

The Future of E-Commerce, Technology Priorities and the Challenge of Metaverse



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Abstract

There is no doubt today about e-commerce relevance, the need of technology innovation and a more personalized and immersive shopping. There are obvious opportunities and challenges in the economy of the metaverse, considering the Collingridge dilemma and positioning, as well as experimental governance and the perspective of 6G networks within the expansion of the industrial metaverse. Virtual Shopping, retailers' necessary test-and-learn mentality regarding the Metaverse, e-commerce technology priorities, and the insights critical for experience delivery.

Keywords: E-Commerce Technology Priorities; Collingridge Dilemma and Positioning;

Experimental Governance; Metaverse; 6G Networks; Virtual Shopping;

CX Delivery

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

E-commerce relevance, technology innovation and a more personalized and immersive shopping

In our last RDCM issue we underline the current preoccupations with regard to agile e-commerce (and the dynamic of m-commerce's share of e-commerce), as well as e-commerce contribution to sustainability in retail (Purcarea, 2022). The acceleration of e-commerce growth

by the COVID-19 pandemic (CB Insights' predicting that retail e-commerce sales are expected to grow globally at a 10% CAGR being more than \$7T in 2025), together with the expansion of the online shopping (based on both the metaverse & shared virtual spaces increase) is opening the way to shoppers' expertness (while moving without breaks or gaps between devices and platforms) in working at their task to benefit from improved personalized digital CX ensured by e-commerce businesses (CB Insights a, 2022). This new improved personalized digital CX will be made possible by AI-enabled tools (such as: chat commerce and virtual try-on), the metaverse being enabled by the new technologies (AR/VR, smart glasses, next-generation 3D content etc.) making shopping (step by step) both immersive and engaging, shoppers having a direct line to service thanks to conversational commerce, e-commerce being made accessible everywhere on the basis of headless technology, shoppers' needed assortments being tailored with the help of the personalization technology, and the checkout becoming faster and more secure thanks to the crypto wallets, as shown in figure below:

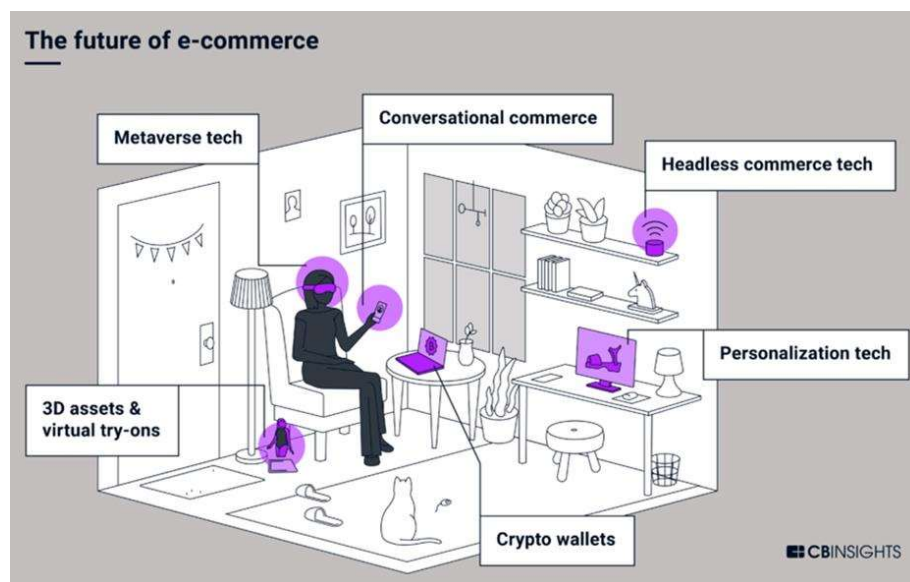


Figure no. 1: The future of e-commerce

Source: CB Insights, 2022. *The Future of E-Commerce: How AI advisors, crypto wallets, and the metaverse will enable shopping in 2030*, CB Insights Report, May 10, 2022 (work cited)

According to Shopify (2022), unique insight and action are necessary in order to thrive in this new e-commerce perspective in which at the center of online shopping are social ecommerce trends, the main currency (of e-commerce future) being trust in (authentic, transparent, and able to be obtained/used rapidly and easily) brands, which are investing for instance in video and live shopping, in online communities etc. Based on data from the Shopify platform (data paired with a Forrester Consulting global commissioned study on behalf of Shopify), Shopify's 2022 Future of Commerce report revealed significant aspects, such as: by investing in brand building businesses are overcoming the competition (which was considered by 350 surveyed global commerce decision makers) as the biggest obstacle to achieving growth in 2022; both brand identity and awareness will become more crucial as the digital space becomes more crammed full

of competitors, at every customer touchpoint being necessary to highlight brands' unique differentiators and values with the adequately equipped Online Store sales channel; DTC brands' need of ensuring tiered digital or physical membership benefits, as proof of authenticity leveraging the blockchain and NFT space; as new ways to engage customers are presented by the social platforms (key to unlocking the power of social commerce being video as the default expression of the internet, for example), there is an obvious migration of e-commerce to social media platforms (which are on the way of becoming more shoppable, crowded and transactional); it is imperative for retailers to ensure their employees' training in new technology (such virtual shopping and live chat) and management of alternative order fulfillment options (such as curbside pickup) so as to deliver a without difficulties omnichannel shopping experience.

Coming back to the report *The Future of E-Commerce* by CB Insights (b, 2022), it is worth also underlining the references made to:

- Innovative brands, such as: Amazon, Walmart, and Nike etc. (retail innovators taking the lead in offering improved digital CX across new platforms, technology, and content); L'Oréal, Nestlé etc. (other innovators in e-commerce experimentation with virtual try-on and customer service avatars interactive features); Meta, Snap and other Big tech players (well-known for making shopping more immersive using with the help of new technologies); PayPal, Visa and other payments giants (facilitating the diversification by retailers of how shoppers pay for and earn rewards on their purchases);
- Detailed aspects regarding key technologies shaping the future of e-commerce, such as:
 - *Conversational commerce* (a type of e-commerce which can be very useful to smaller brands and retailers): shoppers are engaged one-on-one by brands and retailers (store employees or others) based on platforms (SMS, WhatsApp, and other messaging platforms), some of these conversations being automated (for instance: the online chats, on the basis of AI, personalization and targeting being made easier; brands' own communities/servers could integrate chat commerce etc.).
 - *Headless commerce* technology allows the flexibility to meet retailers' and brands' customers where they are (mobile apps, social media pages, interactive kiosks in stores etc.), and that based on the so-called headless commerce architecture (fueling further the e-commerce fragmentation, and boosting social commerce) which separates retailers' and brands' customer interface (the front-end) of an e-commerce experience from its back-end working parts (processing payments and inventory tracking etc.).
 - *Personalization technology* (personalization in online shopping being powered by AI and its subset ML) allows to identify shoppers' preferences and update product recommendations in real time, personalizing recommendations and assortments (on the basis of automated product tagging, search and recommendation engines, tracking shoppers' clickstreams etc.).

- *3D assets* (three-dimensional content like AR or VR assets, holograms, 3D product renderings) and *virtual try-ons* (in e-commerce this type of assets being used for use cases like virtual try-ons, product display pages, and digital goods), due to more immersive CX and improved product visualization being offered by this type of assets higher customer engagement and conversion (including reducing product returns), all of these paving the way for 3D assets (knowing their versatility across product categories, as well, for instance, Gen Z consumers' preference to find new products through such content) to become more integrated in an improved digital shopping experience.

- *Metaverse shopping* (in emerging metaverse spaces driven by virtual products and highly immersive and interactive digital CX) which is driving both customer engagement and purchasing behavior, the rising movement to the metaverse for shopping and otherwise being led by younger users and gamers.

- *Crypto wallets* (considered a means of advancement to decentralized commerce/Web3) allow retailers and brands: faster payments' enablement and more security and transparency by integrating cryptocurrency options into their e-commerce platforms (sending and receiving cryptocurrencies being possible based on users' interaction with blockchain networks thanks to crypto wallets as enabling tools); to reduce transaction costs (beyond to speed up the checkout), the need for intermediaries (such as: payment processors, card networks, bank accounts etc.) being removed due to blockchain technology.

Opportunities and challenges in the economy of the metaverse, considering the Collingridge dilemma and positioning, as well as experimental governance and the perspective of 6G networks within the expansion of the industrial metaverse

The reputed author of the book "Exponential, exploring the transition to the Exponential Age" (Publisher: Diversion Books, September 7, 2021), Azeem Azhar (2022), brought attention recently to the economy of the metaverse as a giant ecosystem involving presumably five billion users by 2030. Following a conversation with his Exponential View member Ronit Ghose (Head of the Future of Finance programme at Citi, and author of the recently published report "Metaverse & Money: Decrypting the Future"), Azhar presented some significant aspects regarding the intersection of decentralized finance in the metaverse (seen as "an evolution of the internet, where virtual and physical mesh together seamlessly"), such as: the large access to the metaverse (through smartphones, game consoles, desktops etc.); the large domains' encapsulation (education, training, enterprise and commerce, money types, entertainment and media etc.); the hard work still needed in the process of finding solutions to complex issues (the increased computational power necessary in the virtual environment, the necessary improved connection latency for a more realistic UX etc.; companies' planning for an expansion of Web3 and the Metaverse it is new and has not developed very much etc.); the perspective of access points to decentralized applications on everyone's device and the evolution of digital money.

As shown recently by the world leader in business news and real-time financial market coverage, CNBC (Boorstin, 2022), with the opening of its first-ever retail store Meta company (formerly known as Facebook) is making a significant step to become a hardware-driven technology company for the metaverse age, exposing consumers (ensuring another touch point for them) to Meta's products (the relatively new categories: Quest Two virtual reality headset, Ray Ban Stories smart glasses, and Portal video calling device). Acting on this way Meta is also valorizing customer feedback, realizing founder's vision of the metaverse.

It is worth remembering that the term metaverse was coined 30 years ago, in 1992, by Neal Stephenson, in his science-fiction novel entitled "Snow Crash", and the writer reacted in October last year at the Facebook rebranding in Meta, considering himself flattered by that situation (King, 2021). The popularity of the metaverse concept increased during the COVID-19 pandemic: people wanted to know more about the highly interactive three-dimensional virtual world, about the exploration of the space using personalized avatars as users' replicas of what can human do in the real world (see also the below figure); its key characteristics are as follows: persistent, self-sustaining, infinite, interoperable, and in real-time; as industries has already benefited from blockchain technology (which essential for metaverse development), companies' demand for a blockchain-powered metaverse has increased; the use cases and applications of the metaverse are shown in figure below (Takyar, 2021). According to the Founder and CEO at LeewayHertz, like every emerging technology metaverse (which is still in its initial stages of moving forward) presents both challenges (for instance: to identify people in the metaverse; privacy concerns etc.) and limitations. What that made us think (and act) to the so-called Collingridge dilemma.

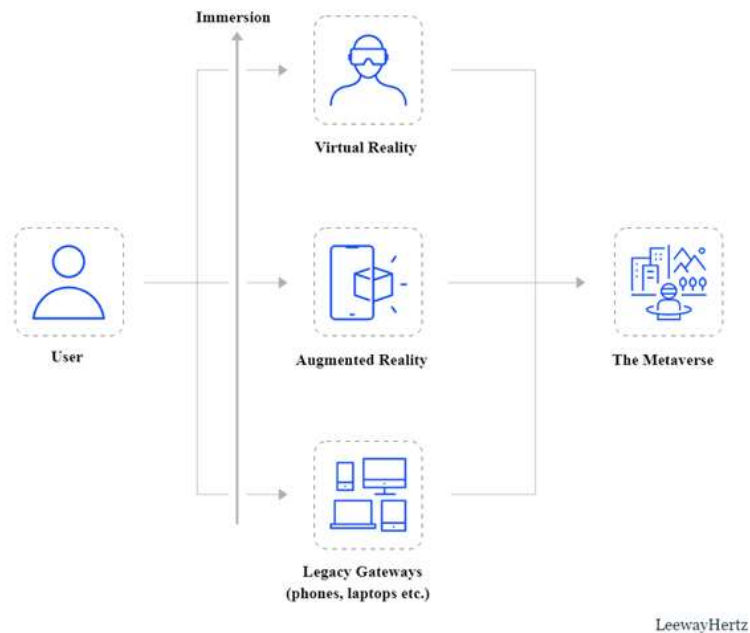


Figure no. 2: Metaverse, a three-dimensional web powered by virtual reality (VR) and augmented reality (AR)

Source: Takyar, A., 2021. Metaverse use cases and benefits, LeewayHertz, December, 2021 (work cited)



Figure no. 2: Use cases of the Metaverse

Source: Takyar, A., 2021. Metaverse use cases and benefits, LeewayHertz, December, 2021 (work cited)

This so-called Collingridge dilemma (described by Collingridge as a double bind problem relating to time and information as two issues directly related), allowed to Besti and Samorè (2018), who did think in terms of regulation goals in a concrete example (in their case the autonomous mobility systems), to come to a similar conclusion to that of Collingridge, namely that during the development of a technology like the metaverse technology) the desirable possibility of controlling it diminish as its implications become understandable, as shown in figure below.

Within this framework, they also introduced the concept of Collingridge Positioning in order to both help the reflection on the above-mentioned dilemma, and understand how to adjust the necessary intervention of those involved (innovators, designers and policymakers) to the degree of diffusion of a certain technology (like metaverse, in our case), as shown in the next figure below.

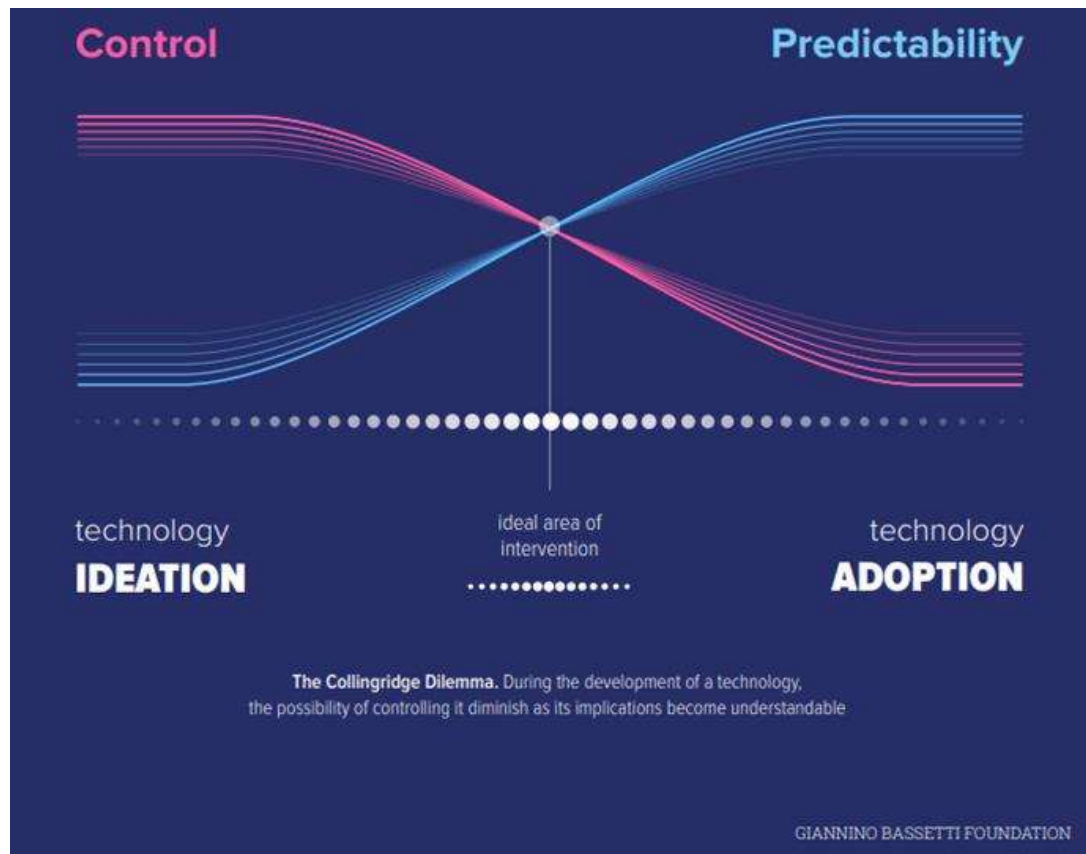


Figure no. 3: The Collingridge Dilemma

Source: Besti, F., Samorè, F., 2018. Responsibility driven design for the future self-driving society. Autonomous systems and the complex challenges to designing a responsible, driverless future [pdf] Fondazione Giannino Bassetti, 2018, p. 8 (work cited)

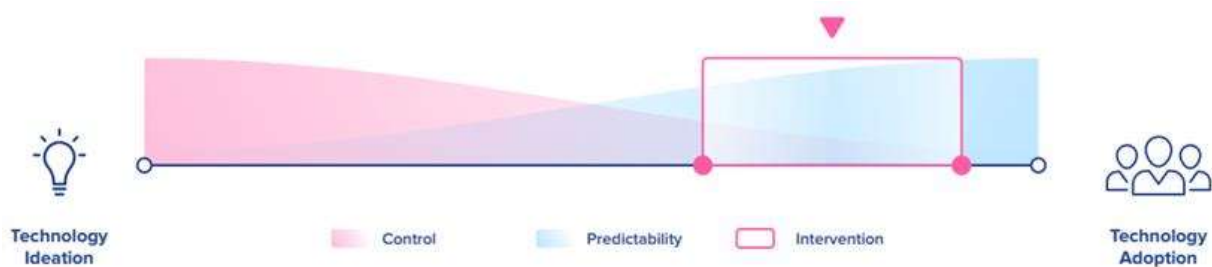


Figure no. 4: The Collingridge Positioning

Source: Besti, F., Samorè, F., 2018. Responsibility driven design for the future self-driving society. Autonomous systems and the complex challenges to designing a responsible, driverless future [pdf] Fondazione Giannino Bassetti, 2018, p. 12 (work cited)

According to the globally operating and independent think tank Demos Helsinki (2022), the dual challenge of information and time is representing one key dilemma for the governance

of emerging technologies, being imperative to change the pace while dealing with the Collingridge dilemma, and that based on experimental governance in tackling this collective problem (both examining and accepting the potential for interaction between technology and governance; enabling open and transparent multi-stakeholder collaboration and achieving higher trust between societies and technologies on this basis). And as stated more recently by Lau (2022): “*Crafting and modelling the success of the NFT space in the metaverse further requires clear rules, stewardship and transparency, not unlike corporations in our “real” world*”.

On the other hand, allow us to also underline two other aspects:

- During a recent Davos panel discussion on the digital economy Nokia CEO Pekka Lundmark launched the prediction that the market will be hit by the 6G networks (described by experts as a major shift driven by technological development in quantum mechanics and AI, beyond ensuring faster speed and response times) around 2030 in the middle of the expansion of the industrial metaverse (going beyond the currently building of the 5G networks), and the today’s smartphone will lose its place as the most common interface (Bradbury, 2022); the article published in Business Insider made also reference to the inclusion into the UX of interactive technologies integrating smell, taste, and touch (according to a professor of multisensory interfaces at University College London, Marianna Obrist, who was cited in a recent article published in El País).
- Microsoft coined the term industrial metaverse (Kawasaki, for instance, is the new customer of Microsoft that will be helped by industrial metaverse in its factories in order to produce robots), where the factory floor workers are wearing a HoloLens headset – first launched in 2016 – and experience augmented reality overlaying digital imagery in production, repairs and managing supply chains, both factory workers and managers being helped to build products faster and more efficiently etc. based on the digital twin of their workspace (Kovach, 2022).

Conclusions: *Virtual Shopping, retailers’ necessary test-and-learn mentality*

regarding the Metaverse, e-commerce technology priorities, and the insights critical for experience delivery

In our last RDCM issue we have shown what is to do (in our opinion) to gain further conclusions regarding the relevance of e-commerce within the phygital business models challenged to ensure continuously improved CX. Recently, we have noticed how Klarna’s CMO David Sandström told Retail Brew that “If the first wave of e-commerce was convenience, the second wave is going to be about personalization, humanization, and experiences”, this becoming a reality through the implementation, step by step, of their vision of bridging the gap between “inspiration and transaction” (Maake, 2022). Klarna company introduced on May 12 this year the so-called Virtual Shopping tool (which will be made available to the 400,000+

worldwide Klarna's retail partners) enabling the online connection between shoppers and retail employees through live messaging and video. As Klarna looks to move beyond Buy Now, Pay Later (BNPL), the above-mentioned virtual shopping tool was made possible by the acquisition of social-shopping platform Hero (and building on it, according to Klarna's vision).

As underlined recently by eMarketer (Paige, 2022), by encouraging customers to take on debt to make purchases that they could not afford under normal circumstances (the phenomenon being even named, for instance, by one Harvard researcher a "bubble"), BNPL firms are thoroughly examined over concerns about the introduction of new financial risks. Hence the increasingly possible perspective of the regulators' involvement, rather than just talking about it.

On the other hand, it is worth highlighting that the CEO and Founder of Coresight Research has presented Coresight Research's exclusive metaverse research at the World Retail Congress in Rome, Italy, April 5-7, 2022. The reputed Deborah Weinswig made it clear (pledging for a test-and-learn mentality) what is essential to know about the metaverse from the point of view of retailers:

"The metaverse is widely accessible to many who use the Internet; Gen Z will be the first metaverse-friendly generation; Established metaverse platforms have a global reach; Demand for virtual land is rising, as land supply in the metaverse is limited and more brands attract consumers to buy; Brands are creating immersive experiences within 3D games and the metaverse; NFTs and other digital assets are a new retail revenue stream; Cryptocurrencies enable buying and selling in the metaverse; Immersive technologies can improve CX; The metaverse can support retailers' sustainability goals; Virtual IP protection will be vital in the metaverse" (Coresight Research, 2022).

Facing delivering a more improved CX (understood as engaging, frictionless, seamless and customer-centric), it is imperative for retailers to address technology priorities, that is why CB Insights (c, 2022) has analyzed the e-commerce technology in consumer and retail market identifying 190+ e-commerce technology companies. The following three themes were considered key by CB Insights within this framework: *infrastructure agility* (new technology solutions offering more flexibility are required by the sudden large increase in e-commerce and new mediums like chat and livestream); *personalized journey* (as online sales are increasing rapidly a key differentiator for retailers is their ability to personalize discovery and make online buying easier, the physical interactions online becoming more and more necessary); *relevant and engaging journey* (to deliver more improved digital CX, retailers and brands need e-commerce technology enablement solutions, from livestream shopping to virtual stores).

And as it's time for CMOs to be more customer-centric, it is important not to forget what Gartner (2022) highlighted with regard to the insights considered critical for CX delivery, as shown in figure below:

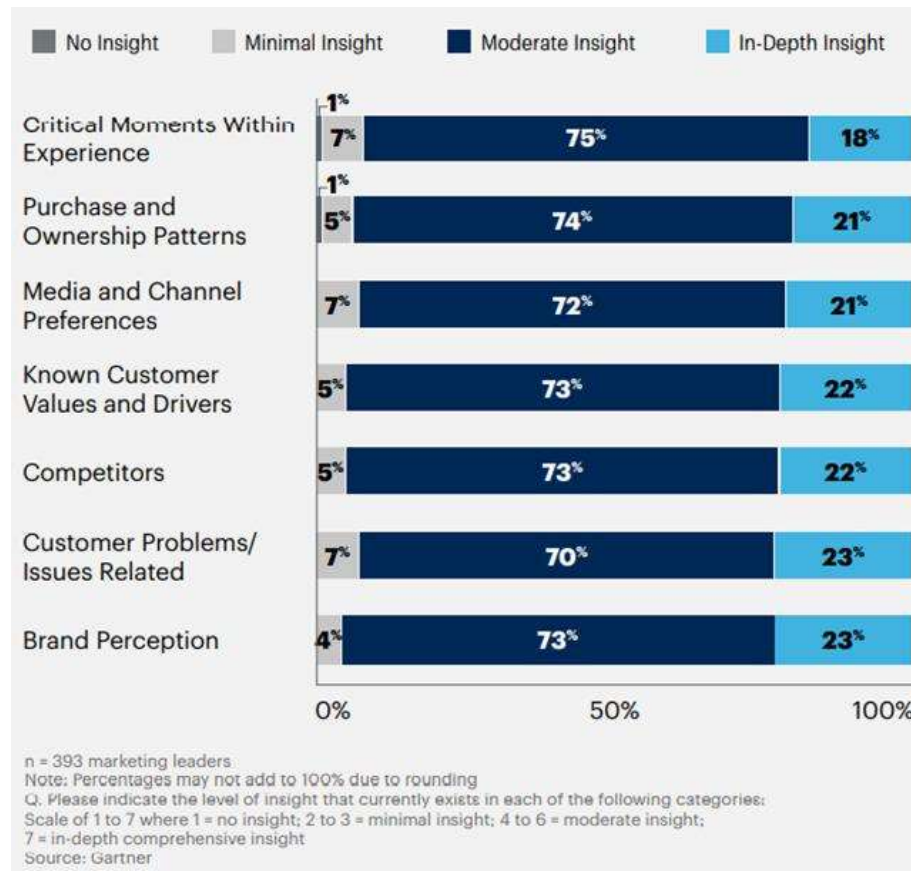


Figure no. 5: Marketers Lack Insights Critical for Experience Delivery

Source: Gartner, 2022. CMOs: Time to Be More Customer-Centric. [pdf] Gartner for Marketers, p. 5 (work cited)

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