



Politecnico
di Bari

Interuniversity PhD Program in Industry 4.0
between Polytechnic University of Bari and
University of Bari Aldo Moro



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Research Topic: User Experience Design in retail context through Extended Reality

The emergence of *Digital Innovation in Industry 4.0 Era* towards online retail industry has transformed the way consumers experience to buy. With the growing population of digital users gaining online consumption power, retail industries are facing evolutionary changes in attracting and maintaining online and offline customers. In our era where online purchases are increasingly important, it is necessary to keep in mind the needs of the consumer, especially since they are no longer forced to enter a store when they have to buy something. In fact, when they decide to visit a store, buyers are no longer driven by a need, but by the desire to live an *experience*. When consumers visit city centre stores and shopping mall stores, they are looking for experiences: touch, see, feel and discover products. Creating a unique one is essential to transform visitors into customers and increase their loyalty. Whatever the field, today it is essential to offer our consumers a continuity between the *offline* and *online* world. In fact, we live in an increasingly digital-oriented world, which forces retailers to deal with a new reality: one in which traditional stores are replaced by omnichannel integration models.

The impact of the pandemic on retail is unprecedented: for the first time in history, all physical stores, except for grocery stores, have been closed. Investing in technological and digital transformation initiatives will be essential for shops, shopping centers and supermarkets to become more competitive, grow steadily and ensure, in the short and medium term, a promising scenario that will allow them to emerge from the strongest coronavirus era. Today, more than ever, it is essential to combine a *dynamic managerial culture* with the application of those *digital technologies* linked to the Industry 4.0 paradigm, to evolve in this context, differentiate from the competition and consolidate the new business models that are spreading in recent months.

In this context, there are three main objectives of my research activity.

The first concerns addressing Extended Reality technology in retail in a scientific way to fill the gaps in literature and with a user-centered approach, indicating strengths and weaknesses, finding new solutions (adaptable to different types of contexts - including domestic), scientifically tested and patentable.

The second concerns understanding how to compensate the lack of tactile feedback on objects (for example, furnishing accessories) and material textures (designing Haptic Interfaces to complete the user experience), guaranteeing the immersion in XR, through an involvement not only of the sight sense (as usual), but also of the touch sense.

The third is about designing Extended Reality systems (services, devices, combination of VR/AR devices, etc.) to be used in real stores and/or packages to be sent home and returned after use, including IoT systems.

It is important to consider the advantages over these innovative scenarios (for example, energy savings resulting from the return of products that are unsuitable or disliked by consumers), considering factors such as consumer inclusiveness and accessibility (e.g. blind, visually impaired, etc.).