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# Transforming retail innovation with Augmented and Virtual Reality

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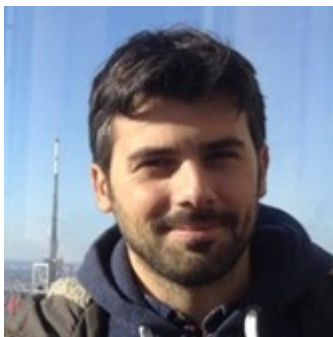


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# Transforming retail innovation with Augmented and Virtual Reality

Read new CSI blog written by Costas Boletsis and Amela Karahasanovic.



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Digital technology is one of the main drivers of innovation and transformation in retail. Augmented Reality (AR) and Virtual Reality (VR) are two different, yet related, technologies, which have found their place in retail innovation activities, having offered vast promises for a long time; those promises are just beginning to be realized. When a new technology appears, or become widely accessible, managers and researchers have to ask how one can use these technologies in the innovation process in the best possible way. Therefore, to examine and ultimately direct the effect of AR and VR on retail innovation, we address two main questions: "How are AR and VR currently used in retail innovation?" and "How can AR and VR be beneficially used for facilitating several types of innovation and help retail businesses to grow?".

Recently, major changes for VR systems have taken place, which have revived the interest in the field and made VR accessible, up-to-date and relevant again [1]. The low acquisition cost of VR headsets (e.g. [Oculus Rift](#), [HTC Vive](#), [Google Cardboard](#), and [more](#)) transformed VR into a widely-accessible and popular technology. Moreover, the quality of virtual environments increased rapidly, offering realistic graphics and full immersion [2]. At the same time, the advances in the smartphone industry allowed for AR to become widely accessible and enabled users to enjoy memorable AR experiences simply through their smartphones' screen [3]. AR's ability to overlay the physical environment with virtual elements such as graphics, video, and audio, which can interact with the physical environment in real time, provides new possibilities for content delivery to consumers [4].

VR commerce and retailing utilizes VR headsets and smartphones to both enhance and drive the shopping experience. It allows retailers to immerse consumers in custom-created virtual worlds, combining traditional online shopping elements with 3D experiences to increase consumer engagement, grow sales and increase brand loyalty [5,6]. Augmented Reality has also emerged as a relevant interactive technology in the retail environment, often developed in formats of smart device applications [4]. It consequently holds the potential to alter many consumer activities, among which information search and product trials [4]. It can also help to increase trust in online shopping by allowing the customers to closely inspect the products they are buying [7]. Several retail companies are utilizing the power of AR and VR for retail innovation through unique offerings, such as:

- [IKEA Catalog](#), [Uniqlo's Magic Mirror](#), [Sephora Virtual Artist](#), and [Dulux Visualiser](#) enable customers to try on their products (furniture, clothes, makeup products, and interior paint colors respectively) as AR 3D graphics.
- The [Volkswagen Virtual Golf Cabriolet](#) and [IKEA VR Experience](#) applications present present 3D models of their products (a 3D interactive model of a car using AR and a fully immersive, VR kitchen respectively).
- [Alibaba Buy+](#) is a VR shop application for navigating and buying products in a virtual mall.
- The [North Face VR experience](#) and [Toms Virtual Giving Trip](#) applications are quite similar in principle, since they both use VR 360-degree videos to immerse the customer in a specific experience.
- [Lego AR Studio](#) and [NikeID In-store AR](#) are two AR applications that enable customers to customize products (Lego games and sport shoes respectively) and visualize their designs.
- [DHL Vision Picking](#) and [Walmart VR in Academies](#) utilize AR and VR to support their backstage, internal organizational processes for facilitating day-to-day work activities (e.g. pick ordering) and training of employees.

The AR/VR retail applications mentioned above, along with several others, are extensively reviewed and analyzed based on Keeley's et al. "[Ten Types of Innovation](#)" framework [8] in our recent study, to be published in the CSI special issue of the [Magma journal](#) (link to come upon publication).



Our analysis concluded that AR/VR innovations can contribute to:

- **Creating imaginary brand experiences with high emotional engagement**

Companies utilize AR and VR to establish their brands as innovative and engage customers, offering supporting AR/VR services or experiences. Using AR/VR at different stages of the retail process sends the message that the company stands for innovation, exploration and creativity.
- **Facilitating internal, organizational processes**

AR/VR applications can assist in backstage innovation processes, even though there is a limited number of real-life examples in this category. Retail industry could benefit from applying AR/VR innovation in internal, organizational processes more intensively, addressing structure and process innovation.
- **Involving the customer or other stakeholders in the value creation process**

With AR/VR innovation, retail businesses can connect with their customers and collaborate to create value for both parties. This can further lead to new innovations around personalized services and products (for instance by applying "customer as designer" and Open Innovation models), as well as aggregate high-quality behavior data for customer analysis.
- **Supporting and facilitating the integration of other marketing channels in omnimarketing models**

AR/VR applications can be beneficial for omnichannel marketing, containing connections to other marketing channels such as magazines, social media, ad videos, websites, and physical stores, in order to create strong brand experiences and innovative multiplatform offerings.
- **Enabling virtual try-on experiences and affecting purchase decision**

AR is blended in the real environment, enabling virtual try-on sessions and product trials, while VR can simulate how a product will function, with both technologies targeting to affect purchase decision.

- **Creating additional sales channels and directly integrate them**

AR/VR applications and services can be integrated into the customer purchase journey through scan-to-shop applications and instant actions to buy, bridging the gap between the physical and online shops and providing the best of the two worlds. AR is easier to scale since it can be experienced from many devices, such as smartphones, tablets, AR glasses. VR is harder to integrate across sales channels and show direct impact on sales, since VR shopping is still in its infancy, however important steps are taken towards that direction.

To sum up, AR/VR innovations may not only improve the retail process itself, but also have various desirable marketing and branding effects, e.g. regarding perceived innovativeness. IKEA, for instance, is considered by customers as the most innovative company in Norway, with the highest Perceived Innovativeness score (76 out of 100) according to the [2017 Norwegian Innovation Index](#). It also gets third place for perceived innovativeness in the [2018 American Innovation Index](#), among U.S. companies and based on their customers' perceptions. Naturally, it remains to be investigated to which degree the introduction of AR/VR innovations impacts revenues of retail companies, however their utilization seems quite promising for the future of retail innovation.

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