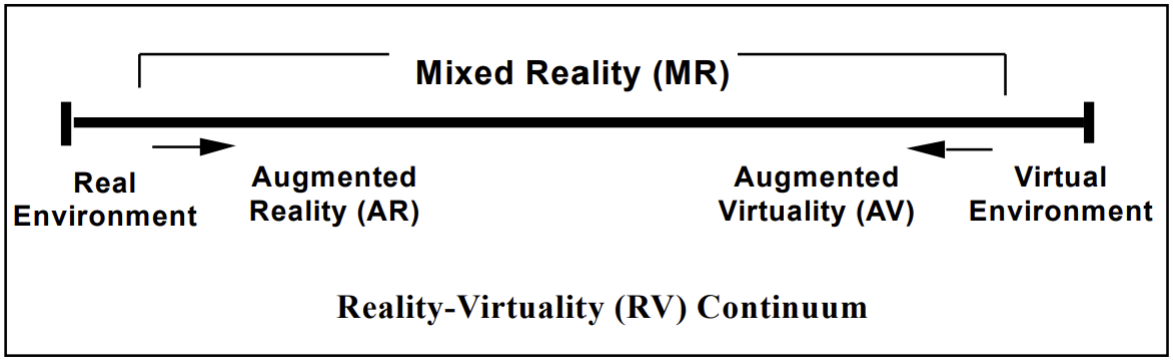
Mercado XR Article

Extended reality, also referred to as “XR”, is the umbrella term that encompasses all simulated experiences beyond the physical. The “X” in “XR” is not referring to the word “extended” but rather a placeholder letter that can be replaced (i.e. with A, M, or V). The simplest way to visualize this spectrum of visual experiences is via something called the Reality-Virtuality (RV) Continuum, developed by the University of Toronto Professor Paul Milgram. This spectrum starts off with physical reality (termed “Real Environment”) on one end, and virtual reality (termed “Virtual Environment”) on the other. Between them are 2 types of augmentations: augmented reality (AR) and augmented virtuality (AV). These 2 together, and in fact anything between (but not including) physical and virtual reality, would be under the domain of mixed reality (MR). This whole spectrum of realities (VR, MR, AR, AV) is what is collectively referred to as XR.



VR, MR, AR, and AV have been defined in many ways by many experts, each slightly differing depending on the discipline. The linguistic definitions found in English dictionaries are different from the ones used by programmers in computing, which are different from the philosophical postulations found in theoretical works. ILLUSORR uses definitions specific enough for clarity, but also general enough to invite exploration and evolution/adaptations that may not have been considered by the progenitors and pioneers. VR can be defined as all fully simulated arenas and immersive experiences recursively affecting the perceptual senses. AR can be understood as simulated experiences that overlay the virtual world unto the physical. AV can be understood as simulated experiences that overlay the physical world unto the virtual. And MR environment is one in which physical and virtual objects are presented together within a single experience, that is, anywhere between the extrema of the RV continuum.

The reason the term XR became necessary in the first place was due to the new types of accessibility devices and technological advancements. As head-mounted displays (HMDs) evolved from Morton Heilig's Stereoscopic-Television Apparatus “Telesphere Mask” in the 1960s, to Sutherland and Sproull’s AR device ‘Sword of Damocles’, to the modern-day Hololens and MetaQuest, new terms had to be developed for different accessibilities. Prior to that, VR was the most commonly used term, until AR and MR were introduced, and then another term to encapsulate the whole spectrum was needed. Today XR is the preferred term as it is also adaptable and can accommodate future evolutions within the space, and new accessibility devices that may revolutionize simulated experiences; especially brain-machine interfaces (BMIs), for example Neuralink.