resource management has also evolved significantly in recent years, particularly with the rise of remote work, diversity, and inclusion, and employee well-being. Businesses are adopting new policies and practices to attract and retain top talent, such as offering flexible work arrangements, promoting diversity and inclusion, and prioritizing employee health and wellness. Customer experience has become a key competitive differentiator in business, as consumers demand personalized and seamless experiences across all channels. Businesses are investing in technologies and strategies to improve the customer experience, such as Omni channel marketing, customer relationship management systems, and chatbots.

Data analytics has become an essential tool for businesses to gain insights into consumer behaviour, preferences, and trends. Businesses are increasingly collecting and analysing large volumes of data to improve decision-making, develop targeted marketing campaigns, and optimize their operations. Finally, supply chain management has become more complex in recent years, with businesses operating in global markets and facing supply chain disruptions due to factors such as natural disasters and political instability. Businesses are adopting new strategies and technologies to manage their supply chains, such as blockchain technology and predictive analytics. In conclusion, recent trends in commerce and management are shaping the way businesses operate and compete in the global marketplace. From digitalization and sustainability to innovation and data analytics, businesses must adapt to these trends in order to stay competitive and succeed in the 21st century.

### **11.3 Recent Trends in Commerce:**

- A. Ecommerce Trends or Fads: In our globally connected world, fads are now confused for “ecommerce trends.” You need to understand that fads start and end like Twitter trends. Genuine trends for online business stay for a longer time. You can afford to ignore fads, but never the genuine trends. Businesses should analyze all fads and trends carefully. There is no need to avoid the temptation of jumping the bandwagon immediately. Trends in ecommerce industry emerge from various things. How customers shop. What they buy and how they respond to marketing tactics employed

by businesses. Within the last decade, a lot of new trends have emerged with a profounding influence. Ecommerce giants like Amazon, Walmart, and Alibaba have been at the forefront of adopting and benefiting from such trends.

- B. The Ecommerce after COVID-19: Our world is changing. Ecommerce will only get bigger and better as the year moves on. New technologies will help it achieve that. The coronavirus has changed things all over the world, and it's expected that buying behavior is likely to boom. Even now, more and more people prefer buying things online because they are not willing to step out and risk exposure to new variants. In 2021, retail e-commerce sales amounted to an estimated 4.9 trillion U.S. dollars worldwide. This figure is forecast to grow by 50 percent over the next four years, reaching about 7.4 trillion dollars by 2025. The quarantine had laid bare the importance of having an ecommerce business last year, and now, it's easy to say that if you don't have an ecommerce business, you will miss out on serious revenue.
- C. Contextual and Programmatic Advertising: Context and programmatic ads will see a rise this year. Social media sites are already revamping the design to cater these trends. The new trend, labeled as programmatic advertising, uses datasets to decide the target audience. These ads are shown to the audience chosen on the basis of consumption. They are then retargeted after a period of time to generate higher ROI. In simple terms, it is about luring the right audience to the right ad at the right moment. Compared to the basic retargeting efforts, ecommerce store owners stand a better chance of reaching out to a larger audience by using programmatic advertising. Even in videos, AI powered context advertisements that easily blend with the content are the latest ecommerce trend. For example, in a video about the winner of the Noble Prize for Economics, a pre-roll ad for a Masterclass video in Economics played right at the beginning, will feel less intrusive and is likely to get more registrations for the Masterclass.
- D. Marketing Automation: For laymen, marketing automation means automating email marketing and scheduling social media posts. However, marketing automation has now become the new trend. With 49% of businesses using marketing automation, it shows no signs of stopping. It covers areas including customized landing pages and easy-to-access shopping carts. If implemented properly, automated marketing will let you:
- Send out tailored emails to your customers.
  - Display new products and promotions as per the visitors' shopping history.
  - Retarget customers for necessary product sales.
- E. The automation further allows you to customize the store offerings for each customer. Automated recommendations get influenced by what the customers click on during their visit.
- F. Artificial Intelligence (AI): Customer segmentation and identification of patterns based on customer's browsing history are massive challenges for ecommerce stores in terms of automation and store personalization. Intelligent algorithms are now hailed as the key to deal with such challenges. According to Business Insider, retailers that have

implemented personalization strategies see sales gains of 6% to 10%.. The accuracy of data is greatly influenced by the quality and size of the data. This creates challenges for small ecommerce businesses if you do not have a large volume of data. However, these businesses can partner with third party providers to work around this restriction. It indicates that more companies will tap into AI powered tools. Why? To create personalized recommendations for each user.

- G. **Enhanced Shipping Options:** Shipping and logistics is one area that stagnated in the past years. Small improvements like free shipping did occur. But nothing extraordinary until 2013 when the idea of same-day delivery became mainstream. However, things began to look up in this area. Amazon started testing drone deliveries in USA. With the help of Google Maps integration, these drones are able to discover the shortest route to the destination. This trend will grow as the technology improves. Believe it or not, delivery drones will become a viable business component.
- H. **Mobile Commerce:** Online retailers from around the world confirm that mobile transactions increase each year. Especially during the holiday sales season. If you don't have a website which is mobile responsive People are now more exposed to their mobile devices than they are to their computers. Gartner says ecommerce shopping through mobile will reach an all-time high this year.
- I. **Augmented Reality for Product Visualization:** Apple has introduced an AR kit for its new operating system iOS 11. In response to that, Google launched AR Core for Android smartphones. The Augmented Reality trends for product visualization will see shift upward in 2019. The adoption of AR/VR enabled smart devices will increase sharply leading to a change in global ecommerce trends.
- J. **Voice Search Will Take Lead:** Ecommerce stores should start optimizing content for voice search. According to new guidelines by Google, content for voice search should include more textual content. This will allow them to appear in rich snippets and knowledge graphs. While using tables and pictures is great but the websites won't get any benefit from it. Use of voice-enabled buttons can lead to more conversions from smart speakers. Thereby improving the numbers for ecommerce stores. Amazon, North Face, and other similar top brands have started making ecommerce apps for voice assistants. It helps users to order through their smart speakers.
- K. **Revival of Brick-And-Mortar (B&M) Models:** 2007 was the year when the brick-and-mortar market faced a backlash. It was then when ecommerce stores went mainstream. Now, in 2020, things will be changed. Brick and mortar stores would come back with a bang. These new retail stores provide in-person digital experiences without storing any actual inventory. A good example of this is the real estate industry. Suppose a client enters a real estate shop and uses a virtual reality headset to see the 3D version of the house. This is also being replicated in the auto industry. Showrooms are now using virtual versions of cars for first time visitors. In 2016, Cadillac used virtual reality app for a product demo at a car expo. Other automakers such as Audi, Toyota, and Mercedes are also using virtual reality apps. It gives the users a more welcoming experience.

- L. Chatbots as Personal Assistants: We are using chatbots from a few years now. But because of the use of neural networks now, AI-powered chatbots will again see a rise. AI-powered Chatbots help increase the user engagement by providing relevant options to them. Their growth will reach \$1.25 billion by 2025. This year we will see chatbots getting cheaper, smarter, and widespread.
- M. Block chain – The New Shift: We know that block chain is still in its nascent stage and the market isn't as big, but the block chain-based apps look promising enough to get a mention, here is why. Open Bazaar is just example that operates on the 'proof of work' model. It is a model where tokens are generated on every transaction, allowing more transparency in the use of ecommerce. To explain it simply, the buyer and seller don't need a third party mediator. When an order is placed, a block of payment is created on the block chain and displayed on the network. This again happens when the seller creates the product and ships to the buyer. Three blocks will be created for each cycle. Now, the reason it is great is because of the transparency, authentication, and freedom attached to it. This year we will see more instances of block chain-based ecommerce platforms and marketplaces, inventory management systems, and more crypto currency payment systems.
- N. Social Payments Make Shopping Seamless: Another trend in ecommerce that is gradually rising is social payments. Popularized by Paypal, social payments allow users to transfer funds using social media. Almost all major social platforms have formed their own version. Such as Apple pay, Google wallet, Facebook payments, Twitter Buy, etc. These payment methods work similar to a digital bank account. Social media users can either buy products on the platforms or from the online retailers that offer such payment methods. Social payments are a popular way to exchange money. But they have their own shortcomings. They are highly prone to hacking. Why? Because most users have a weak password. Also, most people have turned their settings to 'always connected' on mobile phones. If they get mugged, the muggers can easily access all the social media accounts and transfer funds. Nonetheless, the social payment methods are still a seamless way of making purchases. Therefore a great asset for ecommerce.
- O. More Payment Options Will Popup: We now have multiple payment options available including digital payment methods and crypto currencies. More of the latter will popup to cater each segment. Such as musi coin for musicians and Kodak coin for photographers. Ecommerce stores are now accepting crypto currencies. Whereas Smartphone manufacturers are coming up with digital wallets. This makes payment processes simple for ecommerce. Moreover, mobile commerce is taking surge. We will see a rise in the adoption of such alternate payment methods for mobile-based payments.
- P. Build Communities, Engage Customers and Enhance CRM: Building a community and engaging with your customers is difficult. Hence, offering a satisfying CRM is mandatory. CRM means Customer Relationship Management. To develop a satisfying CRM you need to sum up the customer information. Ecommerce entrepreneurs can pull out such information in many ways. For instance, On-site chat, Facebook messenger, SMS, Emails, Order statuses, Customer groups, Loyalty programs, Referral programs

and more. Remember, it depends on how you engage with your customers. How you resolve their concerns. How you lead them to the cart is what affects engagement and conversions. This is why every ecommerce page you have is important, even your ecommerce checkout and thank-you pages should be optimized for engagement.

- Q. **Post Payments Will Boom:** Ecommerce entrepreneurs face high losses due to cart abandonment. Ecommerce firms in 2015 lost a revenue worth \$4.4 billion due to cart abandonment. Post payment mechanisms is an effective solution to overcome such losses. Many at times, customers show interest in your products. Nonetheless, they end up abandoning the cart. Why? Simply because lack of confidence in your product's quality. Many ecommerce entrepreneurs are now trying out the post payment strategy. It allows the customers to pay only after they receive their order. A major reason for cart abandonment is the failure of payment gateways. Post payment strategy is an effective proposition. It can cut down the loss of revenue. Especially during the trending sales season up to a significant extent. Additionally, it proves to be an impressive strategy for customer acquisition.
- R. **Cognitive Supply Chain Management:** Supply chain management plays a vital role in the ecommerce industry. However, keep in mind that it is delicate to handle. When it comes to supply chain management, three key factors complement continuous improvements. They are:
- **Automation** – As far as supply chain management is concerned, it is all about automation. Process consolidation assists entrepreneurs to broadcast a crystal-clear unopposed shift of information flow.
  - **Sharing Data** – Details such as availability of inventory, shipping, and customer information. It should be available at all stages of supply chain management.
  - **Customer-Centric** – Identify the goals, fondness and tendency of your customers. It depends on such factors to improve the operational efficiency of the business.
- S. **Amazon Will Keep Winning:** Amazon is the B2B marketplace that connects many e-commerce sellers with worldwide customers. It had a billion dollars in sales in its first year. Today, it is growing at 20% on a monthly basis. It is safe to say that you can expect them to continue winning in 2021 as well. There is no need to run and hide. You can become an affiliate of Amazon. Sell their products through your website. The key factor that entrepreneurs should focus on is to offer niche-specific products. Build your own customer data. Thrive to provide a unique customer shopping experience.
- T. **ROPO Will Rise:** ROPO means Research Online Purchase Offline. It has been a noticeable customer shopping habit. Thrifty shoppers drive ROPO greatly. Additionally, bargain hunters also look for the best possible deals. We can expect a great deal of ROPO in 2022 in the ecommerce industry. ROPO is the conclusion of the past 15 years of online shopping. Customers prefer researching products online before they make any offline purchases. It empowers them to get their hands on the products that they want at the best price possible. **Absolute** – A Montreal-based ecommerce

agency says 82% of customers use mobile devices to research local businesses. Furthermore, 18% of local searches results in a sale within 24 hours. A variety of techniques and metrics can be leveraged here. For instance, data of mobile payments, CRM, point-of-sale systems geo-location tracking etc. Additionally, you can also measure customer's shopping history and their social integration. Furthermore, it would be wise to measure their increasingly personalized advertising experiences. Online retailers should build detailed customer profiles. Profiles of customers who prefer researching online before making any purchases.

- U. Fulfillment Options Will Expand: As 2022 moves forward, more people will begin to shop online even for bare essentials. Given the numerous online stores there are to choose from, however, people will still not hesitate to abandon their carts for a store that offers a better shopping experience. Cart abandonment is often the result of lack of delivery choices, costs of shipping, and extensive shipping times. Thus, as businesses shift to online shopping, you can expect more freedom when it comes to selecting fulfillment options, including pickups in store.
- V. Social Commerce Will Grow to New Levels: Social commerce is the process of making purchases directly on social media and is one of the most important ecommerce trends to focus on. Companies such as Facebook have already introduced a host of options for entrepreneurs looking to sell directly on their platform. Needless to say, this trend is only going to grow in the future. Checkout on Instagram and Instagram Shopping are both prime examples of social media companies moving to take advantage of this opportunity.
- W. Content Repurposing Becomes Purposeful: As high as the demand for repurposed content is right now amongst different trends in ecommerce, it is only going to grow in the future. For modern ecommerce businesses, this means that they will need to repurpose the content on a regular basis. Instead of grinding to produce new content regularly, companies are going to focus on repurposing and updating existing content, so it stays relevant to the times.
- X. Anticipating Ecommerce Future Trends: Our world is changing. Ecommerce will only get bigger and better in 2020. New technologies will help it achieve that. You, as ecommerce owners, need to embrace the ones that best suit your needs. Always provide value to the users. The better the user experience, the better your sales. Building a strong foundation is important in terms of reliability, performance and infrastructure. Cloudways managed hosting provides these and many other benefits.

#### **11.4 Conclusion:**

The recent advancements in commerce paint a vivid tapestry of innovation, disruption, and transformation. The journey through the digital renaissance has not merely reshaped the contours of trade; it has redefined the very essence of commerce. As we stand at the intersection of technology and consumer expectations, the road ahead promises both challenges and unprecedented opportunities.



The fusion of cutting-edge technologies—blockchain, artificial intelligence, and the Internet of Things—has elevated commerce to new heights. It is a landscape where transactions are not merely transactions but intricate interactions powered by data, connectivity, and smart algorithms.

The marriage of technology with commerce is not a mere evolution; it is a revolution that continues to unfold, presenting a continuous stream of possibilities. The e-commerce realm, with its augmented and virtual realities, has transcended the limitations of physical boundaries.

Consumers are no longer passive participants; they are active explorers in immersive digital environments. Mobile commerce has democratized access, bringing the marketplace to the fingertips of millions and reshaping the dynamics of retail.

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