Night at the museum: technology enables visitor experiences[1]

Received
18th February 2020
Revised
4th May 2020
Accepted
10th June 2020

Fabiola Sfodera - Isabella Mingo - Alberto Mattiacci
Maria Colurcio

Abstract

Purpose of the paper: *This paper aims to investigate how technology affects the cultural heritage (CH) experience and how it may configure a new service ecosystem, enabling resource integration, and leveraging resource liquefaction.*

Methodology*: A model with four dimensions of CH experience is proposed and empirically tested using structural equation modeling with data on 300 visitors to three heritage sites in Rome (Italy), which exhibit a high level of technology integration.*

Results*: Technology enables learning processes in the cultural heritage visit experience. The CH experience is configured as a service ecosystem and technology enables increases in resource integration, liquefaction, and density by operating both as an operant and operand resource.*

Research limits: *The study of technology from a service-dominant (S-D) logic perspective is nascent vis-a-vis framing the CH visit experience.*

Practical implications: *Technology acceptance is important for learning and positive perceptions of authenticity. A dynamic approach to the conceptualization of cultural supply structures is important.*

Originality of the paper: *This research advances both theory and practice, adding to existing discourses on CH from a broader perspective that includes CH as a potential part of a service ecosystem, highlighting the role of technology in designing and shaping resource integration. The paper, therefore, offers a novel perspective on CH in terms of value co-creation, highlighting the role of participating architecture for learning.*

Key words: Cultural heritage experience; resource integration; authenticity; augmented reality and virtual reality; S-D Logic

1. Introduction

Technology is almost essential in cultural heritage (CH) contexts for enhancing visitor experiences as well as preserving the integrity of CH sites (Chung *et al.*, 2018).

Technology improves accessibility and communication of the CH value proposition by developing the interactions between cultural

[1] Paragraph allocation:
Fabiola Sfodera: background, conceptual model (included 3.1. Technology acceptance, 3.2. Authenticity, 3.3. Historical reconstruction and cultural & heritage awareness), discussion; Isabella Mingo: methodology, results; Alberto Mattiacci: introduction; Maria Colurcio: conclusion.

institutions (e.g., museums and archeological site) and visitors (Cataldo and Paraventi, 2007). Furthermore, technology contributes to broaden the user base and gives important impetus to the evolution of the learning process that accompanies CH visits, enabling new forms of interactive and participatory learning (Solima, 2010).

CH plays a pivotal role in creating value for actors (tom Dieck and Jung, 2017; Chiabai *et al.*, 2013) within the service ecosystems of CH (Vargo and Lusch, 2011). Some studies stress the relevance of a relational approach among all stakeholders of the CH network (museum staff, technology providers, customers, governmental decision-makers) for the development of successful enhancement plans (Izzo *et al.*, 2015).

From a service perspective, the antecedent of value co-creation is the integration of resources of all the actors involved in the process (Vargo and Lusch, 2017). Specifically, in the CH "value system", the users, be they residents or tourists, play an important role in the resource integration process. From the perspective of visitors "cultural value emerges from the interaction between an offering system, which has been organized to propose a value, and a beneficiary/user who is capable of extracting that value through the interaction process" (Barile *et al.*, 2012, p. 121).

The way in which CH is used has changed profoundly (e.g., Timothy, 1997). Technology shapes CH value offers by creating new experiences and ways of consumption e.g., virtual reality and 3D (e.g., Solima, 2016), but, above all, accelerates innovation and redefines the same ecosystem of services, enriching it with new actors and meanings. Technology offers many opportunities for innovative service design (Bakhshi and Throsby, 2012; Hume, 2015) to face competitive challenges which are pertinent to CH, whilst simultaneously enhancing functional (Berry *et al.*, 2002) and experiential value (Yuan and Wu, 2008). Technology has an important potential for creating an interactive and enjoyable experience in CH; it is a stimulus for knowledge (Sánchez-Fernández and Iniesta-Bonillo, 2007), learning (Yoon *et al.*, 2013), and experience (e.g., Ciasullo *et al.*, 2016; Errichiello *et al.*, 2019).

Although technology is a critical operant resource (Akaka and Vargo, 2014) for value co-creation and innovation in CH, studies that holistically consider technology vis-à-vis CH experiences from an S-D logic perspective, are lacking. Indeed, thus far, the extant literature has focused mainly on the impact of specific technology to enhance the learning experience and co-create value (e.g., Jung *et al.*, 2018; Tscheu and Buhalis, 2016).

This research explores how technology acceptance positively accelerates the dimensions of experience and how it may configure a new service ecosystem enabling resources integration (Akaka and Vargo, 2015; Caridà *et al.*, 2019).

2. Background

From a service perspective in the domain of cultural heritage, two important areas of research can be distinguished. The first relates to consumption patterns which represent a new concept from a service ecosystem perspective. The second relates to technology implementation and the gap between its ability to stimulate innovation (Lusch and Nambisan, 2015) and its use as an operant and operand resource in CH (e.g., Sfodera *et al.*, 2018).

According to Smith (2015), the performative nature of visits allows visitors to create their own meanings, which are not necessarily related to the intentions of organizations. Relatedly, these meanings are not necessarily learned from the exhibition or the cultural assets but can be created or reinforced by the performance of the visit itself and highlight a wide variety of ways through which visitors use both museums and tangible and intangible heritage (Kuflik *et al.*, 2015).

The experiential transformation of CH that emerges from the literature corresponds to a shift in the meaning of the consumer experience that develops through a dynamic process of fruition, in which the cultural proposal is defined through the active involvement of the user. Cognitive co-creation of contents and meanings (Ramírez, 1999) takes place due to the co-creation of value in interactional experience (Ramaswamy and Ozcan, 2018).

As a service ecosystem is defined as a "relatively self-contained, self-adjusting system of resource-integrating actors connected by shared institutional arrangements and mutual value creation through service exchange" (Vargo and Lusch, 2016, p. 11) and as it focuses on the multiple levels of interaction and 'institutions' as drivers of value creation (Vargo *et al.*, 2017), herein we consider CH as a service ecosystem. Therefore, CH experiences occur through and in a services system (Vargo and Lush, 2008; Gummesson *et al.*, 2010) which corresponds to state-of-the-art conceptualizations of the user experience.

On the other hand, heritage tourism offers experiences that involve visiting as the combination of specific learning motivations with recreational and immersive motivations (Poria *et al.*, 2004).

The experience is configured as multi-dimensional and unique for each situation and consumer (Lemon and Verhoef, 2016), and is influenced by expectations, social interactions, and memory (Sfodera, 2011). Creating value through experiences is not a novel notion, neither is the idea that tourists and visitors co-create experiences (e.g., Uriely, 2005). The consumer acts as a resource integrator (Arnould, 2006) and value is derived from the consumption (use) experience. From the perspective of S-D logic, consumers, defined as operant resources, are able to contribute to value creation by integrating physical, social, and cultural resources.

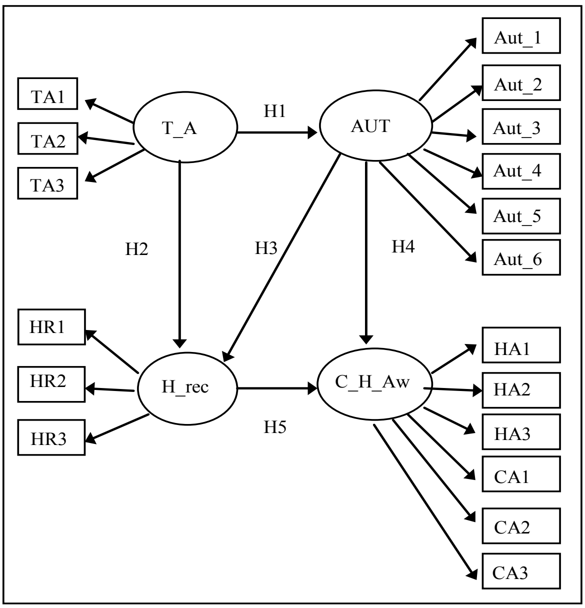
In this context, the construction of experience itself has evolved emphasizing the subjective, personal, and dynamic dimension (O'Dell and Billing, 2005). As stated by Neuhofer *et al.* (2012), technology is a source of innovation to co-create enhanced destination experiences, consumers play an active role in co-creating their own experiences, and technology is increasingly mediating those experiences. The CH sector is one of the most affected by the implementation of technology and ICT (e.g. Pallud and Monod, 2010). Advances in ICT can improve both the quality and quantity of cultural information that can be customized and contribute to learning through the application of theories of social constructivism and experiential education.

There is a substantial literature that considers the role of technology in creating experiences, including virtual reality (e.g., Guttentag, 2010), augmented reality (e.g., Yovcheva *et al.*, 2012), mixed reality, and the use of supporting technologies (such as touch screens for example). However, although technology plays an important role in value by virtue of co-creation and innovation (Maglio and Spohrer, 2008), few studies consider technology in terms of its capacity to transform the nature of experiences (Neuhofer *et al.*, 2014; Akaka and Vargo, 2014). Technological applications increase the value of cultural experiences, as a cultural and aesthetic practice rather than a technology. Technology enhances the achievement of the primary - cultural, historic, or artistic - functions of CH and allows combining known facts with contested heritage, simultaneously stimulating knowledge conversion and resource liquefaction. The purpose is both conservation and development of CH (Bec *et al.*, 2019), with the aim of attracting, entertaining, and educating visitors (Hume and Mills, 2011).

3. Conceptual model

The conceptual model (Figure 1) was constructed on the basis of a thematic literature review which aimed to take a holistic approach to experience and the role of technology in the use of CH, analyzed both as a tool and as a resource.

Fig. 1: Conceptual model and proposed effects



Source: own elaboration

We developed our analysis through the lens of res ource integration (Vargo and Lusch, 2008; Colurcio *et al.*, 2017). Specifically, resource liquefaction (Lusch and Nambisan, 2015) - that is the condition for decoupling, sharing, and improving information - is a key concept in our conceptual model. Four dimensions of CH experience have been isolated. Each of these dimensions is sensitive to (i) tech-based enhancement, (ii) technology acceptance, (iii) authenticity (object based and existential), and two different but related aspects of the learning experience (iv) historical reconstruction and (v) awareness (cultural and heritage) (see Table 1).

Tab. 1: Dimensions, subdimensions, and survey variables

Dimension	References	Variables
Technology Acceptance (TA)	TAM (Davis *et al.*, 1989) Extended TAM with TTF (Dishaw and Strong, 1999) Tourists' acceptance of advanced technology-based innovations for promoting arts and culture (Pantano and Corvello 2014)	TA1 The technology used in the museum definitely improved the show TA2 The technology definitely helped my learning TA3 My basic knowledge was enough to use the virtual technology
Authenticity (Object based and Existential) (AUT)	A consumer-based model of authenticity (Kolar and Zabrak 2010) A typology of technology-enhanced tourism experiences (Neuhofer *et al.*, 2014) Exploring the tourist experience: A sequential approach (Park and Santos 2017)	AUT1 I found the information on the structure and the work (artistic, historical, etc.) that make up the exhibition / guided tour consistent with my visit AUT2 The path immerses me fully or largely in the historical / artistic period of the exhibition / guided tour AUT3 The proposed visit path seemed to me to be coherent and similar to the historical context told AUT4 I liked the technologies used because they involved me AUT5 During the visit I felt an integrated part of the cultural experience offered AUT6 Without the building and its particular presentation I would not have had the same experience
Historical Reconstruction (H_Rec)	SGs model (Mortara *et al.*, 2014) Embodiment of wearable augmented reality technology in tourism experiences (Tussyadiah *et al.*, 2017) From 3D reconstruction to virtual reality: A complete methodology for digital archaeological exhibition (Bruno *et al.*, 2010) Perceived value constructs for AR in the CH tourism context (tom Dieck and Jung, 2017) Hume and Mills (2011) Resource liquefaction (Lusch and Nambisan, 2015)	HR1 Without the use of technology, I could not have imagined the original place HR2 Thanks to the technology I felt immersed in the historical period referred to HR3 The reconstructions helped my understanding and improved my knowledge HR4 Thanks to the technology, I had no problems learning the history and the artistic value of the works (artistic, historical, etc.) / archaeological site
Cultural and Heritage Awareness (C_H_Aw)		CA1 I felt mentally transported to a historical period different to my own CA2 I really understood the meaning and importance that were attributed to the site / exhibited works CA3 Thanks to the historical reconstruction I learned the values of the artistic period of reference
		HA1 Thanks to the visit I really understood the value and the artistic importance of the place and the artistic period HA2 The place builds and fully presents the artistic side of the historical period represented HA3 Thanks to this experience I have acquired and / or improved my knowledge on the historical period represented

Source: own elaboration

3.1 Technology acceptance

The propensity of people to accept technology, even the unknown, is one of the determinants of the implementation of technology in cultural contexts (Hume, 2015). Technology acceptance models and theories have been applied in a wide variety of domains. Furthermore, the speed and ease of access and exchange of information, the immediacy and intuitive nature of technology, foster engagement of the cultural consumer easier by configuring technology as an enabling factor for interaction and value co-creation (Jaakkola and Alexander, 2014).

According to Kolar and Zabrak (2010), technology can provide a surplus of authenticity in the CH experience without negatively impacting its uniqueness and without creating commodification effects (Pantano and Corvello, 2014; Bruno *et al.*, 2010). Technology influences both object-based authenticity, the desire to visit a unique and unrepeatable asset, as well as existential authenticity, the subjective dimension of experience. To better explain the behavior of individuals in CH experience consumption whilst allowing for a multiplicity of interpretations concerning works and their attractiveness (Goulding, 2000), the Extended Technology Acceptance Model (ETAM) was adopted (Venkatesh *et al.*, 2003).

On this basis, the following hypotheses are put forward:

H1: *Technology has a positive influence on authenticity (object based and existential)*

H2: *Technology acceptance has a positive influence on historical reconstruction.*

3.2 Authenticity

To define CH, the requirement of authenticity must be satisfied (Wang *et al.*, 2015). Although in the CH system, authenticity is identifiable and objective (Trilling, 1972), the authenticity perceived by the visitor or tourist, that is an intrinsic part of the overall experience, is subjective and may well be tacit rather than explicit (Reisinger and Steiner, 2006; Steiner and Reisinger, 2006).

MacCannel (1976) stated that the search for authenticity is a constant and continuous part of the journey and that it takes place mainly in heritage settings. For the purposes of this study, when referring to CH, both tangible and intangible aspects are considered. The value of the CH experience is expressed according to two macro dimensions, the authenticity of the experience (object-based and existential authenticity, subsequently defined) (e.g., Kolar and Zabkar, 2010) and the acquisition and development of visitor knowledge (resource liquefaction) (e.g., Poria *et al.*, 2003).

Accordingly, the following hypotheses are put forward:

H3: *Authenticity (object-based and existential) has a positive influence on historical reconstruction*

H4: *Authenticity (object-based and existential) has a positive influence on cultural and heritage awareness.*

3.3 Historical reconstruction and cultural & heritage awareness

Technology enables the construction of a holistic experience in which the process of meaning production is activated by integrating the tangible and intangible dimensions of CH. This integration of contents and resources is defined by the following taxonomy: historical reconstruction, cultural and heritage awareness (Mortara *et al.*, 2014).

Historical reconstruction aims for an accurate representation of the site or of the artistic, historical, or cultural work through technology, starting from a part of it. However, its effectiveness is measured by the ability to generate (i) cultural awareness, i.e., immersion in the intangible aspects of CH (values, beliefs, traditions, and perceptions), and (ii) heritage awareness, i.e., knowledge of the artistic and cultural value of the art or place (Mortara *et al.*, 2014; Bec *et al.*, 2019).

Specifically, AR and 3D reconstruction enhance the experience during the fruition of CH through overlaid information (Jung *et al.*, 2018) augmenting both hedonic and learning experience (Leue *et al.*, 2014). Further, "incorporating sensory experience using immaterial reconstruction constitutes a new form of knowledge and a major methodological change in the field of cultural heritage" (Suárez *et al.*, 2016, p. 567).

Historical reconstruction co-created through technology offers an immersive experience and develops visitors' awareness and knowledge of CH (tom Dieck and Jung, 2017).

The fifth and final hypothesis put forward is as follows:

H5: *Historical reconstruction positively influences cultural and heritage awareness.*

4. Methodology

To test the proposed hypotheses in our model an empirical study was conducted. The choice of the field of analysis was guided by two main criteria: the first is related to the type of CH distinguishing, within the tangible heritage, between archaeological site, permanent exhibition, and temporary exhibition (e.g., McIntosh and Prentice 1999). The second criterion is represented by the degree of implementation of technology, with reference to 3D reconstruction, AR, social media interaction, device use (smartphones, tablets, and so on), projection of video reconstructions (PVR), custom audio guides, and touch screens. Following the aforementioned criteria, three sites are considered, all of which are in Rome and exhibit a high level of technology integration both as an operand and as an operant resource: the Domus Aurea, the Ara Pacis, and the Chiostro del Bramante.

The Domus Aurea is a villa built by the Roman emperor Nero after the great fire that devastated Rome in 64 AD. Today this archaeological site offers an immersive experience (Pine and Gilmore, 1998) with the use of video mapping, which allows projections to reconstruct the original structure of the Domus, and an immersive VR that is used to reconstruct the life, the music, and sounds of that time.

The Ara Pacis is a museum containing an altar dedicated to the Roman emperor Augustus and "L'Ara com'era" is a museum project that offers an immersive experience, with the use of AR, VR integrated with computer graphics, and 3D. Chiostro del Bramante - Enjoy exhibition offers a sensory entertainment experience (Pine and Gilmore, 1998) with the use of custom audio guides, social network interaction #enjoychiostro, virtual touch, and sensorial experience.

A survey approach was adopted to collect empirical data. In the absence of previous information on the socio-demographic characteristics of visitors to the three sites considered, and given the main topic of research, i.e., technology, age is deemed to be a key variable (Edison and Geissler, 2003). Therefore, a stratified sampling technique has been adopted to uniformly represent three different generations: 14-32 years (Z and Y-millennial generation; Oblinger *et al.*, 2005); 33-53 years (X generation); 54-72 years (baby-boomers) (Howe and Strauss, 1992; Istat, 2016). Over a period of two weeks, and at different times of the day, 300 individuals (100 for each analyzed site) were surveyed immediately after the cultural experience. In addition to socio-demographic variables (gender, age, education level, job status), the standardized questionnaire included context variables concerning knowledge and evaluation of different technological tools (seven-point rating scale, 1-7, not at all / perfectly). The evaluation considered both the effectiveness of technologies for the success of the visit and for the fun which visitors had (seven-point rating scale, 1-7, not at all/a lot). Moreover, drawing on the extant literature, the questionnaire was designed to collect relevant information concerning model dimensions as described above (18 variables, seven-point rating scales, 1-7, totally disagree/totally agree) (Table 1).

To illuminate sample characteristics, data were analyzed with descriptive statistical techniques, while, to test our hypotheses, a structural equation modeling approach was used (Jöreskog and Sörbom, 1979; Bollen, 1989). Specifically, a Full Latent Variable model was applied (IBM AMOS 24.0) (Arbuckle, 2016) that comprised both structural and measurement models (Figure 1). The measurement model tested the relationship between observed variables and the following latent variables: Technology Acceptance (T_A), Authenticity (AUT), Historical Reconstruction (H_Rec), and Cultural-Heritage Awareness C_H_Aw). The structural model tested the relationship between the above dimensions. Considering the type of indicators (7-point rating scales), MLE, a Bayesian approach (Bolstad, 2004; Arbuckle, 2016), and a bootstrapping procedure (Byrne, 2010; Awang *et al.*, 2015), were applied to test the hypotheses and explore the robustness of parameter estimates.

5. Results

Sample characteristics

Almost two thirds of respondents were female (64.8%). Further, respondents tended to exhibit a relatively high level of education (tertiary 55.3%) with only 12.3% of individuals in the sample below an upper-secondary level of education; this accords with other surveys on museum fruition in Italy (Floridia and Misiti, 2003). A large proportion of respondents were in full-time employment (46.4%) whilst 19.5% of individuals in the sample were students. Regarding age, the three generations are similarly represented (Z generation 32.4%; X generation 34.5%; Baby Boomers 33.1%). Considering context variables, it emerges that knowledge of technology declared by visitors is focused on the most common tools namely devices, social media, and touch screens. However, in the ranking of technologies in terms of their effectiveness and their fun in the visit context, the top three tools were less-known technologies: 3D reconstruction (6.31, 6.16), VR (6.25, 6.38), and PVR (5.93, 5.82) (Table 2).

Tab. 2: Technologies: knowledge, effectiveness, and fun (means)

	3d	VR	Social Media	Ar	Device	PVR	Custom audio guide	Touch screen
Knowledge	3.58	3.84	5.31	3.22	5.44	3.81	3.55	4.89
Effectiveness	6.31	6.25	4.08	5.41	5.46	5.93	5.01	5.02
Fun	6.16	6.38	3.79	5.13	4.88	5.82	4.95	4.74

Source: own elaboration

In preparing the analysis of the four dimensions, descriptive statistics of all observed variables were examined. Their means, between 5.0 and 6.3, show that respondents were very likely to use technologies during their museum experience; indeed, the items concerning technology acceptance have the highest average values (> 6) (Table 3). The indicators are moderately non-normal in terms of skewness < |2.2| and substantially non-normal in terms of kurtosis < |5.0| (Curran *et al.*, 1996).

Tab. 3: Observed variables: descriptive statistics

	Mean	Median	St Dev.	Skewness	Kurtosis	Min	Max
TA1	6.35	7.00	1.20	-2.21	4.72	1.00	7.00
TA2	6.34	7.00	1.15	-2.12	4.23	1.00	7.00
TA3	6.28	7.00	1.33	-2.25	4.93	1.00	7.00
AUT1	5.76	6.00	1.51	-1.20	0.66	1.00	7.00
AUT2	5.54	6.00	1.60	-0.96	0.05	1.00	7.00
AUT3	5.76	6.00	1.39	-1.24	1.18	1.00	7.00
AUT4	6.09	7.00	1.34	-1.66	2.18	1.00	7.00
AUT5	5.80	6.00	1.58	-1.40	1.11	1.00	7.00
AUT6	5.55	6.00	1.76	-1.04	-0.08	1.00	7.00
HR1	5.37	6.00	1.80	-0.93	-0.19	1.00	7.00
HR2	5.51	6.00	1.65	-0.87	-0.32	1.00	7.00
HR3	5.82	6.00	1.43	-1.20	0.59	1.00	7.00
HR4	5.54	6.00	1.53	-1.02	0.35	1.00	7.00
CA1	5.17	6.00	1.91	-0.78	-0.58	1.00	7.00
CA2	5.52	6.00	1.61	-1.09	0.50	1.00	7.00
CA3	5.26	6.00	1.60	-0.85	0.10	1.00	7.00
HA1	5.25	6.00	1.78	-0.78	-0.47	1.00	7.00
HA2	5.03	5.00	1.71	-0.62	-0.47	1.00	7.00
HA3	5.33	6.00	1.70	-0.84	-0.14	1.00	7.00

Source: own elaboration

Test of the measurement models

For the purposes of multivariate data analysis, a structural equation approach was applied using IBM SPSS AMOS. In the first step, the measurement models of the four latent theoretical variables were tested by a confirmatory factor analysis (CFA), following which two indicators (AUT6, TA3), were deleted due to low loadings (< 0.55). Furthermore, to reduce multicollinearity, two other indicators (HR4 and CA1) were deleted because of their relatively strong associations with indicators of other constructs. Thus, measurement models which are more parsimonious have been derived. In the resulting models, the measurement validity of each latent variable was tested according to Bagozi *et al.* (1991). Cronbach's alpha for each factor was greater than 0.86 and local fit measures (AVE >0.5 and composite reliability >0.7) for each factor can be considered satisfactory (Table 4).

Tab. 4: CFA: Measurement models for the four latent variables (MLE)

	Alpha	AVE	CR	HSI
Technology Acceptance (T_A)	0.886	0.793	0.885	0.437
Authenticity (AUT)	0.873	0.642	0.899	0.589
Historical Reconstruction (H_Rec)	0.869	0.696	0.843	0.674
Cultural and Heritage Awareness (C_H_Aw)	0.914	0.635	0.842	0.695

CMIN/df=2.00; SRMR= 0.0358; RMSEA=0.059; TLI= 0.971; CFI =0.979; AIC= 270.019*p<0.0001

Source: own elaboration

Overall, considering the four latent variables using a multiple index approach (Hu and Bentler 1999; Byrne, 2010), the CFA model exhibited good fit to the data (SRMR= 0.0358; RMSEA=0.059; TLI= 0.971; CFI =0.979, CMIN/df=2.00; AIC= 270.019. Finally, Bayesian and bootstrapping approaches (1000 replications) were used to assess the robustness of factor loading unstandardized parameter estimates resulting from ML (Byrne, 2010): the estimates are highly convergent and confirm the unidimensional structure of each construct.

Test of the structural model

Table 5 presents the results of the structural model using both MLE and bootstrapping. The results are similar (SE Bias ≤0.005). By inspecting the probability values, it is evident that all paths are significant. To explore model fit we considered the following statistics: CMIN/df=1.973; SRMR=0.0362; GFI= 0.934; TLI=0.972; CFI=0.979; RMSEA=0.58. Thus, the theoretical model provides a good fit to the empirical data.

Squared multiple correlations show that the structural model explains 70.8%, 64.3%, and 42% of the variance in Cultural and Heritage Awareness, Historical Reconstruction, and Authenticity, respectively.

Tab. 5: Structural model results

5a. Regression weights: maximum likelihood and bootstrap estimations

Path			ML				Bootstrap
Estimate			P	Mean	Bias		SE-Bias
Aut	<---	T_A	0.742	***	0.747	0.005	0.003
H_Rec	<---	T_A	0.302	***	0.304	0.002	0.003
H_Rec	<---	Aut	0.575	***	0.573	-0.003	0.003
C_H_Aw	<---	Aut	0.248	0.003	0.245	-0.003	0.003
C_H_Aw	<---	H_Rec	0.782	***	0.788	0.006	0.007

***p<0.001

5b. Standardized effects: total, direct, and indirect

		Total effect		Direct effect		Indirect effect		
	T_A	Aut	H_Rec	T_A	Aut	H_Rec	T_A	Aut
Aut	0.646	0	0	0.646	0	0	0	0
H_Rec	0.660	0.598	0	0.273	0.598	0	0.386	0
C_H_Aw	0.577	0.613	0.661	0	0.218	0.661	0.577	0.395

Source: own elaboration

Considering direct, indirect, and total effects (Table 5b), it is evident that the total impact of Technology Acceptance on all other dimensions is significant (≥0.577). This is partly attributable to the mediation of Authenticity that has a direct impact on Historical Reconstruction (0.598), but also affects Cultural and Heritage Awareness with a considerable total effect (0.613). Finally, as hypothesized, Historical Reconstruction has a substantial impact on Cultural Awareness (0.661).

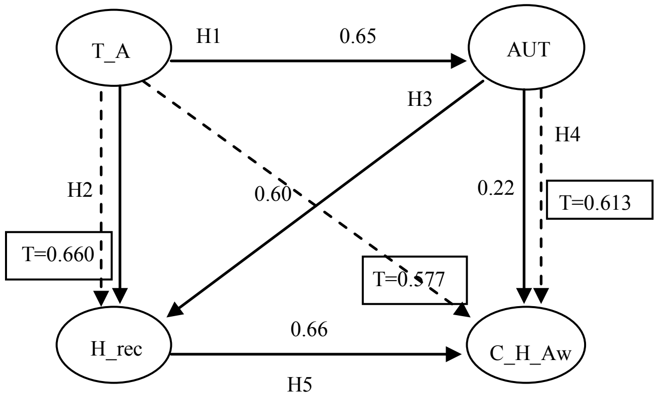
Based on the identified significant interdependencies and by referring to the research hypotheses (as shown in Figure 2, where the structural model with standardized direct and total coefficients are represented) the results can be summarized as follows.

The exogenous variable Technology Acceptance positively and directly affects both Authenticity (0.65) and more weakly Historical Reconstruction (direct effect= 0.27; total effect=0.66). These results permit acceptance of hypotheses H1 and H2. The model also highlights the positive effect of Technology Acceptance on Cultural and Heritage Awareness (0.577).

Authenticity positively and directly affects both Historical Reconstruction (0.60) and weakly Cultural and Heritage Awareness (direct effect= 0.218; total effect=0.613). These results lead to acceptance of H3 and H4

Historical Reconstruction positively affects (0.66) Cultural and Heritage Awareness. This allows acceptance of H5.

Fig. 2: Structural model with standardized direct and total coefficients



Source: own elaboration

6. Discussion

Technology is increasingly pervasive and ubiquitous in everyday life and the CH sector is no exception in this respect. Visitors bring mobile devices and computers with them which they use to co-create and maximize their experience.

Neuhofer *et al.* (2014) demonstrated how technology leads to redefinition of experience and is able to increase the capacity of the experience itself to create value for the consumer, which becomes maximized when combined with the processes of co-creation. When technology is necessary for the creation of the experience itself, it is pervasive throughout the process of co-creation, contributes to the personalization of experience, increases satisfaction, and enables maximization of the value created by experience. The results generated herein suggest that technology acceptance has a positive influence on cultural performance experience (TA1). When technology is used as a mediator and as a resource for creating experiences related to CH, it positively influences the authenticity and value of the experience, as well as the extent of learning. Technology allows an innovative approach to learning, able to combine increased knowledge with the development of creativity and innovative thinking, based on attitudes and values, with emotions such as fun, and feelings such as inspiration. The combination of cognitive, physical, social, and affective components (Wang *et al.*, 2015) stimulates deepening of the learning process. As demonstrated by Moorhouse and Jung (2017), using AR in CH increases learning, knowledge, and the value of experience. Our study shows that acceptance of technology (VR, AR, 3D, and customized audio guides in our case) positively affects knowledge and learning (TA2). In fact, it positively influences understanding of the historical period and reference context (HR1 and HR2), increasing visitors' awareness. Technology also positively influences learning with respect to knowledge of the CH and its historical or artistic value (HR3, HR4, and HA3)

Interaction with technology allows the visitor to understand the artistic, historical, or cultural value of CH (HA1). This result is particularly significant for the enhancement of intangible CH or expression of a civilization that does not present elements of absolute prestige and authenticity (for example, in the case of the Enjoy exhibition and part of the exhibition, L'Ara com'era). Technology positively influences knowledge of the historical period and the context in which the cultural asset is located, allowing visitors to immerse themselves in this cultural habitat (HA2). Technology is able to positively influence (operant) the processes of learning and increasing knowledge, creating value both in the individual process of co-creation and the effect of interaction with the environment, CH, and other visitors. Technology allows liquefaction of the resources of the CH experience through "decoupling of information from its related physical form or device" (Lusch and Nambisan, 2015, p. 160). The authenticity related to CH refers to the physical and material sphere as well as intangible and experiential domains. It is therefore both intrinsic to the cultural object or museum (object based) and extrinsic (existential based), connected to the mood of the visitor and to the sensations arising from the visit. In this case it does not necessarily matter if the object is an original or a copy, it is the level of emotional and cognitive involvement in the experience which is important.

Our research demonstrates how technology positively influences awareness of the uniqueness of CH and / or of the works contained therein (AUT1, AUT2, and AUT3) as well as being able to stimulate emotional and cognitive involvement (AUT4 and AUT5).

Technology acts both as a mediator of experience and as an experience itself. Technology therefore directly and indirectly influences the learning process (operant) and the perception of CH authenticity while also influencing historical reconstruction, becoming itself a resource for realization (operand) (Vargo and Lusch, 2008).

The research also demonstrates that the choice and combination of technologies in CH, when it takes place both as a function of the influence on authenticity and historical construction, increases the density of resources (Lusch and Nambisan, 2015); because it improves customers/ visitors sensemaking processes, use of technologies can increase resource density and improve the set of resources available to them increasing the value of the co-created experience.

Indeed, as shown in Table 2, the most known technologies (especially devices, social media, and touch screens) are also those which are considered less engaging and less experiential. Thus, although VR, 3D, AR, and PVR are generally less familiar (values less than 4), they have a greater ability to engage and are considered more fun.

7. Limitations and conclusions

This study contributes to research in the CH domain by providing novel insights into the role of technology in designing and shaping the customer experience, stressing the relevance of resource integration. Indeed, "value co-creation is becoming ever more inherent to the cultural sector as the lines between the producer and consumer are becoming increasingly blurred" (Dowell *et al.*, 2019, p. 3). Specifically, our study shows that the integration of technology into heritage sites' service offerings, enhances value creation in terms of both functional and experiential value (Yuan and Wu, 2008). Technology works as a service dimension that facilitates and enables resource integration between actors (both users and providers) and therefore enables, and contributes to, value co-creation processes (Caridà *et al.*, 2019). Through technology, consumers access new resources that they would otherwise not access (Åkesson and Edvardsson, 2018). Technology allows information to be separated from physical form (Lusch *et al.*, 2010), and increases efficiency. Different actors may access and use the same resource in different ways, increasing the level of communication and opening up new forms of information (sharing). Technology facilitates personalized and contextualized experience creation (Buhalis and Sinharta, 2019): actors interact and through interaction they integrate existing and new resources in different ways (Colurcio and Caridà, 2019). Through this exchange and recombination process, resources and resource density increase, that is new optimized combinations of resources are configured for availing of the best value alternative (Lusch and Vargo, 2014). Moreover, technology enables resource liquefaction (Lusch and Nambisan, 2015) and individualistic experiential value as each customer may decouple, use, and recombine information to get a better understanding of history and improve his/her knowledge about the story (tom Dieck *et al.*, 2016), building their own experience. Specifically, technology facilitates emotional reactions and feelings.

Within CH contexts, technology plays a pivotal role in enabling the interaction of consumers and in turn, in enabling the process of resource integration. Our results suggest that in the same experience, technology can perform both an operand and operant function and that VR, AR, and 3D technologies are able to engage the visitor in immersion and sensorial experiences.

Knowledge of the value created by individual technologies to understand the operand / operant orientation in the creation of the experience of CH so as to match users′ needs and the available functionality of IT (FTT model), is an important avenue for future research.

According to Lusch and Nambisan (2015), the most fundamental operant resource is knowledge and the technology it fosters (Capon and Glazer, 1987). Technology is the practical application of knowledge; thus, technology, innovation, and service are interlinked. S-D logic emphasizes the application of specialized knowledge and skills for the benefit of another actor or the actor itself. Service innovation is technological (operant resource based), but it also often creates new operand resources.

There are various practical implications of our findings in terms of supporting museums in digitization activities, expanding target markets, and increasing their attractiveness. Our research validates an important nascent empirical trend: technology implementation, according to a holistic approach to service, has a positive influence on authenticity (existential before objective), as well as the learning and knowledge of visitors. Technologies, such as social media or devices in general, are less appreciated and less effective than immersive alternatives such as 3D reconstructions, VR, or AR, which can stimulate greater involvement and co-creation. Furthermore, the use of technology is particularly effective for learning and the positive perception of authenticity when it involves a rethinking of the cultural supply structure, overcoming the logic of the historicized guided path to propose dynamic and customizable experiences.

To overcome a limitation of the present paper and to enrich communal knowledge about the impact of technology on consumer satisfaction with CH experiences, we suggest the measurement of different dimensions of the cultural heritage construct, including value co-creation through interaction among visitors, measurement of the overall perceived value of the experience, and the impact on repurchase intentions.

References

AKAKA M.A., VARGO S.L. (2014), "Technology as an operant resource in service (eco) systems", *Information Systems and e-Business Management,* vol. 12, n. 3, pp. 367-384.

AKAKA M.A., VARGO S.L. (2015), "Extending the context of service: from encounters to ecosystems", *Journal of Services Marketing,* vol. 29, n. 6/7, pp. 453-462.

ÅKESSON M., EDVARDSSON B. (2018), "Customer roles from a self-service system perspective", *International Journal of Quality and Service Sciences,* vol. 10, n. 2, pp. 196-210.

ARBUCKLE J.L. (2016), IBM® SPSS® Amos™ 24 User's Guide, IBM.

ARNOULD E.J. (2006), "Service-dominant logic and consumer culture theory: natural allies in an emerging paradigm", *Marketing Theory,* vol. 6, n. 3, pp. 293.

AWANG Z., AFTHANORHAN A., ASRI M.A.M. (2015), "Parametric and non-parametric approach in structural equation modeling (SEM): the application of bootstrapping", *Modern Applied Science,* vol. 9, n. 9, pp. 58-67.

BAGOZI R.P., YI Y., PHILLIPS L.W. (1991), "Assessing construct validity in organizational research", *Administrative Science Quarterly,* vol. 36, n. 3, pp. 421-458.

BAKHSHI H., THROSBY D. (2012), "New technologies in cultural institutions: theory. evidence and policy implications", *International journal of cultural policy*, vol. 18, n. 2, pp. 205-222.

BARILE S., MONTELLA M., SAVIANO M. (2012), "A service-based systems view of cultural heritage", *jbm-Journal of Business Market Management,* vol. 5, n. 2, pp. 106-136.

BEC A., MOYLE B., TIMMS K., SCHAFFER V., SKAVRONSKAYA L., LITTLE C. (2019), "Management of immersive heritage tourism experiences: a conceptual model", *Tourism Management*, vol. 72, pp. 117-120.

BERRY L.L., CARBONE L.P., HAECKEL S.H. (2002), "Managing the total customer experience", *MIT Sloan Management Review*, vol. 43, n. 3, pp. 85-89.

BOLLEN K.A. (1989), *Structural Equations with Latent Variables*, John Wiley & Sons, New York, NY.

BOLSTAD W.M. (2004), *Introduction to Bayesian Statistics*, John Wiley & Sons, Nre York, NY.

BRUNO F., BRUNO S., DE SENSI G., LUCHI M.L., MANCUSO S., MUZZUPAPPA M. (2010), "From 3D reconstruction to virtual reality: a complete methodology for digital archaeological exhibition", *Journal of Cultural Heritage*, vol. 11, n. 1, pp. 42-49.

BUHALIS D., SINARTA Y. (2019), "Real-time co-creation and nowness service: lessons from tourism and hospitality", *Journal of Travel and Tourism Marketing,* vol. 36, n. 5, pp. 563-582.

BYRNE B.M. (2010), *Structural Equation Modelling with Amos. Basic Concepts, Applications, and Programming*, 2nd Edition, Routledge, New York, NY.

CAPON N., GLAZER R. (1987), "Marketing and technology: a strategic coalignment", *Journal of Marketing*, vol. 51, n. 3, pp. 1-14.

CARIDÀ A., EDVARDSSON B., COLURCIO M. (2019), "Conceptualizing resource integration as an embedded process: matching, resourcing and valuing", *Marketing Theory,* vol. 19, n. 1, pp. 65-84.

CATALDO P., PARAVENTI M. (2007), *Il museo oggi. Linee guida per una museologia contemporanea,* Hoepli, Milano.

CIASULLO M.V., GAETA A., GAETA M., MONETTA G. (2016), "New modalities for enhancing cultural heritage experience. The enabling role of digital technologies", *Sinergie Italian Journal of Management,* vol. 34, n. 99, pp. 119-139.

CHIABAI A., PASKALEVA K., LOMBARDI P. (2013), "e-Participation model for sustainable cultural tourism management: a bottom-up approach", *International Journal of Tourism Research*, vol. 15, n. 1, pp. 35-51.

CHUNG N., LEE H., KIM J.Y., KOO C. (2018), "The role of augmented reality for experience-influenced environments: The case of cultural heritage tourism in Korea", *Journal of Travel Research,* vol. 57, n. 5, pp. 627-643.

COLURCIO M., CARIDÀ A., EDVARDSSON B. (2017), "Conceptualizing resource integration to advance service innovation", *Innovating in Practice,* Springer, Cham, Switzerland, pp. 237-259.

COLURCIO M., CARIDA' A. (2019), *Resource Integration. From Generic Concept to Marketing Construct,* Pacini, Pisa.

CURRAN P.J., WEST S.G., FINCH J.F. (1996), "The robustness of test statistics to nonnormality and specification error in confirmatory factor analysis", *Psychological Methods,* vol. 1, n. 1, pp. 16-29.

DAVIS F.D., BAGOZZI R.P., WARSHAW P. R. (1989), "User acceptance of computer technology: a comparison of two theoretical models", *Management Science,* vol. 35, n. 8, pp. 982-1003.

DISHAW M.T., STRONG D.M. (1999), "Extending the technology acceptance model with task-technology fit constructs", *Information and Management,* vol. 36, n. 1, pp. 9-21.

DOWELL D., GARROD B., TURNER J. (2019), "Understanding value creation and word-of-mouth behaviour at cultural events", *The Service Industries Journal,* vol. 39, n. 7-8, pp. 498-518.

EDISON S., GEISSLER G.J. (2003), "Measuring attitudes towards general technology: antecedents. hypotheses and scale development", *Journal of Targeting. Measurement and Analysis for Marketing*, vol. 12, n. 2, pp. 137-156.

ERRICHIELLO L., MICERA R., ATZENI M., DEL CHIAPPA G. (2019), "Exploring the implications of wearable virtual reality technology for museum visitors' experience: A cluster analysis", *International Journal of Tourism Research,* vol. 21, n. 5, pp. 590-605.

FLORIDIA A., MISITI M. (2003), *Musei in Toscana: Beni Culturali e Sviluppo Regionale*, Franco Angeli, Milano.

GOULDING C. (2000), "The museum environment and the visitor experience", *European Journal of Marketing,* vol. 34, n. 3/4, pp 261-278.

GUMMESSON E., LUSCH R.F., VARGO S.L. (2010), "Transitioning from service management to service-dominant logic: observations and recommendations", *International Journal of Quality and Service Sciences,* vol. 2 n. 1, pp. 8-22.

GUTTENTAG D.A. (2010), "Virtual reality: Applications and implications for tourism", *Tourism Management,* vol. 31, n. 5, pp. 637-651.

GYORGY P. (2013), *Museum, the Learning House. Case Studies, Museum Theory,* [Museum, the study house. Museum theory case studies. Fine Arts, Budapest.

HOWE N., STRAUSS W. (1992), *Generations: The History of America's Future. 1584 to 2069,* Paperback Publisher, New York, NY.

HU L., BENTLER P.M. (1999), "Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives", *Structural Equation Models,* vol. 6, n. 1, pp. 1-55.

HUME M. (2015), "To technovate or not to technovate? Examining the inter-relationship of consumer technology. museum service quality. museum value. and repurchase intent", *Journal of Nonprofit and Public Sector Marketing*, vol. 27, n. 2, pp. 155-182.

HUME M., MILLS M. (2011), "Building the sustainable iMuseum: is the virtual museum leaving our museums virtually empty?", *International Journal of Nonprofit and Voluntary Sector Marketing,* vol. 16, n. 3, pp. 275-289.

ISTAT (2016), 2016 Annual Report. The situation of the country. National Institute of Statistics.

IZZO F., MUSTILLI M., GUIDE M. (2015), "Augmented Reality and enhancement of cultural heritage. Reflections on the cultural offer of the case", *XXVII Annual Meeting of Sinergie Heritage, management and enterprise: what Sinergie?,* 9-10 July 2015 - University of Molise-seat of Termoli, IT.

JAAKKOLA E., ALEXANDER M. (2014), "The role of customer engagement behavior in value co-creation: a service system perspective", *Journal of Service Research*, vol. 17, n. 3, pp. 247-261.

JÖRESKOG K.G., SÖRBOM D. (1979), *Advances in Factor Analysis and Structural Equation Models,* AbtBooks, Cambridge, UK.

JUNG T.H., LEE H., CHUNG N., TOM DIECK M.C. (2018), "Cross-cultural differences in adopting mobile augmented reality at cultural heritage tourism sites", *International Journal of Contemporary Hospitality Management*, vol. 30, n. 3, pp. 1621-1645.

KOLAR T., ZABKAR V. (2010), "A consumer-based model of authenticity: An oxymoron or the foundation of cultural heritage marketing?", *Tourism Management,* vol. 31, n. 5, pp. 652-664.

KOTLER N., KOTLER P. (2000), "Can museums be all things to all people? Missions. goals. and marketing's role", *Museum Management and Curatorship,* vol. 18, n. 3, pp. 271-287.

KUFLIK T., WECKER A.J., LANIR J., STOCK O. (2015), "An integrative framework for extending the boundaries of the museum visit experience: linking the pre, during and post visit phases", *Information Technology and Tourism*, vol. 15, n. 1, pp. 17-47.

LEMON K.N., VERHOEF P. C. (2016), "Understanding customer experience throughout the customer journey", *Journal of Marketing*, vol. 80, n. 6, pp. 69-96.

LEUE M.C., TOM DIECK D., JUNG T. (2014), "A theoretical model of augmented reality acceptance", *eReview of Tourism Research,* vol. 5, pp. 1-5.

LUSCH R.F., NAMBISAN S. (2015), "Service innovation: A service-dominant logic perspective", *MIS Quarterly,* vol. 39, n. 1, pp. 155-175.

LUSCH R.F., VARGO S.L. (2006), "Service-dominant logic: reactions, reflections and refinements", *Marketing Theory*, vol. 6, n. 3, pp. 281-288.

LUSCH R.F., VARGO S.L., TANNIRU M. (2010), "Service, value networks and learning", *Journal of the Academy of Marketing Science*, vol. 38, n. 1, pp. 19-31.

LUSCH R.F., VARGO S.L. (2014), *The service-dominant logic of marketing: Dialog, debate, and directions,* Routledge, New York, NY.

MACCANNEL D. (1976), *The Tourist. A New Theory of the Leisure Class,* University of California Press, Berkeley and Los Angeles, USA.

MAGLIO P.P., SPOHRER J. (2008), "Fundamentals of service science", *Journal of the Academy of Marketing Science,* vol. 36, n. 1, pp. 18-20.

MCINTOSH A.J., PRENTICE R.C. (1999), "Affirming authenticity: consuming cultural heritage", *Annals of Tourism Research*, vol. 26, n. 3, pp. 589-612.

MOORHOUSE N., JUNG T. (2017), "Augmented reality to enhance the learning experience in cultural heritage tourism: an experiential learning cycle perspective", *eReview of Tourism Research*, vol. 8, http://e-space.mmu.ac.uk/617555/

MORTARA M., CATALANO C.E., BELLOTTI F., FIUCCI G., HOURY-PANCHETTI M., PETRIDIS P. (2014), "Learning cultural heritage by serious games", *Journal of Cultural Heritage,* vol. 15, n. 3, pp. 318-325.

NEUHOFER B., BUHALIS D., LADKIN A. (2012), "Conceptualising technology enhanced destination experiences", *Journal of Destination Marketing and Management*, vol. 1, n. 1-2, pp. 36-46.

NEUHOFER B., BUHALIS D., LADKIN A. (2014), "A typology of technology-enhanced tourism experiences", *International Journal of Tourism Research*, vol. 16, n. 4, pp. 340-350.

O'DELL T., BILLING P. (2005), *Experiencescapes: Tourism, Culture and Economy*, Copenhagen Business School Press, Copenhagen, DK.

OBLINGER D., OBLINGER J.L., LIPPINCOTT J.K. (2005), E*ducating the net generation*, EDUCAUSE.

PALLUD J., MONOD E. (2010), "User experience of museum technologies: the phenomenological scales", *European Journal of Information Systems*, vol. 19, n. 5, pp. 562-580.

PANTANO E., CORVELLO V. (2014), "Tourists' acceptance of advanced technology-based innovations for promoting arts and culture", *International Journal of Technology Management*, vol. 64, n. 1, pp. 3-16.

PARK S., SANTOS C.A. (2017), "Exploring the tourist experience: A sequential approach", *Journal of Travel Research*, vol. 56, n. 1, pp. 16-27.

PINE B.J., GILMORE J.H. (1998), "Welcome to the experience economy", *Harvard Business Review*, July-August, pp. 97-105.

PORIA Y., BUTLER R., AIREY D. (2003), "The core of heritage tourism", *Annals of Tourism Research*, vol. 30, n. 1, pp. 238-254.

PORIA Y., BUTLER R., AIREY D. (2004), "Links between tourists, heritage, and reasons for visiting heritage sites", *Journal of Travel Research,* vol. 43, n. 1, pp. 19-28.

RAMASWAMY V., OZCAN K. (2018), "Offerings as digitalized interactive platforms: a conceptual framework and implications", *Journal of Marketing,* vol. 82, n. 4, pp. 19-31.

RAMÍREZ R. (1999), "Value co-production: intellectual origins and implications for practice and research", *Strategic Management Journal,* vol. 20, pp. 49-65

REISINGER Y., STEINER C.J. (2006), "Reconceptualizing object authenticity", *Annals of Tourism Research*, vol. 33, n. 1, pp. 65-86.

SÁNCHEZ-FERNÁNDEZ R., INIESTA-BONILLO M.Á. (2007), "The concept of perceived value: a systematic review of the research", *Marketing Theory*, vol. 7, n. 4, pp. 427-451.

SFODERA F. (2011), *Turismi, Destinazioni e Internet*, FrancoAngeli, Milan.

SFODERA F., MINGO I., MATTIACCI A., COLURCIO M. (2018), "Technology as operant resources for the cultural heritage reconstruction experience", in *IRSSM-9 symposium proceedings*, vol. 9, pp. 40.

SMITH L. (2015), "Theorizing museum and heritage visiting", in Macdonald, S. and Lehay, H.R. (Eds.), *The International Handbooks of Museum Studies*, John Wiley & Sons, London and New York, pp. 459-485.

SOLIMA L. (2016), "Smart Museums. Sul prossimo avvento della Internet of Things e del dialogo tra gli oggetti nei luoghi" (Smart Museums. On the coming advent of the Internet of Things and the dialogue among objects in places of culture), *Sinergie Italian Journal of Management*, vol. 34, n. 99, pp. 263.283.

SOLIMA L. (2010), "Social Network: verso un nuovo paradigma per la valorizzazione della domanda culturale", *Sinergie*, n. 82, pp. 47-74.

STEINER C.J., REISINGER Y. (2006), "Understanding existential authenticity", *Annals of Tourism Research*, vol. 33, n. 2, pp. 299-318.

SUÁREZ R., ALONSO A., SENDRA J.J. (2016), "Archaeoacoustics of intangible cultural heritage: the sound of the Maior Ecclesia of Cluny", *Journal of Cultural Heritage*, vol. 19, pp. 567-572.

TSCHEU F., BUHALIS D. (2016), *Augmented reality at CH sites, Information and Communication Technologies in Tourism*, Springer Cham Switzerland, pp. 607-619.

TIMOTHY D.J. (1997), "Tourism and the personal heritage experience", *Annals of Tourism Research*, vol. 24, n. 3, pp. 751-754.

TOM DIECK M.C., JUNG T., HAN D.I. (2016), "Mapping requirements for the wearable smart glasses augmented reality museum application", *Journal of Hospitality and Tourism Technology,* vol. 7, n. 3, pp. 230-253.

TOM DIECK M.C., JUNG T.H. (2017), "Value of augmented reality at cultural heritage sites: a stakeholder approach", *Journal of Destination Marketing and Management*, vol. 6, n. 2, pp. 110-117.

TRILLING L. (1972), *Sincerity and Authenticity*, Oxford University Press, London, UK.

URIELY N. (2005), "The tourist experience", *Annals of Tourism Research*, vol. 32, n. 1, pp. 199-216.

VARGO S.L., AKAKA M.A., VAUGHAN C.M. (2017), "Conceptualizing value: a service-ecosystem view", *Journal of Creating Value*, vol. 3, n. 2, pp. 117-124.

VARGO S.L., LUSCH R.F. (2008), "Service-dominant logic: continuing the evolution", *Journal of the Academy of Marketing Science*, vol. 36, n. 1, pp. 1-10.

VARGO S.L., LUSCH R.F. (2011), "It's All B2B…and beyond: toward a systems perspective of the market", *Industrial Marketing Management*, vol. 40, pp. 181-187.

VARGO S.L., LUSCH R.F. (2016), "Institutions and axioms: an extension and update of service-dominant logic", *Journal of the Academy of Marketing Science,* vol. 44, n. 5, pp. 1-19.

VARGO S.L., LUSCH R.F. (2017), "Service-dominant logic 2025", International *Journal of Research in Marketing*, vol. 34, n. 1, pp. 46-67.

ZHOU J., URHAHNE D. (2017), "Self-regulated learning in the museum: understanding the relationship of visitor's goals, learning strategies, and appraisals", *Scandinavian Journal of Educational Research,* vol. 61, n. 4., pp. 394-410.

VENKATESH V., MORRIS M., DAVIS G., DAVIS F. (2003), "Usage acceptance of information technology: toward a unified view", *MIS Quarterly,* vol. 27, n. 3, pp. 365-382.

WANG Y., HUANG S., KIM A.K. (2015), "Toward a framework integrating authenticity and integrity in heritage tourism", *Journal of Sustainable Tourism,* vol. 23, n. 10, pp. 1468-1481.

YOON S.A., ELINICH K., WANG J., SCHOONEVELD J.B., ANDERSON E. (2013), "Scaffolding informal learning in science in science museums: how much is too much?", *Science Education*, vol. 97, n. 6, pp. 848-877.

YOVCHEVA Z., BUHALIS D., GATZIDIS C. (2012), "Overview of smartphone augmented reality applications for tourism", *e-Review of Tourism Research,* vol. 10, n. 2, pp. 1-5.

YUAN Y.H.E., WU C.K. (2008), "Relationships among experiential marketing, experiential value, and customer satisfaction", *Journal of Hospitality and Tourism Research*, vol. 32, pp. 387-410.

Academic or professional position and contacts

Fabiola Sfodera
Researcher and Adjunct Professor of Marketing and Management
Sapienza University of Rome - Italy
e-mail: fabiola.sfodera@uniroma1.it

Isabella Mingo
Associate professor of Social Statistics
Sapienza University of Rome - Italy.
e-mail: isabella.mingo@uniroma1.it

Alberto Mattiacci
Full professor of Management
Sapienza University of Rome - Italy
e-mail: alberto.mattiacci@uniroma1.it

Maria Colurcio
Full professor of Management
University of Magna Grecia, Catanzaro - Italy
e-mail: mariacolurcio@unicz.it

sinergie
italian journal of management

ISSN 0393-5108
DOI 10.7433/s111.2020.13
pp. 231-250

FONDAZIONE CUEIM

SIMA
Italian Society of MANAGEMENT