Chapter 8
Employing Digital Reality Technologies in Art Exhibitions and Museums:
A Global Survey of Best Practices and Implications

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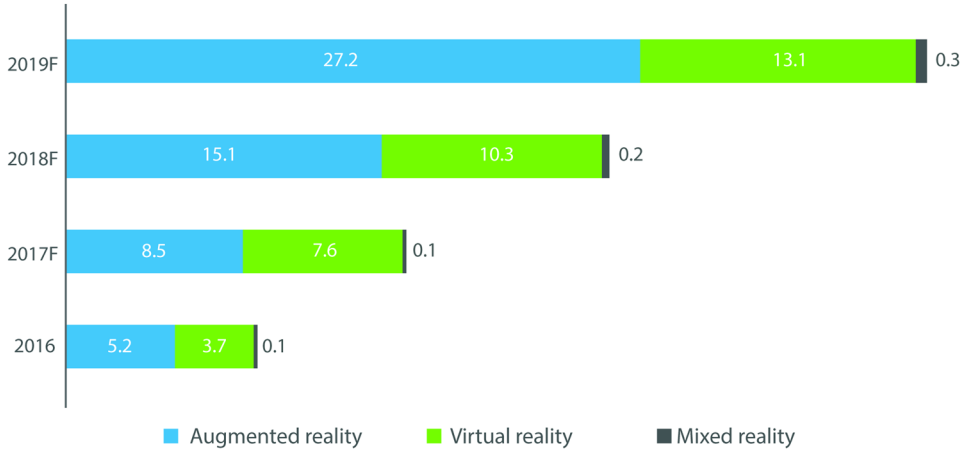
ABSTRACT

The global AR, MR, and VR markets will reach USD$40.6 billion in 2019. As a result, digital reality technologies have become a key component of promoting art exhibition and museum industries to the general public around the world. Emerging applications such as ARCHEOGUIDE, ARCO, and 3D-MURALE have allowed museum-goers to access archeological artefacts and sites remotely without physically visiting the museums. Digital reality technologies have therefore been perceived to have the great potential to promote (creative) cultural industry contents, because of the characteristics of these platforms (e.g., interactivity, realism, and visualization). This chapter employs a case study approach to discuss the current state of digital reality technology applications in museums and art exhibitions around the world. The study provides several best practice examples to demonstrate how digital reality technologies have fundamentally transformed the art exhibitions and museums.

DOI: 10.4018/978-1-7998-1796-3.ch008

Figure 1. Digital reality technology market around the world
Note: in Billion
Source: Deloitte Consulting LLP & Consumer Technology Association (2018), https://www2.deloitte.com/insights/us/en/topics/emerging-technologies/digital-reality-technical-primer.html



INTRODUCTION

According to Deloitte Consulting LLP & Consumer Technology Association (2018), the term, digital reality technology, refers to a cluster of technologies that are able to immerse partially or fully users in a computer-generated virtual environment. In general, these technologies include the following immersive technological platforms, ranging from augmented (AR), mixed (MR), virtual reality (VR), 360 degree video, etc (Deloitte Consulting LLP & Consumer Technology Association, 2018; Forbes, Kinnell, & Goh, 2018; eMarketer.com, 2018a, b, c, d, e, f).

Rosy economic outlook may justify recent surging interest in these digital reality technologies among art exhibition and museum professionals. According to a report by ResearchandMarkets.com (2018), global revenues for both augmented reality (henceforth, AR) and virtual reality (henceforth, VR) are expected to reach $94.4 billion by the year of 2023. The combined yearly growth of AR and VR is also expected to reach $143.3 billion in 2020 (IDC, 2017). Figure 1 offers a longitudinal prediction of the global AR, MR, and VR markets that are expected to grow USD$9 billion in 2016, to USD$25.6 billion in 2018, and to USD$40.6 in 2019 (Deloitte Consulting LLP & Consumer Technology Association, 2018). Thanks for the exponential growth of mobile devices (such as smartphones or tablets), AR technologies have exceeded VR in 2016 in terms of its market size of USD$5.2 billion vs. USD$3.7 billion in 2016 (Deloitte Consulting LLP & Consumer Technology Association, 2018). The augmented reality market has grown much faster than other digital reality platforms in 2019. In 2019, AR market is expected to grow to USD$27.2 billion, when compared with that of VR (USD$13.1 billion) and MR (USD$0.3 billion) (Deloitte Consulting LLP & Consumer Technology Association, 2018). Refer to Figure 1 below for more details of these different digital reality technologies.