V-Commerce in Retail: Nature and Potential Impact

Anouk de Regt and Stuart J. Barnes

Abstract V-commerce is an emerging phenomenon that is gaining traction in marketing and business literature and is becoming specifically more prominent in content related to retail practices. However, interpretations and explanations as to what exactly v-commerce refers to and comprises are inconsistent. This paper addresses the fluid conceptualisation of the v-commerce terminology and advocates the usage of v-commerce terminology exclusively for referring to, and as an abbreviation of, virtual commerce—for which a unified definition will be proposed. Taking a business-to-consumer approach, the current implementations of virtual commerce in the retail sector, as well as the potential and future research implications will be discussed.

Keywords Virtual commerce · V-commerce · Retail · Consumer · Alternate reality

1 Introduction

V-commerce terminology in marketing and business literature is becoming increasingly prevalent. Various authors agree that v-commerce will "reshape the retail landscape" (Ango, 2016; McKone et al., 2017). However, the concept's shared origin between academia, industry and the media combined with ubiquitous implementation, introduced ambiguity to the v-commerce terminology; which currently embodies different, and even contradictory, connotations contingent upon the various stakeholders (i.e., often due to contextual differences). At present, three different usages of v-commerce terminology can be observed: (1) A stream of authors, predominantly practitioner literature, that relates v-commerce to digitally

A. de Regt (✉) · S. J. Barnes
King's Business School, King's College London, London, UK
e-mail: Anouk.de_regt@kcl.ac.uk

S. J. Barnes
e-mail: stuart.barnes@kcl.ac.uk

M. C. tom Dieck and T. Jung (eds.), *Augmented Reality and Virtual Reality*,
Progress in IS, https://doi.org/10.1007/978-3-030-06246-0_2

native vertical brands and vertically integrated commerce (i.e., vertical commerce; Dunn, 2016). (2) A stream of literature that associates v-commerce with virtual commerce (e.g., Jin & Bolebruch, 2009). (3) A final stream of literature that refers to voice commerce (Beaumont, 2017; Zhang, Liu, & Li, 2009). The following paragraphs will expand on the different interpretations of the v-commerce abbreviation.

1.1 Vertical Commerce

The development of Internet-based commerce and the competitive and fast-paced nature of global markets have revived retailer's interests regarding vertical integration—which can be described as combining two or more stages of production and/or distribution, that are usually separate, under a single ownership (e.g., Buzzell, 1983). Dunn (2016) coined the term Digitally Native Vertical Brands (DNVBs), describing brands that are born on the internet and are maniacally focused on the customer experience (a.k.a., v-commerce brands). DNVBs primarily use e-commerce channels for interaction, transaction, and story-telling and rely heavily on their loyal customer base and user-generated content to spread the word (for examples of DNVBs in different industries see Pixlee, 2017). Adhering to the concept of vertical integration, DNVBs bypass traditional supply chains and distribution channels and implement direct-to-consumer models. This enables these online (niche) retails to offer consumers high-quality products at reduced costs while at the same time enhancing their product gross and contribution margins. Although there are potential downsides to a vertically integrated business model (e.g., supply chain complexities and difficulties in scaling; e.g., Dunn, 2016; Wertz, 2012), rising investment activity and acquisitions (i.e., Unilever bought Dollar Shave Club for US$1 billion; Unilever, 2016) could usher in a new era of cult brand monotheism, e-tailers and vertically integrated commerce.

1.2 Virtual Commerce

A lexical definition of virtual is "not physically existing as such but made by software to appear to do so" (Oxford dictionary, 2018). In line with this definition, Javornik (2016) defined virtuality as a "media's capability of showing virtual elements or virtual worlds, as experienced by the user through immersion or telepresence in the environment created by computer graphics or visual elements"—adopting an experience-based perspective (cf., Steuer, 1992). To facilitate immersive and interactive experiences, alternate reality technologies (Table 1) are utilized; which can be classified along a virtuality continuum (Milgram & Kishino, 1994).

Table 1 Alternate reality technologies

Terminology	Definition
Augmented reality (AR)	Alternate reality technology that provides an enhanced version of the real-world by overlaying our existing reality with an additional layer of digital information, which can be viewed through a (connected) technological device—such as smartphones or Augmented Reality Smart Glasses (ARSGs)
Mixed reality (MR)	Alternate reality technology that facilitates the merger of, and real-time interaction with and between, digitally rendered and real-world data and objects through connected technological devices (e.g., mixed reality headset)
Virtual reality (VR)	Alternate reality technology that is characterized by generating real-time, immersive and interactive multi-sensory experiences situated in, and artificially induced by, a responsive three-dimensional computer-generated virtual environment—usually paired with advanced input and output devices

Virtual commerce encompasses conducting commerce through these medium types. Therefore, this paper defines virtual commerce as: electronically mediated commercial transactions that originate from an alternate reality technological platform and involve either digitally-generated or real-world products and services.

1.3 Voice Commerce

Voice activated commerce pertains to user interaction with commercial platforms and applications that utilize natural language speech recognition to enable self-service transactions over the telephone and other connected devices (e.g., Dennis & Harris, 2003, p. 205)—as such, voice recognition technology substitutes the online point-and-click decision-making process by introducing spoken command methods. This shift towards conversation-based e-commerce is influenced by technological progress, including, but not limited to, improvements in the fields of: artificial intelligence, cloud computing and machine learning. Alongside there is the consumer's rising acceptance and comfort levels towards conversational user interfaces (i.e., smart speakers, such as Amazon's Echo and Google Home, that are often linked and or controlled by virtual voice assistants like Apple's Siri and Microsoft's Cortana). Although voice commerce brings in new challenges for retail (e.g., privacy concerns could fuel increasing restrictions regarding access to walled-garden personal data accumulated from voice interactions, inciting tension among digital ecosystems and potentially raising the cost of platform neutrality; Gartner, 2016), it is likely that consumer demand for voice commerce will continue to rise as industry leaders proceed to innovate.

All of the above-mentioned developments are expected to deeply impact the retail industry. However, to advance marketing research practices and increase

understanding regarding v-commerce within the public discourse, it is imperative that we clearly distinguish these advancements. This research advocates to ascribe the v-commerce terminology exclusively to *virtual* commerce; and use different prefixes for the other concepts, respectively *vi*—for vertical (integrated) commerce and *va*—for voice (activated) commerce. The underlying rationale is that throughout the years, commerce has consistently advanced by moving alongside and making use of technological revolutions (i.e., the internet); and most practitioners and academics agree that the rise of virtual and augmented reality can be considered as the next technological revolution (e.g., Steinicke, 2016, pp. 33–43). In addition, former one-letter commerce prefixes all refer to the medium type and or technology. Examples include: E-commerce, which can be defined as "the use of electronic means to exchange information and to carry out activities and transactions" (i.e., electronic commerce; Wyckoff & Colecchia, 1999); M-commerce "any transaction with a monetary value—either direct or indirect—that is conducted over a wireless telecommunication network" (i.e., mobile commerce; Barnes, 2002) and T-commerce "electronically mediated commerce through interactive digital television" (i.e., television commerce; Arroyo-Cañada & Gil-Lafuente, 2016). Adhering to this pattern, v-commerce should relate to virtual technology. It can be argued that virtual commerce, like m-commerce before (Coursaris & Hassanein, 2002), should be regarded as a subset of e-commerce—although some people have phrased it to be the "next step" (e.g., Alexandru, 2017).

2 V-Commerce and the Impact on Business-to-Consumer Retailing

In 2010, Jones stated that "a host of technological and social forces needs to converge in order for v-commerce to flourish" (p. 56) and it can be reasoned that we are currently at that stage. The maturation of VR and AR technologies heralds a fundamental shift in moving from the internet of information towards the internet of experiences (i.e., in which experiences replace information as the basic unit of currency; Kelly, 2016), and it can be argued that therein lies the biggest premise of virtual commerce; the potential to transform online shopping experiences and provide a (near) real-world equivalent (e.g., Papadopoulou, 2007). This is primarily because a virtual commerce interface, if properly designed, can support natural shopping behaviour by providing a more personalized, immersive and interactive experience (e.g., Chittaro & Ration, 2000). From a societal point of view, the consumer shift towards the v-commerce will be mainly driven by the younger age cohorts, since they are technology savvy, known to associate with brands to express their identity (e.g., Saxton, 2005) and already spend more money on 'experiential purchases' (cf. Van Boven & Gilovich, 2003).

2.1 Current Implementations of V-Commerce

The retailing industry is starting to transform due to virtual technologies impacting all stages of the retail ecosystem. This paper takes a business-to-consumer approach and focusses on "front-end" implementations of virtual commerce. V-commerce will change the meaning of "what you see is what you get" since it provides consumers with the possibility to experience and explore different features of a product or service before the actual purchase. Notwithstanding the interesting development perspectives for brick-and-mortal retailers, research by Chesney, Chuah, Dobele, and Hoffmann (2017) indicates that this could be a major disrupter for online shopping, potentially bridging the trust deficit that might have prevented people from making purchases in web-based e-tailing environments in the past. Various retailers are already experimenting with different implementations and although currently virtual commerce is still in the early adoption phase, it can be expected that in the (near) future virtual commerce will be implemented on a more global scale. Currently, two main implementations of augmented-reality interactive technology (ARIT; e.g., Huang & Liao, 2015) can be distinguished; namely, enhancing the consumers shopping experience by utilizing it as a product try-on technology and employing location-based intelligence to offer interactive, contextually-relevant (personalized) experiences. With regard to virtual reality technology, the two main implementations that can be identified are employing virtual-reality as a new sales channel and implementing it as a channel for brand building.

AR Implementations The most obvious fit for try-on technology are retailers where fit is crucial (e.g., retailers selling clothing). However, it does not stop there. CaratLane, one of India's largest online jewellery retailers, implemented this technology to introduce the world's first virtual 3D jewellery Try-on app—implementing facial recognition and three-dimensional imaging technology to turn the user's laptop or smartphone screen into a mirror (Business Standard, 2015). MAC Cosmetics implements this technology on location in their New York retail store (Stolyar, 2017; i.e., stationary virtual mirrors, a.k.a, AR-mirrors). Another example is the IKEA Place app, which lets consumers experience how true-to-scale furniture would look, and fit, in their house (IKEA, 2017). Currently, most AR apps require consumers to use their hand-held (mobile) devices. However, it can be argued that with recent technological advancements in the field of wearable augmented reality devices, and particularly Augmented Reality Smart Glasses (i.e., devices that are worn like regular glasses and merge virtual information with physical information in a user's view field; Ro, Brem, & Rauschnabel, 2018), business potential and opportunities for value creation will continue to grow. Regarding location-based augmented reality, multiple apps exist that link augmented reality with GPS systems, geospatial data techniques and location sensors of mobile devices (e.g., Streetmuseum, which provides historical information about landmarks in London; BBC, 2010). Utilizing this technology, Blippar (2017) provides a business implementation by employing rich media units (i.e., digital banner ads) that deliver

content and features designed to drive active consumer engagement and interest in products. Since this technology can be implemented in almost any camera-accessible web and mobile environment, it facilitates scaling exposure across audience segments.

VR Implementations Providing the first virtual reality department store, eBay and the Australian retailer Myer provide a good example of implementing VR as a sales channel (eBay, 2016). Utilizing a smartphone based virtual reality viewer, consumers could inspect items (i.e., move, rotate, zoom-in), access real-time product specifications (e.g., product range, pricing and stock information) and finalize purchases through the eBay app. To enhance consumer uptake, Sydney residents could sign up for a special exhibition tour and 15,000 VR viewers were made available to consumers free of charge. Implementing VR technology for brand building can take multiple forms, virtual brand storytelling being the most obvious. A showcase example is provided by The New York Times who partnered up with Google to create a line-up of 360° virtual reality films that could be made available to their (print) subscribers. The first project (i.e., The Displaced, which focusses on the lives of three children whose lives have been uprooted by war) won them the Entertainment Grand Prix at the Cannes Lions International Festival of Creativity (Adweek, 2016). Other examples of VR brand building include: (1) Product demo's, demonstrating product attributes, features and functionalities (e.g., Chevrolet VR experience; Chevrolet, 2018). (2) Live streaming of events (e.g., Topshop London Fashion Week; Campaign, 2014), and (3) co-creation (i.e., NIKEiD VR Studio; RGA, 2016). Overall, it can be concluded that v-commerce offers exciting and new opportunities for brands, businesses and the retail industry—opportunities that we are only just beginning to explore.

3 Discussion

At this point it seems unlikely that v-commerce will render well established m-commerce and e-commerce practices completely obsolete—although, tech executives (e.g., Zuckerberg) have previously mentioned that alternate realities have the potential to become the next major computing platforms in the future (e.g., Heath, 2017). Nevertheless, v-commerce does offer a new platform for consumer-brand interaction that can supplement existing digital and physical channels. Therefore, retailers that are pursuing a true omni-channel strategy should start to consider how v-commerce can become an integral part of their overall approach (e.g., as marketing and or customer service channel). Concurrently, the Marketing Science Institute (MSI, 2016) has encouraged the academic community to gear their research efforts towards the delivery of integrated, real-time and relevant experiences in context. Therefore, future research efforts should focus on addressing: (1) Contextual differences (e.g., online vs. in-store settings). (2) Differences between consumer segments (e.g., acceptance, trust and brand-self connection). (3) Cross-channel effects,

interoperability and comparative effectiveness between different v-commerce channels and/ or traditional advertising platforms, preferably relating it to market segments and or product categories. (4) Generating universal v-commerce measurement metrics. (5) Establishing laws and regulations (e.g., regarding data ownership/privacy). We encourage investigations into these potentially fruitful avenues of future research and practice.

References

Adlatina. (2016, December). *R/GA buenos aires launches NIKEiD VR STUDIO.* Retrieved from https://www.rga.com/news/articles/r-ga-buenos-aires-presents-nikeid-vr-studio.

Adweek. (2016, June). *The New York times VR film 'The Displaced' wins the lions entertainment grand prix.* Retrieved from http://www.adweek.com/brand-marketing/new-york-times-vr-film-displaced-wins-lions-entertainment-grand-prix-172225/.

Alexandru, E. (2017, February). *Is virtual commerce the next revolutionary step in ecommerce*. Retrieved from http://ayg.ro/is-virtual-commerce-the-next-revolutionary-step-in-ecommerce/.

Ango, S. (2016, August). *Vertical commerce and how the next generation of retail will be built.* Retrieved from https://medium.com/fuzzy-sharp/vertical-commerce-and-how-the-next-generation-of-retail-will-be-built-1ef35f2fc695.

Arroyo-Cañada, F. J., & Gil-Lafuente, J. (2016). The incidence of incentives for t-commerce acceptance: Improving television as a distribution channel. *Journal of Business & Industrial Marketing, 31*(3), 426–435.

Barnes, S. J. (2002). The mobile commerce value chain: Analysis and future developments. *International Journal of Information Management, 22*(2), 91–108.

BBC. (2010, May). *Old London seen with new eyes thanks to mobile apps. Retrieved* from http://news.bbc.co.uk/local/london/hi/things_to_do/newsid_8700000/8700410.stm.

Beaumont, D. (2017, October). *V-commerce is artificial intelligence and voice capability*. Retrieved from https://chatbotslife.com/what-is-v-commerce-and-why-its-ready-to-explode-c4cc6f696e19.

Blippar. (2017, May). *Bringing augmented reality rich media banners.* Retrieved from https://blippar.com/en/resources/blog/2017/05/08/bringing-augmented-reality-rich-media-banners/.

Bold, B. (2014, February). *Topshop engages VR technology to live-stream fashion show to Oxford Circus shoppers.* Retrieved from https://www.campaignlive.co.uk/article/topshop-engages-vr-technology-live-stream-fashion-show-oxford-circus-shoppers/1230847.

Business Standard. (2015, August). *Caratlane launches virtual jewellery try-on app.* Retrieved from http://www.business-standard.com/article/news-ians/caratlane-launches-virtual-jewellery-try-on-app-115082000799_1.html.

Buzzell, R. D. (1983). Is vertical integration profitable. *Harvard Business Review, 61*(1), 92–102.

Chesney, T., Chuah, S. H., Dobele, A. R., & Hoffmann, R. (2017). Information richness and trust in v-commerce: Implications for services marketing. *Journal of Services Marketing, 31*(3), 295–307.

Chevrolet. (2018, January). *Chevrolet gives auto show goers behind-the-scenes look at vehicle testing*. Retrieved from http://media.gm.com/media/us/en/chevrolet/news.detail.html/content/Pages/news/us/en/2018/jan/0114-4d.html.

Chittaro, L., & Ration, R. (2000, August). Adding adaptive features to virtual reality interfaces for e-commerce. In *International Conference on Adaptive Hypermedia and Adaptive Web-Based Systems* (pp. 86–97). Berlin, Heidelberg: Springer.

Coursaris, C., & Hassanein, K. (2002). Understanding m-commerce: A consumer-centric model. *Quarterly Journal of Electronic Commerce, 3,* 247–272.

Dennis, C., & Harris, L. (2003). *Marketing the e-business*. London: Routledge.
Dunn, A. (2016, May). *What marketers need to know about v-commerce.* Retrieved from https://www.youvisit.com/insight/virtual-reality/what-marketers-need-to-know-about-v-commerce/.
Ebay. (2016, May). *Ebay Australia helps launch the world's first virtual reality department store. Retrieved* from https://www.ebayinc.com/stories/news/ebay-australia-helps-launch-the-worlds-first-virtual-reality-department-store-into-the-world-of-virtual-reality/.
Gartner. (2016). *Top strategic predictions for 2017 and beyond: Surviving the storm winds of digital disruption*. Stamford, CT: Gartner, Inc.
Heath, A. (2017, April). *Facebook's next big thing is augmented reality, says Mark Zuckerberg*. Retrieved from http://uk.businessinsider.com/facebook-next-big-thing-augmented-reality-mark-zuckerberg-2017-4.
Huang, T. L., & Liao, S. (2015). A model of acceptance of augmented-reality interactive technology: The moderating role of cognitive innovativeness. *Electronic Commerce Research, 15*(2), 269–295.
IKEA. (2017). *Try before you buy.* Retrieved from http://www.ikea.com/gb/en/this-is-ikea/ikea-highlights/try-before-you-buy/.
Javornik, A. (2016). Augmented reality: Research agenda for studying the impact of its media characteristics on consumer behaviour. *Journal of Retailing and Consumer Services, 30,* 252–261.
Jin, S. A. A., & Bolebruch, J. (2009). Virtual commerce (v-commerce) in second life: The roles of physical presence and brand-self connection. *Journal for Virtual Worlds Research, 2*(4).
Jones, S. (2010). From e-commerce to v-commerce. In *Virtual worlds and e-commerce: Technologies and applications for building customer relationships* (p. 42).
Kelly, K. (2016, March). *12 inevitable tech forces that will shape our future*. Retrieved from https://www.youtube.com/watch?v=pZwq8eMdYrY.
McKone, D., Haslehurst, R., & Steingoltz, M. (2017, July). *How will v-commerce arrive? Consumers show the way*. Retrieved from https://www.lek.com/insights/how-will-v-commerce-arrive-consumers-show-way.
Milgram, P., & Kishino, F. (1994). A taxonomy of mixed reality visual displays. *IEICE Transactions on Information and Systems, 77*(12), 1321–1329.
MSI Research Priorities 2016–2018. (2016). Cambridge: Marketing Science Institute.
Papadopoulou, P. (2007). Applying virtual reality for trust-building e-commerce environments. *Virtual Reality, 11*(2–3), 107–127.
Pixlee. (2017). *The top 25 digitally native vertical brands 2017*. San Francisco, CA: Pixlee.
Ro, Y. K., Brem, A., & Rauschnabel, P. A. (2018). Augmented reality smart glasses: Definition, concepts and impact on firm value creation. In *Augmented reality and virtual reality* (pp. 169–181). Cham: Springer.
Saxton, G. (2005). Collections of cool. *Young Consumers, 6*(2), 18–27.
Steinicke, F. (2016). *Being really virtual: Immersive natives and the future of virtual reality*. Cham: Springer.
Steuer, J. (1992). Defining virtual reality: Dimensions determining telepresence. *Journal of communication, 42*(4), 73–93.
Stolyar, B. (2017, November). *MAC virtual try-on mirror review*. Retrieved from https://www.digitaltrends.com/photography/mac-virtual-try-on-mirror-review/.
Unilever. (2016, July). *Unilever acquires Dollar Shave Club*. Retrieved from https://www.unilever.com/news/Press-releases/2016/unilever-acquires-dollar-shave-club.html.
Van Boven, L., & Gilovich, T. (2003). To do or to have? That is the question. *Journal of Personality and Social Psychology, 85*(6), 1193.
Virtual. (2018). In Oxford dictionaries.com. Retrieved from https://en.oxforddictionaries.com/definition/virtual.

Wyckoff, A. D., & Colecchia, A. (1999). *Economic and social impact of electronic commerce: Preliminary findings and research agenda*. Organization for Economic Cooperation and Development (OECD).

Wertz, B. (2012, September). *The next big e-commerce wave: Vertically integrated commerce*. Retrieved from https://techcrunch.com/2012/09/29/the-next-big-e-commerce-wave-vertically-integrated-commerce/.

Zhang, L., Liu, Q., & Li, X. (2009). Ubiquitous commerce: Theories, technologies, and applications. *Journal of Networks, 4*(4), 271–278.