

Marketers' Socio-Technical Perspective Approach of the Phygital Retail Complex System



Dr. Ioan Matei PURCĂREA

Abstract

We are witnessing a significant progress in marketers' process of development on the path their journey takes while exploring AI's trajectory, including in their struggling to leverage extraordinary changes impacted by GenAI. Thinking about concepts, and considering conversational marketing that opens doors to better reflecting and acting with regard to AI-powered shopping carts, emergent AI shopping agents, AI grocery shopping, voice-enabled shopping and so on. There is an obvious marketers' increased understanding and addressing phygital retailers' challenges while advancing on the path to ensure CX improvement by bringing together social and technical parts of the phygital retail complex system.

Keywords: Marketers' Socio-Technical Perspective Approach; AI's trajectory; GenAI; AI Integration; Phygital Retail Complex System

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

Marketers' process of development on the path their journey takes while exploring AI's trajectory, and struggling to leverage extraordinary changes impacted by GenAI

Key ideas to be remembered recently emerged from a discussion about AI's trajectory (Kaputon a, 2024) with top technology's leaders (Sam Altman, Sundar Pichai, and Jeff Bezos). For instance, Artificial General Intelligence (AGI, focused not only on creating software with

human-like intelligence, but also on the ability to self-teach, as described by Amazon Web Services) will give rise to massive economic progress and innovation, being no wall to scaling AI (as shown by Sam Altman), AI coming to be literally everywhere in each application coming into our thoughts (according to Jeff Bezos), and we will see a complete change of search as a result of AI that is already an integral part of it (as shown by Sundar Pichai).

Also recently, Marketing AI Institute's Chief Content Officer (Kaput b, 2024) – who co-authored (together with Marketing AI Institute's Founder & CEO, Paul Roetzer) the book "Marketing Artificial Intelligence: AI, Marketing and the Future of Business" (Matt Holt Books June 28, 2022) – brought to our attention Amazon's both huge investment in the public-benefit startup Anthropic (an AI safety and research company working to build reliable, interpretable, and steerable AI systems; its Claude is considered more articulate than ChatGPT), and focus on building in-house capabilities in order to reduce its reliance on external AI providers. At Amazon's re:Invent conference it was announced its entering in the AI arms race with the new family of AI models known as Nova (4 text-generating models; Nova Canvas for image generation; Nova Reel for video creation) which have been presented as having impressive capabilities.

As explained also recently by BCG's experts (Martin et al., 2024), one of the 4 key elements contained by the enterprise AI foundation is GenAI platforms to log into (together with: LLMs used as a basis for further development, curated data layers, and self-monitoring for continuous improvement), which is more and more in some processes and tasks (manually intensive and document-heavy) in order to ensure productivity improvement. Extraordinary changes in marketing (as well as in innovation and customer service) are caused by GenAI (which is producing, as a content-generating tool, both new ideas and personalizing experiences), and with regard to the next 5 years GenAI is considered by the practitioners the most disruptive innovation. In the same time, GenAI is seen as energizing ML analytic usage (predictive AI) to increase not only decision making and recommendations, but also future probabilities' computation, confirming senior executives' preoccupation to ensure a synergetic exploitation of GenAI and predictive AI.

A whitepaper by the global technology consulting and digital solutions company LTIMindtree (Srinivasan and Bansal, 2024) explored what is happening at the confluence of Gen AI and retail and consumer industry, focusing on Gen AI applications supported by real-world case studies, addressing challenges and critical aspects (such as: data privacy and confidentiality, unreliable outputs/hallucination, consumer protection, regulatory compliance, cybersecurity, ethical use, technology adoption, skill gap) coming with this transformative force that enables clear benefits, as shown in figure below. It was underlined within this context Gen AI impact on: *Customer Experience* (CX workflow automation; Virtual assistants for CX agents and customers; Train and Upskill CX agents; Customer reviews and sentiment analysis); *Supply Chain and Operations* (Conversational supply chain; Supplier risk assessment; Automated supply chain reports; Fraud detection and prevention; Assortment planning; Predict demand,

Optimize Inventory, and Improve Logistics); *Marketing* (AI-generated imagery/graphics/video commercials; AI-generated marketing content; AI-powered market research; A/B testing of ads/content ideas; Personalization at scale); *Store Operations* (In-store recommendations; Pricing and promotion optimization; Virtual sales assistants and Virtual try-on; AI-generated store layouts); *E-commerce and D2C* (AI-generated product descriptions, Personalized engagement; SEO-optimized content; AI-generated product images/catalogs; AI-generated website layouts; Shopping assistants); *Product and R&D* (Product discovery; Synthetic data preparation; Market trends analysis; Product design and packaging; Automated experimentation and optimization); *IT & Technology* (Automated reports and insights; AI-generated UI/UX design; Synthetic data generation; Automated application development; AI-based documentation; IT helpdesk automation); *Finance & Risks* (Contract analysis and generation; Financial reporting; Automated compliance; Earnings reports analysis; Financial planning and analysis; Automated workflows); *Human Resources* (Recruitment workflow automation; Employee sentiment analysis; AI-based evaluations; Gen AI content for employee branding; Virtual assistant for employees; Employee training and upskilling); *Enterprise and Strategy* (Scenario modeling; Data and insight bots; Decision automation; Strategic communications; Trend-spotting).

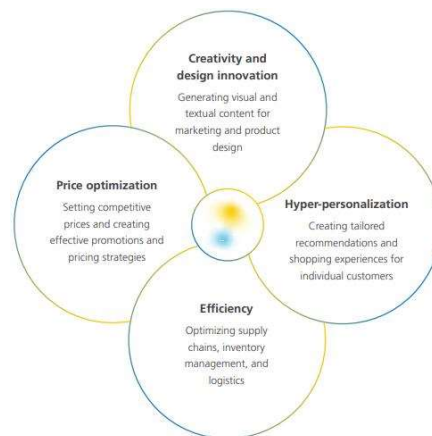


Figure no. 1: Benefits of retail and consumer goods industry enabled by Gen AI as a transformative force

Source: Srinivasan, KP., Bansal, N., 2024. *Unleash the Power of Generative AI to Transform Retail & Consumer Industry*, LTIMindtree, Whitepaper, p. 6 (work cited)

AI-powered shopping carts, emergent AI shopping agents, AI grocery shopping, and voice-enabled shopping

The well-known website (for senior-level technology and business decision-makers in retail and e-commerce) Retail Systems (UK) made recently reference to the partnership between French grocery retailer Intermarché and retail technology firm Shopic and Capgemini (a global leader in consulting, technology services and digital transformation) for a pilot project which test the benefits of AI for retail by using computer vision allowing customers to automatically recognising thousands of items without manually scanning (Kular, 2024). This performance

assessment of AI-powered shopping carts (attached with a clip-on device) confirmed shopping experience improvement (including customers' budget tracking in real time, loyalty points' checking, offers and promotions' seeing directly applied to cart total, and checkout processes' streamlining).

In US, for example, Instacart's AI-powered smart carts (cameras, sensors and a built-in scale are representing the supporting equipment) are adopted by multiple local and independent grocers to both enhance, and personalize the in-store CX (Barba, 2024). As a result, items placed in these smart carts are automatically recognized, allowing (analogous to an online shopping cart) watching the money spend regularly to keep the system working.

On the other hand, we were witnessing various experiments, for instance, with Perplexity AI Shopping (Goldberg, 2024; Epting, 2024; Zeff, 2024; AIbase, 2024) offering integrated online research, product comparison, and checkout, and making CX seamless and enjoyable.

Coming back to grocery shopping, it is worth showing that grocery shopping journey's digitization is continuing, in-store and online shopping experience being more and more better connected as a result of retailers' increased investments in new technology. A recent EMARKETER analyst report (with compliments of the leading performance marketing platform Ibotta Performance Network) revealed, among other aspects, that with regard to AI usage US grocery shoppers have combined feelings as shown in figure below (Droesch, 2024). Beyond a naturally occurring change, it was underlined that AI grocery shopping is still in nascent stages.

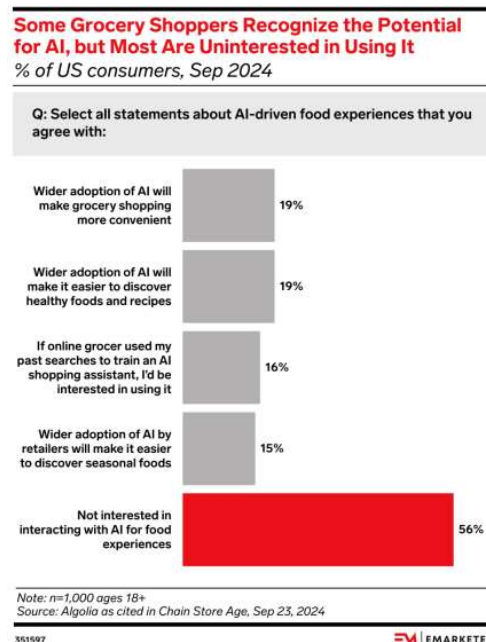


Figure no. 2: Some grocery shoppers recognize the potential for AI, but most are uninterested in using it

Source: Droesch, B., 2024. Data Drop: 5 Charts on Grocery Technology Every step of the grocery shopping journey is being digitized; how do consumers feel about it? EMARKETER analyst report, Oct 2024, p. 5 (work cited)

Another interesting aspect is that, as shown by a VML's The Future Shopper report (Lebow, 2024), AI introduction (as well as of other assistants) could accelerate voice assistants as an important commerce channel in consumers' shopping. Today's growth in voice assistant (accessed via smartphone) use is driven by Gen Z shoppers, and along with Gen AI improvement consumers will incline further into voice-enabled shopping thanks to voice assistants' improved ability in more naturally speaking.

Instead of conclusions: Marketers' increased understanding and addressing phygital retailers' challenges while advancing on the path to ensure CX improvement by bringing together social and technical parts of the phygital retail complex system

At the beginning of this summer we made reference to the phygital retail complex market, underlining the pressing need for the phigital retail to streamlining shoppers' path to purchase based on AI integration (Purcarea, 2024). Of course, we all know that to better understand a system it is necessary to understand some important details concerning a product technical statement, the future state of a technology, how practical problems are solved based on technical thinking and perspective, clarifying people's way of using objects or concepts within a system, as well as their interactions with different processes within this system.

There is no doubt about the rapidly developing "field of social-emotional AI" and the "stratification of human connection" (Pugh, 2024) and beyond the supported narratives regarding LLMs' rapid improvement driven by the "end of scaling laws" declared by "part-time AI industry prognosticators", there are self-evident "large AI Labs and hyperscalers' accelerating datacenter buildouts and capital expenditure" (Patel, Nishball and Kourabi, 2024).

Allow us to identify within this context another fine linkage, this time with the systems approach used by the University of Leeds (n.d.), according to which the socio-technical perspective approach (depending to a large extent on Harold Leavitt work about organisations' 4 key interacting variables: task, structure, technology and people) is essential. Consequently, we can say that it is also good for marketers to both better understand and address phygital retailers' challenges while advancing on the path to ensure CX improvement by bringing together social and technical parts of the phygital retail complex system.

All the more so we are witnessing an abundance of signals with regard to the spectacular evolution of what is happening at the confluence of consumers' enhanced capacities by AI and retailers' new efficiencies produced by AI within the phygital retail complex market, as confirmed including in the last time: Amazon Nova-powered generative AI applications (Amazon Staff, 2024; Bensinger, 2024); the great interest generated by the released of AI video-generation tool Sora by OpenAI (Field, 2024); the speeding up of retailers' pricing automation and shelf-edge digitalization as a result of collaboration between the leading in-store automation and communication solutions provider Pricer and Google Cloud allowing retailers to build with Gen AI etc. (Briggs, 2024); as 2024's creative design landscape was impacted by AI design tools' influx, among the expected 2025 creative design trends (Helyer, 2024) are also included

human-inspired design (based on intentional accessibility, sustainability, and thought for the human audience) and mixed media design (fluid images created by merging product images with design elements).

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