

# Chapter 7

## Reinventing Museums in 21st Century: Implementing Augmented Reality and Virtual Reality Technologies Alongside Social Media's Logics

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### ABSTRACT

*The forthcoming Industry 4.0 is expected to change not only manufacturing and industrial services, but will rearrange how services are offered in a variety of sectors, including museum's services. Museums will inevitably be led to more digital (VR & AR) and promoting (Social Media) paths. A forthcoming "digital convergence" between VR & AR technologies and social media's promoting logic could enlarge museums' potentialities in attracting more visitors, younger visitors, while new patterns for connecting learning effects and amusement should be established. This chapter contributes to the following:*

- *Presenting existing theoretical and empirical research on Virtual Reality and Augmented Reality technological implementation in Museums.*
- *Presenting current tensions on social media's usage from cultural organizations.*
- *Exploring how VR & AR applications can incorporate various elements coming from social media operational logic.*

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## INTRODUCTION

Since mid-90s, museums face an ongoing need to implement new technologies and to answer visitors changing needs. The first steps to the digital world came World Wide Web and the development of Web Pages, which open a window to global public, arising questions about the relationship between “increased accessibility” (via internet) and “attractiveness” (from digital) to the real museum place. Even from these first digital steps, where content and context were delivered via web pages, many researchers and professionals started to visualize what Marlaux (Malraux, 1996) introduced in 1947 as “imaginary museum”

*(. . .) a logically related collection of digital objects composed in a variety of media, and, because of its capacity to provide connectedness and various points of access, it lends itself to transcending traditional methods of communicating and interacting with the visitors being flexible toward their needs and interests; it has no real place or space, its objects and the related information can be disseminated all over the world. (Schweibenz, 1998).*

A bit later, social media became part of everyday life and most of the museums worldwide created their own accounts in order to stay “connected” with visitors, world’s audience and social stakeholders. Social media was an alternative, faster, low cost and direct (user friendly) way (Sylaiou, Liarokapis, Kotsakis, & Patias, 2009) to share content, to announce events and to extend “potential” visitors’ pool. This kind of communication was radically facilitated by mobile devices (phones and tablets), enabling a series of dynamic and interactive applications (Hin, Subramaniam, & Aggarwal, 2003). Smartphones are nowadays reshaping the environment, permitting new applications in emerging eras (Kim et al., 2014), such as Virtual Reality (VR) and Augmented Reality (AR) platforms and applications.

These two technologies have already gained interest from both methodologically and empirically research. For example, Sparacino et al. (Sparacino, Davenport, & Pentland, 2000) and Grinter et al. (Grinter et al., 2002) studied interactive technologies in museums, while Brown et al. (Brown, Maccoll, Chalmers, & Galani, 2003) and Bowers et al. (Bowers et al., 2007) explored interactive exhibits using ubiquitous displays with augmented reality. More recent studies concentrated on comparisons of VR, AR and Web3D in virtual museums / exhibitions (Sylaiou et al., 2009), in implementing AR on archaeological site (Angelopoulou et al., 2012; Gutierrez, Molinero, Soto-Martín, & Medina, 2015), in evaluating VR and AR experience in cultural places (Higgett, Chen, & Tatham, 2016; Izzo, 2017).

Current research on VR & AR mainly targets aspects related with their operational strengths and weakness (Loumos, Kargas, & Varoutas, 2018), while social media literature has its own goals related mainly with distribution and promotion. Authors will use their experience from creating a VR & AR application for cultural organizations (named VAREAL and being prepared for market release in late 2019) to explore the technological and business opportunities / limitations of incorporating social media elements in VR & AR apps (such as emoticons, comments, like-dislike, chatting, social networking etc.). Authors aim to reveal that the ongoing technological development made feasible to re-examine digital technologies’ usages and potentialities, by incorporating tools and techniques from different digital fields, such as social media.

A strong motive to this direction has been given from a growing tension between museums to reinvent themselves following a more alternative perception. “Instagramization” is a tension describing the creation of immersive exhibits or even museums themselves in order to provoke visitors to get part of the exhibition, to create their own “photograph” art and to use Instagram (and other social media) to

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