

E-Commerce and Agentic AI



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Abstract

E-commerce is recognized as a prominent arena of competition, and the role of value-driven experiences in context of progressing phygital scenery is seen as more and more important. We are witnessing an increasing AI Agents' usefulness in e-commerce, as well as a streamlined approach of purchasing decisions based on Agentic AI. Marketing operations' need to test agentic capabilities. It is critical to better understand Agentic AI's successful implementation within a supply chain environment in which the e-commerce logistics scenery, from warehousing optimizations' solutions till last-mile delivery services increasing CX, is deeply reshaped by the technological progress.

Keywords: E-Commerce; Value-Driven CX; Phygital Shopping Journey; Agentic AI;

E-Commerce Logistics

JEL Classification: D83; L21; L81; M21; M31; M37; O31; O32; O33

E-commerce as a prominent arena of competition, and the role of value-driven experiences in context of progressing phygital scenery

Based on a valuable report from the McKinsey Global Institute (Bradley et al., 2024), Visual Capitalist (Lu, 2025) recently made a graphical representation of the 18 industries being very noticeable not only for their rapid innovation and large investments, but also for their expanding markets (see figure below). These 18 so-called (by McKinsey) arenas of competition (defined by both high growth, and high dynamism) transforming the business landscape were presented in the report as having the potential to reshape the global economy and generate

substantial revenues by 2040. As is shown in the below figure, the first two of these arenas (also called arenas of tomorrow compendium by McKinsey) are E-commerce (1) and Artificial intelligence (AI) software and services (2).

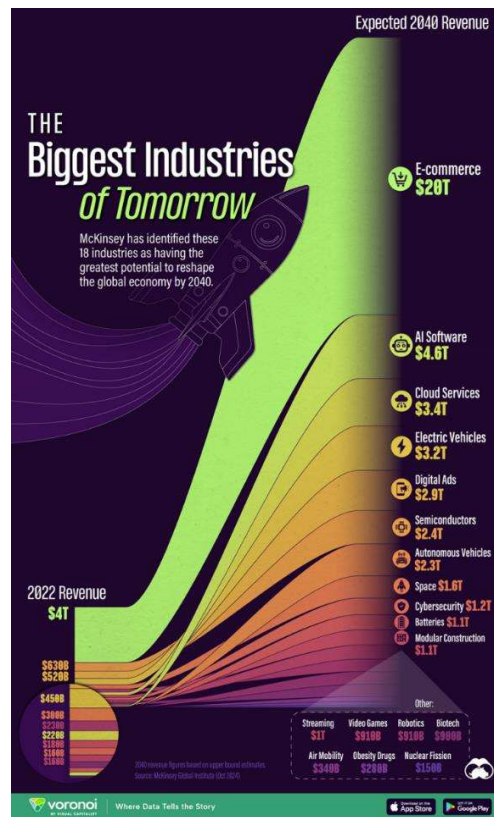


Figure no. 1: The Biggest Industries of Tomorrow (identified by McKinsey)

Source: Lu, M., 2025. These 18 Industries Could Reshape the Global Economy by 2040, Visual Capitalist, May 7, 2025 (work cited)

The website marketing automation platform Justuno (known including for providing both on-site, and mobile promotion management capabilities for e-commerce, turning visitors into customers based on improved personalized website experiences) brought to our attention an essential shift taking place in the current competitive e-commerce scenery, namely the way in which the Average Order Value (AOV) is approached by successful brands (Justuno, 2025). Justuno underlined that value-driven experiences' creation is what true AOV optimization is about, this kinds of experiences inherently encouraging larger purchases (seeing AOV growth as an inherently outcome of an enhanced CX), and ensuring at the same time customer relationships' deepening (what involves considering critical segments to start off with targeting: first-time buyers, high-intent shoppers/cart abandoners, and loyal customers/repeat purchasers). And in order to ensure meaningful increases in order value, AOV strategies are taking into account from the very beginning better understanding individual customer behavior, and giving a lot of attention to data (attribution insights, post-purchase analysis, and profitability tracking). Justuno made reference, for instance, to how essential is for brands to ensure the harmonization

of developing effective strategies with natural purchasing behaviors based on better differences' understanding of e-commerce brands' varying AOV patterns and optimization strategies, as revealed by a Triple Whale analysis (Mistakidis a, 2025).

Starting from the top three reasons (as revealed by a 2024 Baymard Institute study) of e-cart abandonment (high extra costs - 48%, forced account creation - 26%, lack of trust in site security - 25%), the Co-founder and Business Development Director of the ecommerce development company Whidegroup recently showed that beyond its goal to drive more sales the Conversion Rate Optimization (CRO, that help increasing visitors' percentage completing a purchase by improving the online store) is also both increasing CX, and building long-term loyalty (Zhuk, 2025). Sharing proven CRO strategies based on her experience, Zhuk outlined the main tips to optimize conversion rates of the online store for great CX: *general performance* (fast loading times, robust website security, mobile optimization, clear navigation, detailed product presentation, authentic customer reviews and testimonials), *checkout process* (minimum number of checkout steps, guest checkout, multiple payment options, clear pricing), and *post-purchase support* (timely order confirmations, real-time shipping updates, clear and easy to access refund and return policies, loyalty programs).

Also recently, a representative of the global technology company Criteo (NASDAQ: CRTO) – its world-leading commerce media platform (using commerce data and AI trained on shopping) is well-known as enabling marketers and media owners to drive better commerce outcomes (<https://www.criteo.com/company/>) – stated for Retail Brew as follows: “To win back online shoppers, retailers need to go beyond efficiency and deliver experiences that feel personalized, intuitive, and emotionally engaging... This means blending the ease of e-commerce with the curiosity and excitement of in-store discovery—through curated product suggestions, tailored recommendations, and dynamic content that reflects shoppers' preferences and behaviors...” (Sharma, 2025). These comments were made in context of revealed findings of a new study by Criteo.

We recently highlighted how within the dynamic marketing environment reshaped by AI is imperative for marketers to create a cohesive customer journey across phygital touchpoints, and comprehending the role of ecommerce ecosystem as a connector (Purcarea, 2025). There is a more and more focus on phygital retail strategies, maximizing the experiential consumer value (Testa and Slaton, 2025). New research findings (Zolfaghari et al., 2025) revealed the need of ensuring traditional retail elements' integration with phygital strategies' technological advancements (technology readiness being seen as a critical moderating factor), and considering the impact on consumers' phygital retail continuance (a marketing tactic) usage intention of technological interaction, retail functional and hedonic value.

On the other hand, as shown by Lecointre-Erickson et al. (2025), there is a subtle impact of digital enhancements on retail CX, consumers' positive and negative experiences being articulated mainly through human touchpoints and interactions. And with regard to a seamless

phygital experience through virtual immersion, research by Massi et al. (2025), who investigated the direct-to-avatar (D2A) strategies, demonstrated how customer perceptions of channel seamlessness and engagement are substantially improved by immersion in D2A. While Kim and Kwon (2025), who focused on metaverse users’ essential hedonic shopping motivations (generating additional behavioral values beyond simple product purchase) and subjective shopping well-being, demonstrated both customer engagement mediating role, and technology self-efficacy moderating influence.

Increasing AI Agents’ usefulness in e-commerce. A streamlined approach of purchasing decisions based on Agentic AI. Marketing operations’ need to test agentic capabilities

Considered an important progress in AI evolution (for instance, see the difference between the traditional chatbots and AI agents in figure below), AI agents (defined as “autonomous or semi-autonomous software entities designed to perceive their environment, make decisions, and take actions to achieve specific objectives”) are also very useful in e-commerce industry from the point of view of ensuring operations’ optimization and CX enhancement, as well as of competitive advantages’ obtaining (Mistakidis b, 2025).

Feature	Traditional Chatbots	AI Agents
Primary function	Communication interface	Task execution and problem-solving
Decision-making	Limited to predefined conversation flows	Can make autonomous decisions
Learning capacity	Minimal adaptation based on interactions	Continuous learning and improvement
Tool integration	Limited to specific API connections	Can utilize multiple tools and services
Memory	Session-based with limited context retention	Persistent memory with contextual understanding
Action capability	Primarily provides information	Can take actions across systems

Figure no. 2: The difference between the traditional chatbots and AI agents

Source: Mistakidis, A., 2025. What Are AI Agents? Types, Examples, and Benefits, Triple Whale, May 6, 2025 (work cited)

As a well-known AI data platform for e-commerce, Triple Whale (2025) recently detailed the role of Agentic AI as the e-commerce game changer, showing how e-commerce intelligence agents can be utilized for each stage of a brand’s journey (*acquiring shoppers with AI agents*, by building brand awareness, and running smarter and more efficient ads; *converting customers with AI agents*, by optimizing product pages, analyzing and optimizing the product journey, and prioritizing ad channels that convert; *retaining customers with AI agents*, by automating LTV analysis with audience targeting recommendations, preventing churn, making personalized recommendations, and smarter, personalized email campaigns; and *operating an efficient e-commerce brand with AI agents*, by making predictive forecasting, optimizing inventory based on data, and ensuring real-time revenue monitoring). Within this framework, it was explained how business intelligence can be transformed into a proactive tool (from a reactive one) by automating agent deployment (creating a self-sustaining AI agents’ ecosystem).

On the basis of their working with clients in the last two years Boston Consulting Group (BCG) managed to build and implement AI agents, developing the so-called AgentKit used on

greater than 30 projects (Kleine et al., 2025). Surprising and teaching results were obtained by BCG's clients, in the course of this working together, in significant areas, such as: research and development, sales, sales and marketing, customer engagement, and supply chain management. According to BCG's experts' opinion, it is recommended that AI agents (their success being based on process redesigning) to be seen as fundamental enablers not only of efficiency, but also of (a far more powerful) innovation and growth.

The President & CTO of ion interactive, Scott Brinker (2025), explained how the marketing technology “is going from being complicated to being complex”, in context of LLMs' and increasingly autonomous AI agents' introduction. Consequently, marketing operations needing to evolve, including by safely testing new AI agents and agentic capabilities, learning their probabilistic behavior, all the more so as many AI agents' new categories are appearing (needing to be orchestrated; see figure below).

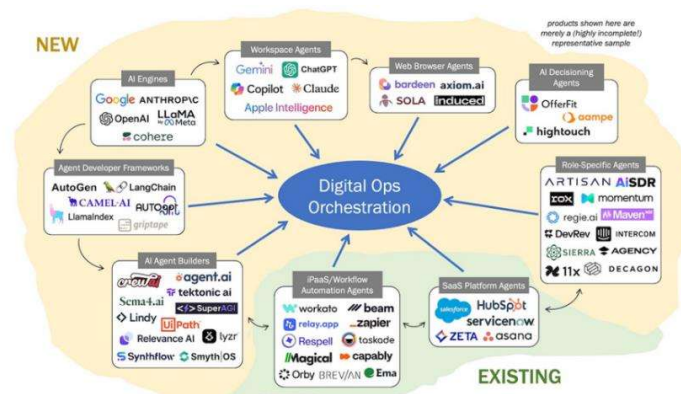


Figure no. 3: Digital Ops Orchestration

Source: Brinker, S., 2025. *Complicated to Complex: AI Agents and Managing a Dynamic Martech Stack*, CustomerThink, May 2, 2025 (work cited)

The new “Buy For Me” feature recently tested (being built on other tests) by the e-commerce giant Amazon allows mobile app users' tapping this button after typing in a product category (Feger, 2025), users' size preferences and payment details being processed by AI (and before purchase being required only final confirmation). In EMARKETER's analysts' opinion that corresponds to stimulate shopping search start on Amazon, remaining to be seen how much users' time will be shortened. It is also worth remembering that by incorporating agentic AI (allowing tasks' execution, including online orders' handling, on behalf of users) Alexa+ (an upgraded version of Amazon's voice assistant incorporating Gen AI) exceeds capabilities' traditional voice assistant (Duckett, 2025). Of course, beyond its recognized status as the biggest online retailer in the U.S., there is still potential for Amazon's improvement, development, and progress at global level compared to Walmart and Alibaba (Warmoth a, 2025). As to conversion rates, according to YouGov's March 2025 rankings, in the U.S. both retail giants (also from the point of view of e-commerce trends) are at the very top (Warmoth b, 2025).

It is also interesting to note the competition between Amazon, Microsoft, and Google/Alphabet (considered the main global cloud providers) for capturing (AI agents' increase being

seen as central) a larger share of enterprise AI spend (on specific purchases, when setting up these operations), Amazon’s approach being described by CB Insight (a, 2025) as signaling potential integration with its broader ecosystem by mixing enterprise enablement with strategic consumer-facing investments (also see figure below). Also recently, CB Insight (b, 2025) highlighted the next frontier represented by humanoid robots (their foundation being laid by Meta, Apple, Microsoft, Amazon and Alphabet) as physical AI embodiment. This came after content creation transformation by Gen AI with LLMs, and autonomous decision-making enablement by AI Agents with predictive systems across large-scale software solutions designed to streamline and automate organization's operations’ processes and applications capable of being made or used in an industry. It was also underlined, among other aspects, that the competition between the U.S. and China is intensified by humanoid robots’ commercialization.

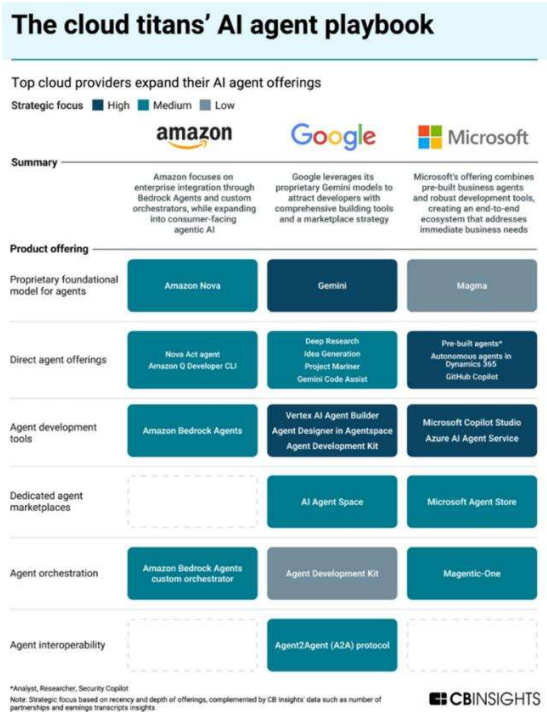


Figure no. 4: The cloud titans' AI agent playbook

Source: CB Insights, 2025. Building the agent economy: How cloud leaders are shaping AI’s next frontier, Research, May 7, 2025 (work cited)

A recently published industry report by PEX Network in association with Edgeverve (2025) brought to our attention the intensification of data governance importance with the transition from Gen AI to Agentic AI (imperative to ensure that AI-driven decisions are secure, accurate and aligned with ethical standards) as next-generation AI, complex goals being independently pursued by systems. Within this context, it was underlined the Agentic AI’s self-learning capability to ensure both compliance, and security at scale, while also recommending to carefully addressing key risks (such as: data overexposure, unauthorized data sharing, bias and discrimination, lack of transparency, security vulnerabilities, prompt injection attacks,

sycophancy, adversarial attacks, overreliance and deskilling) in Agentic AI adoption, monitoring AI systems' output.

Instead of conclusions: *Agentic AI's successful implementation within a supply chain environment in which the e-commerce logistics scenery, from warehousing optimizations' solutions till last-mile delivery services increasing CX, is deeply reshaped by the technological progress*

According to EY (former Ernst & Young) Global GenAI Supply Chain Leader (Malhotra, 2025), organizations' teams (which are accountable from planning, procurement, manufacturing, logistics till the last-mile delivery) can be enabled by Agentic AI in supply chain in ensuring (without constant human oversight needed to ensure errors' or biases' identification and rectification) processes' improvement, costs' management and in real time reaction to change, increasing KPIs and metrics. Agentic AI's successful implementation (SCM being transformed into a more agile and responsive system) involves a robust data architecture integration based on clear and specific guidance and team members' reskilling, advancing on the path to ensure both supply chain disruptions' prediction, and proactive solutions' facilitation.

The current conditions and external factors within a supply chain environment can be analyzed by an Agentic AI supply chain operating model (as shown by IBM Institute for Business Value in figure below) that allows from demand prediction and supply planning integration, ensuring procurement and inventory optimization, till customer feedback aggregation and personalized CX responses (IBM, 2025). The first step in value delivering is the real-time visualization of this model across all dimensions, followed by the virtual models' simulation of the way in which supply chain operations could be impacted by specific events, and then, based on the proactive simulations providing perspectives, better decisions-making so as to capitalize on new market opportunities and accelerate innovation.

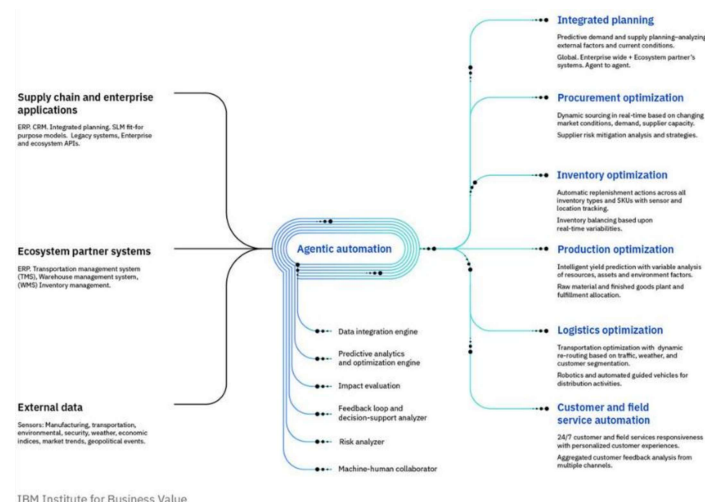


Figure no. 5: Agentic AI supply chain operating model

Source: CB Insights, 2025. Building the agent economy: How cloud leaders are shaping AI's next frontier, Research, May 7, 2025 (work cited)

A recent comprehensive analysis of e-commerce logistics market trends, drivers, and forecasts was provided in a Global Strategic Business Report (Global Industry Analysts, 2025) that revealed significant aspects, such as: a projection of e-commerce logistics market of US\$1.4 Trillion by 2030, comparative with the 2024 valuation at US\$540.9 Billion; an e-commerce logistics (from warehousing optimizations' solutions till last-mile delivery services increasing CX) landscape deeply reshaped by the technological advancements (demand surges' prediction, routes' optimization, and customer service interactions' management being impacted, for example, by AI and ML), answering to evolving consumer expectations, new omnichannel retailing requirements, online orders' increased volume and complexities (to be managed with the help of AI, robotics, and data analytics), and other priorities like sustainability.

According to the Global Marketing Director at HCL Commerce Cloud (Bondensgaard, 2025), e-commerce (that is challenged by data vast amounts, real-time decisions' optimization and at scale hyper-personalized experiences' delivery) is transformed by Agentic AI allowing autonomous decisions-making, long-term strategies' planning, and to changing environments adaptation without constant involvement (in a process or system) of human input and decision-making. For this purpose, it is important to consider some key ways (such as: autonomous customer personalization, intelligent inventory and SCM, AI-powered autonomous merchandising, self-improving customer service bots, and autonomous marketing campaigns and ad optimization).

Allow us to end by quoting Greg Kihlstrom (2025), who stated: "When Agentic AI is incorporated throughout the customer journey in a strategic and on-brand way, organizations are able to identify opportunities through pattern recognition, then using the opportunities identified to create seamlessly connected experiences for their customers that feel on-brand and solve challenges while building loyalty."

References

- Bondensgaard, M., 2025. How Agentic AI is Relevant to E-Commerce, HCL Commerce Cloud, March 26, 2025. Retrieved from: <<https://www.hcl-software.com/blog/commerce/how-agentic-ai-is-relevant-to-e-commerce>> [Accessed 12 May 2025].
- Bradley, C., Chui, M., Russell, K., Ellingrud, K., Birshan, M., Suhayl Chettih, S., 2024. The next big arenas of competition, McKinsey Global Institute, McKinsey & Company, Editor Max Berley, Data visualization Chuck Burke, October 2024, pp. 1-211. Retrieved from: <https://www.mckinsey.com/~media/mckinsey/mckinsey%20global%20institute/our%20research/the%20next%20big%20arenas%20of%20competition/the-next-big-arenas-of-competition_final.pdf> [Accessed 8 May 2025].
- Brinker, S., 2025. Complicated to Complex: AI Agents and Managing a Dynamic Martech Stack, CustomerThink, May 2, 2025. Retrieved from: <<https://customerthink.com/complicated-to-complex-ai-agents-and-managing-a-dynamic-martech-stack/?>> [Accessed 5 May 2025].
- CB Insights, 2025. Building the agent economy: How cloud leaders are shaping AI's next frontier, Research, May 7, 2025. Retrieved from: <<https://www.cbinsights.com/research/ai-agent-strategy-top-cloud-providers/?>> [Accessed 11 May 2025].
- CB Insights, 2025. How the rise of humanoid robots launches AI into the physical world, Research, May 8, 2025. Retrieved from: <<https://www.cbinsights.com/research/humanoid-robots-launch-ai-into-physical-world/?>> [Accessed 11 May 2025].

Duckett, B., 2025. Amazon's Alexa+ features include agentic AI for ecommerce, Digital Commerce 360, Mar 4, 2025. Retrieved from: <<https://www.digitalcommerce360.com/2025/03/04/amazon-alexa-plus-features-agentic-ai-ecommerce/>> [Accessed 11 May 2025].

Feger, A., 2025. April's most interesting retailers: Walmart delivers, Amazon tests 'Buy for Me', EMARKETER, May 5, 2025. Retrieved from: <<https://content-naf.emarketer.com/april-s-most-interesting-retailers--walmart-delivers--amazon-tests--buy-me?>> [Accessed 5 May 2025].

Global Industry Analysts, 2025. eCommerce Logistics - Global Strategic Business Report, Research and Markets, April 2025. Retrieved from: <<https://www.researchandmarkets.com/reports/4804353/ecommerce-logistics-global-strategic-business?>> [Accessed 12 May 2025].

IBM, 2025. Scaling supply chain resilience: Agentic AI for autonomous operations, IBM in partnership with Oracle and Accelalpha, Report, April 8, 2025. Retrieved from: <<https://www.ibm.com/thought-leadership/institute-business-value/en-us/report/supply-chain-ai-automation-oracle>> [Accessed 12 May 2025].

Justuno, 2025. Bigger Baskets, Bigger Profits: The Art Of AOV Domination. Retrieved from: <<https://7081882.fs1.hubspotusercontent-na1.net/hubfs/7081882/Marketing%20Ebooks/AOV%20Ebook.pdf?>> [Accessed 8 May 2025].

Kihlstrom, G., 2025. How Agentic AI Can Improve the Customer Experience, CustomerThink, March 28, 2025. Retrieved from: <<https://customerthink.com/how-agentic-ai-can-improve-the-customer-experience/?>> [Accessed March 31 2025].

Kim, W.B. and Kwon, K.Y., 2025. "How can the metaverse enhance shopping well-being? The role of hedonic shopping motivations and customer engagement", Journal of Fashion Marketing and Management, Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/JFMM-05-2024-0168>.

Kleine, D., Marx, J., Kropp, M., Frederick, B., Lukic, V., de Bellefonds, N., White, C. and Porter, S., 2025. AI Agents Can Be the New All-Stars on Your Team, , May 02, 2025. Retrieved from: <<https://www.bcg.com/publications/2025/how-ai-can-be-the-new-all-star-on-your-team?>> [Accessed 9 May 2025].

Lecointre-Erickson, D., Adil, S., Koffi, M. L., Agbokanzo, K. S., Bassily, M. et al., 2025. An exploratory study of touchpoints shaping the phygital shopping experience in France: a thematic and sentiment analysis approach. 41ème Congrès international de l'Association Française du Marketing (AFM), IAE de Lille – University School of Management, Université de Lille; IÉSEG School of Management, Université catholique de Lille, May 2025, Lille, France. Retrived from: <<https://hal.science/hal-05005943/>> [Accessed 30 March 2025].

Lu, M., 2025. These 18 Industries Could Reshape the Global Economy by 2040, Visual Capitalist, May 7, 2025. Retrieved from: <<https://www.visualcapitalist.com/industries-reshape-global-economy-2040/>> [Accessed 7 May 2025].

Malhotra, G., 2025. How to transform global supply chain operations with agentic AI, EY, 22 Apr 2025. Retrieved from: <https://www.ey.com/en_us/insights/supply-chain/revolutionizing-global-supply-chains-with-agentic-ai> [Accessed 12 May 2025].

Massi, M., Piancatelli, C., Vocino, A., Rojas-Méndez, J. I., 2025. Toward D2A: Enhancing Luxury Fashion With Seamless and Immersive Phygital Customer Experiences, International Journal of Consumer Studies, pp. 1-18. <https://doi.org/10.1111/ijcs.70045>.

Mistakidis, A., 2025. 2024 in Review: Ad Performance Metrics for 30K Ecommerce Brands, Triple Whale, February 7, 2025. Retrieved from: <<https://www.triplewhale.com/blog/ad-performance-metrics-2024>> [Accessed 8 May 2025].

Mistakidis, A., 2025. What Are AI Agents? Types, Examples, and Benefits, Triple Whale, May 6, 2025. Retrieved from: <<https://www.triplewhale.com/blog/ai-agents?>> [Accessed 7 May 2025].

PEX Network and Edgeverve, 2025. Data governance in the age of generative AI & agentic AI: Industry report, Process Excellence Network in association with Edgeverve, an Infosys' Company, 28 April 2025, pp. 1-17. Retrieved from: <https://eco-cdn.iqpc.com/eco/files/channel_content/posts/data-governance-in-the-age-of-generative-ai-agentic-ai7uFQQ3XzirsQIQ17YdQMraqaH6BVgRIO5g4Tb32o5.pdf> [Accessed 9 May 2025].

Purcarea, I. M., 2025. CMOs' Opportunities' Assessment Within the Rise of Phygital Marketing, Romanian Distribution Committee Magazine, vol. 16(1), pp. 39-44, March.

Sharma, J., 2025. Some customers now say online shopping is just boring: survey, Retail Brew, April 25, 2025. Retrieved from: <<https://www.retailbrew.com/stories/2025/04/25/some-customers-now-say-online-shopping-is-just-boring-survey?>> [Accessed 9 May 2025].

Testa, D. S., Slaton, K., 2025. The future is phygital: integrated content analysis of current retail strategies and future priorities across digital, physical, and phygital modalities, Journal of Retailing, Available online 1 May 2025.

Triple Whale, 2025. The Ultimate AI Agents Playbook for Ecommerce Brands. How to use agentic AI for smarter and faster decisions, May 14, 2025. Retrieved from: <<https://20341965.fs1.hubspotusercontent-na1.net/hubfs/20341965/Ultimate-AI-Agents-Playbook.pdf>> [Accessed 14 May 2025].

Warmoth, B., 2025. Ecommerce Trends: Is Amazon the largest online retailer? See for yourself, Digital Commerce 360, Feb 13, 2025. Retrieved from: <<https://www.digitalcommerce360.com/2025/02/13/ecommerce-trends-is-amazon-the-largest-online-retailer-see-for-yourself/>> [Accessed 11 May 2025].

Warmoth, B., 2025. Ecommerce Trends: Is Amazon or Walmart better at conversion? Digital Commerce 360, Apr 3, 2025. Retrieved from: <<https://www.digitalcommerce360.com/2025/04/03/ecommerce-trends-amazon-walmart-conversion/>> [Accessed 7 April 2025].

Zhuk, A., 2025. From the First Click to Cart: Optimizing CX of Your Online Store for Higher Conversion Rates, CustomerThink, April 2, 2025. Retrieved from: <<https://customerthink.com/from-the-first-click-to-cart-optimizing-cx-of-your-online-store-for-higher-conversion-rates/>> [Accessed 7 April 2025].

Zolfaghari, A., Somogyi, S., Thomas-Francois, K. et al., 2025. Beyond technology: Multidimensional consumption values in phygital retailing; a mixed method approach. Electron Markets 35, 39 (2025). <https://doi.org/10.1007/s12525-025-00776-w>.

