



Using VR Technology
in Architectural Preservation



Changing Public Perception,
Creating Public Participation,
and Increasing Cost Effectiveness

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Using VR Technology in Architectural Preservation: Changing Public Perception, Creating Public Interaction, and Increasing Cost Effectiveness

Every year, through multiple means (e.g., natural disasters and manmade conflicts), the public loses access to sites of historical or cultural significance. Virtual Reality (VR) technology allows for the preservation of these sites. This technology also allows participants access to these sites when not possible or practical. In this white paper, we discuss why VR technology supports participants' preservation and access to these sites. Specifically, this technology allows public access that impacts public perception, creates a participatory experience, and proves cost effective over time (see Figure 1).

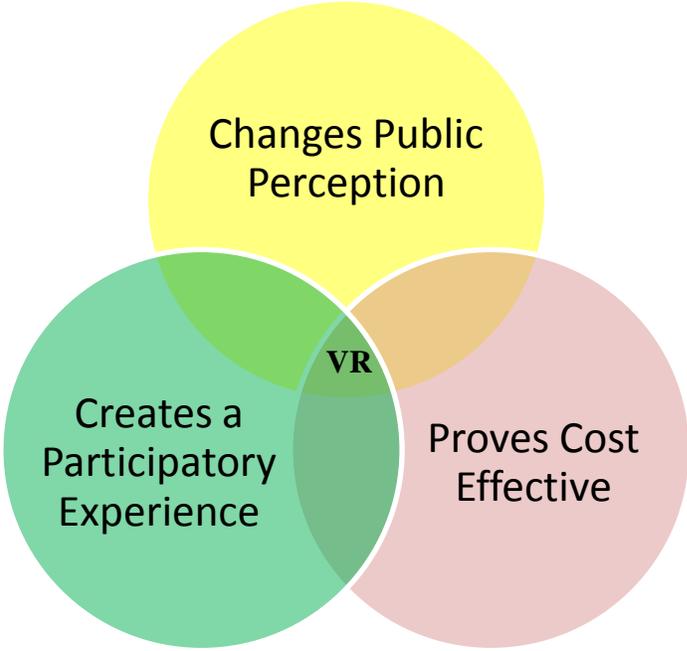


Figure 1. Elements of VR technology beneficial to architectural preservation.

The Impact of Public Perception

Until the 20th century, the impact of public perception on the preservation of culturally significant sites created few examples of noteworthy public response. Completed in 1910 in the Beaux-Arts style, Pennsylvania Station in New York City, New York, provides one of the first examples for the impact of public perception on building conservation. Before Pennsylvania Station's destruction in 1964, many protesters attempted to save the building (see Figure 2). The impact of public perception, in spite of the Station's destruction, created a turning point in the recognition of needing to preserve culturally significant sites. The public's attempts represent one of the first major examples in what would become the modern preservation movement. Though the protesters failed to preserve Pennsylvania Station, the impact of public perception gave momentum to new building preservation oriented groups.

Since the 1960's, however, the impact of public perception on preserving culturally significant sites dramatically increased. For example, completed in 1891 in the Romanesque Revival style, the First Regimental Armory Annex located in Portland, Oregon, provides an example of how the impact of public perception succeeded. In spite of the growing commercialization of older real estate, periods of increased growth, and aggressive urban planning in the city of Portland, protestors in the city preserved the Armory Annex. In the future, the impact of public perception, through the use of VR technology, may lead to greater success in preserving culturally significant sites.



Figure 2. Protesters in front of Pennsylvania Station. (New York Times 1962, Aug 3)

VR as a Participatory Experience

Early 20th century design technologies (e.g., Computer Aided Design software; CAD) limited public participation in preserving sites of cultural heritage. In the early 1960's, the creation of CAD software began the incorporation of digital technologies in the design of buildings. Before this, architects relied on two dimensional imagery (e.g., plans or renderings) when communicating building designs to the public. As a result of the advancement in design technologies, public participation in the process of preservation also increased.

The use of VR technology, in creating new spaces digitally, allows greater participatory experiences by the public (see Figure 3). For example, spatial perspectives, not evident in two dimensional plans or renderings, assist in solving issues early, rather than making expensive post construction corrections. With advances in VR technology and computer modeling, corrections are not only instant, but can also be quickly visualized in three dimensions from multiple perspectives. As a result, VR technology encourages public participation in the preservation of cultural heritage.

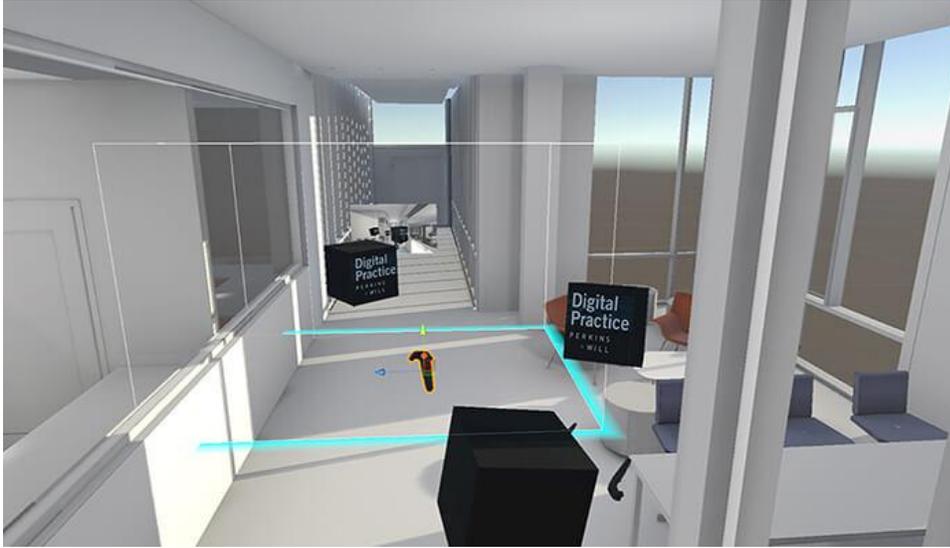


Figure 3. VR social space designed by Perkins+Will (Adapted from <https://www.autodesk.com>)

More for Less

Just over a century ago, the advent of the commercial radio introduced the public to live information broadcasts, entertainment, and choice of content faster than print publications. In addition, this new technology created a sense of community among users within small demographic areas (e.g., local neighborhoods). Unfortunately this technology reflected a prohibitive cost to the general public. Modern VR technology, in comparison, provides the same functionality with the addition of a participatory experience at a similar cost.

Through the addition of headphones and tactile controls, the visual elements of VR technology display further enhancements when compared with radio technology of the previous century (see Figure 4). VR offers information on sites of historical or

cultural heritage, promotes positive public perception through entertainment, and allows the participatory experience through choice (e.g., location, time period, language). Just like radio technology of the early 20th century, the costs associated with VR technology will decrease over time. When used to document sites of historical or cultural significance, VR technology provides an archived experience that remains when losing access to the physical site.



Figure 4. Oculus Rift VR headset with handheld controllers (Adapted from <https://www.oculus.com>)

The Past in the Future

Though the public loses access to sites of historical or cultural significance every year, VR technology enhances the ability of preservation groups when finding at-risk sites. In addition, with the commercialization of older real estate, periods of increased

growth, and aggressive urban planning, VR technology increases the potential of positive public perception. In the future, the impact of this positive public perception may lead to success in preserving sites of cultural heritage. Finally, as the use of VR technology allows participatory experiences by the public when creating new spaces digitally, designers may increase the speed of their work, and provide more options for the public. Though some members of the general public may find the initial cost of VR technology prohibitive, as technology of the 20th century declined in price, VR technology will also eventually decline in price. As this technology allows access to the public in a manner that impacts public perception, creates a participatory experience, and proves cost effective over time, using VR technology in architectural preservation creates options for future sites of historical or cultural significance (see Figure 5).



Figure 5. Google Earth VR view of Florence Cathedral (Adapted from Google Earth VR)

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