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# Digital museums anyone? Consumer perceptions for digital cultural consumption in a developing country

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**Abstract:** Museums are essential to cultural consumption, heritage and knowledge. In the scenario of the global pandemic, digital museums can be a relevant solution for consumers' cultural consumption in the safety of their homes. However, more research is needed for assessing consumers' acceptance of technology and the intention to use digital museums. Data was collected from 125 urban consumers in India and was analysed via the TAM model through linear regression. Results indicated that perceived usefulness has a stronger impact than perceived ease of use but both positively impact attitude and intention to use. To the best of the author's knowledge, this research is the first of its kind that explores consumers' perceptions for digital museums in India. Academic contributions are done in testing this issue through TAM and the practical implication is identifying a positive scenario for reinforcing digital museums as a new form of digital markets for cultural consumption.

**Keywords:** consumer behaviour; cultural consumption; technology acceptance model; TAM; digital museums; perceived usefulness; perceived ease of use; PEOU; India.

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## 1 Introduction

The changing digital landscape has seen a massive increase in consumer engagement and interaction with digital environments over the last decade and more is expected in the coming years. There is increased use of interactive tools, gamification, digitalisation, and artificial intelligence in practically all fields accessible to the modern consumer. Constant technology updates and innovative approaches have made digitalisation even more expansive with limitless possibilities for product and service design. The year 2020 has

presented an entirely new set of challenges with the unprecedented global pandemic of COVID-19. Not only has it created a situation of uncertainty and anxiety, but it has also raised the bar for society to be aware of sudden and abrupt changes in their surrounding ecosystem with impacts that are difficult to predict, control, and counter. The COVID-19 situation has forced countries all over the world to take stringent preventive measures as per the need of their local or national requirements. Since March 2020, most countries have witnessed life in the imposition of either a stringent complete lockdown or combinations of lockdown, voluntary isolation or quarantines, and social distancing to contain the spread of the pandemic.

Amidst this confusion, certain industries were impacted severely such as medical care (for example, Pfefferbaum and North, 2020; Tan et al., 2020), tourism and hospitality (for example, Ntounis et al., 2021; Gursoy and Chi, 2020) and transport (for example, Nižetić, 2020). Some other industries such as banking (for example, Billore and Billore, 2020) saw their consumer's behaviour undergo a digital switch at haste in response to the migration of business models to a complete digital platforms while some others such as entertainment and education are still evolving in terms of how their services may be provided to the consumers (Bozkurt et al., 2020; Nhamo et al., 2020). In this situation, it is imperative to assess how organisations and institutions should strategise towards redesigned or adapted business models so as to suit the needs of the changing contexts as well as the expectations and requirements of the prospective consumers. Among others, the domain of cultural consumption is one such sector that needs various supporting systems and activities to maintain the resilience of cultural institutions such as museums and exhibition centres (Samaroudi et al., 2020; Antara and Shuvro, 2020). These institutions face the need to adapt their service models to continue people's engagement with culture and cultural consumption (Agostino et al., 2020).

Museums have a primary function of presenting knowledge and imparting education regarding the tangible and intangible cultural heritage of diverse populations. This is possible through systematic categorisation, presentation, and preservation of cultural objects, materials and artefacts (Srinivasan et al., 2009a). The knowledge around these objects and exhibits is not confined to the physical space of the museum, but indeed travels by word of mouth, images, and texts between people, thereby providing the cultural resources with a wider contextualisation and audience. Museums also foster social interaction, exchange of dialogue and knowledge about cultural heritage (Mason, 2006). In recent times, museums have undergone a cultural shift with a move from the traditional museum formats to new forms of museology such as the digital museums. Technology plays a big role in facilitating cultural mobilisation through the interchange of cultural heritage objects from physical to virtual spaces (Srinivasan, 2006). In modern museums, one sees the use of modern technical and interactive means such as the use of hologram technology, handheld devices, digital images, 3D technology augmented reality and 8D environments supported by an extensive use of social media to encourage customer interest, visitor frequency and duration of customer engagement (Kunjir and Patil, 2020; Hung et al., 2013; Aron, 2011). Digital museums allow visitors to access them anytime and anywhere and permit them to spend as much time as they want in the areas of their interest (Parry, 2013). The relevance of having digital access to cultural enrichment, education, and exposure is highlighted when there is increasing evidence of customer comfort with technology in the modern world. Users with high computer skills and a fair perception of digital environments are more likely to adapt and accept new forms of digital services (Hung et al., 2013). A majority of museum visitors are

enthusiasts seeking familiarity with cultural knowledge and they learn more when their experiences help in enhancing personal insights (Bautista, 2013). Hence, extant literature highlights the need for more research on investigating consumer perceptions regarding the effectiveness and adoption of digital technology for cultural consumption (Geber, 2006; Hung et al., 2013). Given the drastic change in the contemporary context of the COVID-19 pandemic, and the hidden opportunity it presents to explore new ways of functioning, it is important to know consumers' perspectives regarding the adoption of digital museums as a novel way of cultural consumption. As museums allow visitors to engage with cultural heritage at a close range, it is imperative to know if consumers might be ready for new digital service experiences. Hence this paper, in particular consideration of the demand for digital markets due to the COVID-19 pandemic, seeks to investigate consumer perceptions regarding the use of digital museums as a 'new normal' way of enjoying museum experiences.

The empirical context of the paper is consumers from India – a rapidly developing country where people were first exposed to digitalisation in the mid-1990s but which has also shown one of the strongest growth curves for the acceptance of digital technology tools and platforms (Malik et al., 2019). People in India, especially the younger generation, are highly receptive to development on social media and other networking sites (Sharma and Pal, 2020) which are indicative of their attitude towards innovative tools and inclination towards the intention for future use. While some sectors have developed very fast in India others still warrant attention. Digital museums are a new channel in India, the first initiative being launched by the Ministry of Culture, Government of India, in 2014. Hence, to study how this new form of museums resonate with consumers behavioural intentions, empirical data was collected from 125 respondents in India and analysed via the lenses of the technology acceptance model (TAM). By testing it for perceived usefulness (PU), perceived ease of use (PEOU), attitude towards digital museums and intention to use digital museums in the future, the paper establishes an understanding regarding consumer's inclination to adopt new technological services and derive speculation about the sustainability of digital museums. The results of the study also generate implications for other researchers in museum sciences as well as managers of other public spaces to rethink event management and innovations in their present business models.

The structure of the paper is as follows – Section 2 discusses key concepts of cultural consumption and digital museums, followed by the TAM model and the proposal of the framework for testing consumer acceptance for digital museums. Section 3 focuses on methodology, and Section 4 looks into the data analysis and hypothesis testing. Finally, the results are discussed in Section 5 and implications are presented. The paper ends with conclusions and limitations of the study in Section 6.

## **2 Digital museums and cultural consumption**

Cultural consumption is the process of consuming cultural goods and services for satisfying individual interests and/or for collective interests leading to the formation of cultural identities, cultural symbols, tastes and traditions. Culture is consumed over generations by people who either have common cultural interests, or by people who are yearning for new cultural knowledge. Extant literature on cultural consumption studies

shows how cultural consumption is linked to socially embedded dimensions such as identities, cohesions, mobilities, and technologies giving rise to cross-cultural connections among people (e.g., Howes, 2002; Katz-Gerro, 2004, 2017; Chan, 2010; Meghji, 2020). Museums perform the essential function of becoming the knowledge and contact space for cultural consumption by fostering intercultural dialogue (Mason, 2006; Clifford, 1997), wherein cultural objects and resources serve as a tool for expanding cultural insights (Srinivasan et al., 2009a). Digital media is increasingly becoming the new instrument for engaging consumers with art, culture and heritage (Mick and Fournier, 1998). Digital technologies are being increasingly used to support cultural activities, the intercultural panorama, and also to instigate enhanced cultural participation from the public (Mihelj et al., 2019). The information systems used in digital museums is necessary “to manage and access the collection of digital surrogates, replicas, and digital documentation of artifacts pertaining to human heritage” [Katre, (2011), p.196].

Digital museums are creating a new social identity as a virtual space that enables the meeting of technology, cultural heritage and human society (Giannini and Bowen, 2019). They are unique institutions that contribute immensely to the digital knowledgescapes (Cameron and Robinson, 2007) as they enable visitors to engage with the process of understanding and influencing object representation and connection and also support consumer cohesion and social interactions (Mencarelli et al., 2010). Mao (2019) establishes that cultural relics in museums are important tools for creating and sustaining cultural memory, and much effort is put to transform physical objects into virtual representations, even in the knowledge that the virtual replication may not cause as much customer engagement as a physical interface, in fact, even weaken associated cultural memory. It is therefore imperative to question how digital spaces and their embedded interactive tools may shape more aesthetically profound cultural memories while also allowing consumers to shape subjective cultural memory spaces. In recent times, cultural consumption is undergoing an archetypical shift in which such subjective or individualised consumption is expanding in the form of consumer communities and tribes (Diaz Ruiz et al., 2020).

Digital revolution has instigated a metamorphosis in cultural consumption and this highlights the need for museums to reassess and examine how they relate to their audiences as users of cultural knowledge (Bertacchini and Morando, 2013). Giannini and Bowen (2019) argue that modern museology must engage in a customer-centric digital model to be in sync with the evolving digital technology and the ever-innovative digital ecosystems around us. Mosca et al. (2018, p.39) state that in the last decade, museums have “witnessed a cultural shift from object-oriented to audience-oriented approach”, and that digital tools and social media should be used effectively to produce cultural memories for the promotion and protection of cultural heritage. However, there is also evidence of consumer hesitancy towards the use of digital museum spaces owing to the perceived difficulty in using the interactive models of such institutions (Srinivasan et al., 2009a, 2009b). Since the digital museum concept is still novel in many aspects, it is important to acknowledge consumer perceptions regarding their level of engagement to assess the status of consumer readiness for digital museums and further, to leverage that knowledge to develop relevant strategies (Navarrete, 2019). Acceptance of any technology is the keystone to its further development, and by understanding how the digital museums can find affiliation with the modern consumers, it may be possible to build a sense of community around them (Bautista, 2013). Koseki et al. (2010) propose a business ecosystem around digital museums to effectively use various stakeholders such

as industry actors, content developers, educational institutions, media vendors, sponsors, citizens, visitors, and relevant institutions to strengthen the role and function of digital museums in contemporary society.

### *2.1 Digital museums in India*

The museum culture in India has always been a physical space to enjoy the cultural experience. However, digital technology is yet to be leveraged in the museum culture and the concept of digital museums is still to gain a regular spot with Indian consumers (The Heritage Lab, 2018; Singh, 2018). In one of the initial steps in this direction, the Ministry of Culture, Government of India launched the national scheme for the digitisation of museum collections in 2014. The initiative was designed with the mission of strengthening the museum movement in the country and developing a national database of national antiquities and art objects to enable enhanced accessibility to the art and cultural capital of the country for interested visitors (Ministry of Culture, 2021). In recent times, private institutions have joined the movement of the establishment of digital museums and are employing new tools and techniques to ensure the protection of India's cultural heritage through digital initiatives. For example, The Heritage Lab (2021) is a digital platform that works towards connecting citizens to cultural history and heritage through open access content for its visitors. Further, The Heritage Lab (2021) also launches campaigns to leverage technology as a boundaryless platform to connect people with a passion for cultural engagement and knowledge, and thereby create a socialscape for the enthusiasts. In the current times of COVID-19 pandemic, experts have focused on the importance of digital museums as a safe and sustainable option for consumers to continue their quest for cultural consumption from the safety of their homes (Iwanek, 2020; Karri, 2020). As Karri (2020) emphasises "Art is renowned for its therapeutic properties, and even in such dire circumstances people need a temporary respite from it all. Immersing yourself in virtual art tours and thematic sessions online will slowly become the new normal." In India, the digital museum phenomenon is emerging fast as the number of visitors to digital museum spaces has moved from single digit to triple digit views per day, especially after the onset of the COVID-19 pandemic (Bhawani and Gowri, 2020).

### *2.2 TAM model, perceived use (PU) and PEOU*

Davis (1989) explains perceived use (PU) and PEOU as dimensions that explore how and why people exhibit the inclination towards adoption of new technology-based products and services. Perceived use is described as the context when "people tend to use or not use an application to the extent they believe it will help them perform their job better" [Davis, (1989), p.320]. PEOU is described as the context when "even if potential users believe that a given application is useful, they may, at the same time believe that the systems are too hard to use and that the performance benefits of usage are outweighed by the effort of using the application" [Davis, (1989), p.320].

Over time, both PU and PEOU have been used extensively to explore consumer adoption of products and services for a variety of environments such as the use of World Wide Web (Fenech, 1998), online shopping (Ramayah and Ignatius, 2005), online hotel bookings (Ozturk et al., 2016), and user-generated content (Grover et al., 2019) to name a

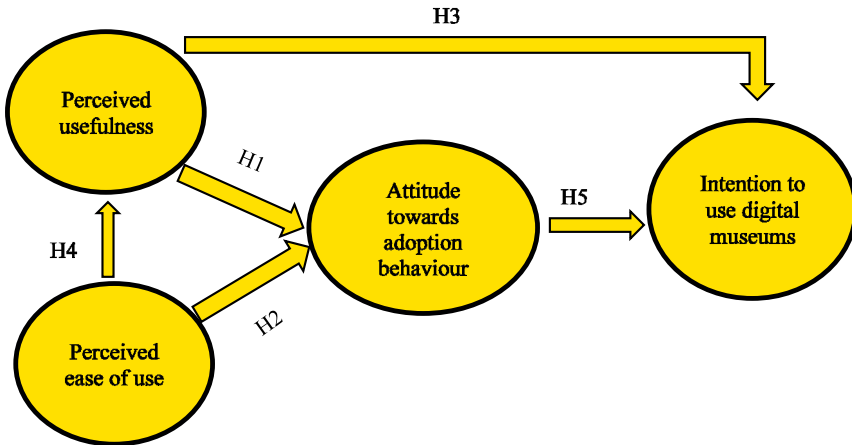
few. The technology acceptance model or TAM (Davis, 1989) is the most widely used model developed to determine the acceptance of technology, with PU and PEOU as indicators of the intention to use a specific technology (Venkatesh, 2000). PEOU affects PU, and hence the positive evaluation of PEOU impacts the positive perception of PU (Chen et al., 2007; Wu and Chen, 2005). Hung et al. (2013) emphasise that user-conviction regarding the usefulness and user-friendliness of new technology is important to accomplish its sustainability, and that PU and PEOU can have a strong influence on the decision to adopt new technology. An increase in the perception of the usefulness associated with technology will thus impact consumer intention to continue using it in the future (Venkatesh, 2000).

This paper investigates consumer adoption of digital museums and research gap has signified the importance of investigating the impressions regarding novel models of digital experiences. The research framework is built to gauge the impact of PU and PEOU on users' attitudes for digital museums. Extant research (e.g., Davis, 1989; Venkatesh and Davis, 2000; Chen et al., 2007) has established that PU and PEOU impact attitude and that positive attitude positively influences intentions of use. Moreover, PEOU has a direct effect on PU and PU could in turn affect behavioural intention directly.

Hence, the following hypotheses are presented in the context of digital museums:

- H1 Perceived usefulness positively impacts user attitude for digital museums.
- H2 Perceived usefulness positively impacts the intention to use digital museums.
- H3 PEOU positively impacts user attitude for digital museums.
- H4 PEOU positively impacts perceived usefulness of digital museums.
- H5 Attitude has a positive impact on Intention to use digital museums.

**Figure 1** Proposed research model for consumer acceptance of digital museums (see online version for colours)



The research framework shows the investigated relationship-paths of the study (see Figure 1).

### **3 Methodology**

To achieve the objective of the study, a survey was conducted with a sample of 125 people from India with items for PU, PEOU, attitude, and intention to use as explained in Table 1. Respondents were asked to rank on a five-point Likert scale (1 = strongly agree, 5 = strongly disagree). All respondents were directed to a common web portal 'Indiaculture.nic.in' (<https://www.indiaculture.nic.in/virtual-museums>), that hosts a variety of digital museums from across the country. Some museums hosted only virtual exhibitions while others had both exhibitions and galleries. A few of these venues were supported by the Google Arts and Culture feature that allowed respondents to move virtually across the museum and closely see the artefacts of the venue. The respondents were not given a fixed set of museums to visit to ensure that they could visit the museums they were interested in, and also to avoid loss of respondent data in case any of the virtual museums on the website were non-functional. It is important to note that the study was conducted during the early stages of the pandemic in 2020 and there was a challenge of data collection as majority of Indian cities went under strict lockdown and curfew to contain the spread of the COVID-19 infections. These conditions impaired the possibility of contacting relevant agencies to gather data through probability sampling. Hence, a non-probability method was employed for the study to access as many respondents as possible within the constraints presented. A reliable method for non-probability sampling was snowball sampling which ensured that through the first contact with the author and subsequent snowball rounds, the measurable sample size could be reached (Bryman, 2012). In the context of the pandemic, the logic of using the snowball sampling technique for hard to reach populations (Averweg, 2008; Goodman, 2011) and through referral networks (Cooper and Emory, 1995) was therefore justified. The snowball sampling technique also helped to cover for the lack of a structured sampling frame as most respondents were inaccessible due to the pandemic situation in the country. The first data contacts were made with people known to the author, who were then requested to spread the electronic survey to as many respondents as possible. To achieve this, the questionnaire was distributed through email and known WhatsApp groups. Data collection was conducted in period of early to mid-2020 from people living in urban regions of India and with an educated background. As the intention was to conduct a preliminary exploratory study, a simplistic model of TAM was used. At this point in the study, no extension models of TAM or external variables influencing PU and PEOU have been included. The questionnaire was divided into three sections – the first section was titled previous knowledge regarding digital museums and had questions such as 'I have knowledge about digital museums', 'I have experience of interacting with digital museums', 'I have visited Indian digital museums' and 'I have visited foreign digital museums'. The second part of the questionnaire was titled consumer perceptions and was subdivided into questions on perceived use, PEOU, attitude towards the use of digital museums, and intention to use digital museums. The final section inquired about respondents' age, gender, education and employment status. All questions were adapted from previous studies to suit the purpose of the study. See Table 1 for a list of the referred sources. Some of the authors' self-made questions were also added to the questionnaire. These largely inquired about the function of the digital museums in the pandemic times and the 'new normal' lifestyle, e.g., 'Digital museums are important for recreation and learning in pandemic and post-pandemic times' and 'Using the digital



museums is a wise idea to continue learning culture while dealing with pandemic fear and risk of infection'. Linear regression was employed to test the hypotheses and to assess the extent to which PU and PEOU influenced attitude and intention.

**Table 1** Source from which questions were adapted for the study

<i>Construct</i>	<i>Source</i>	<i>Items</i>
PU	Moore and Benbasat (1991), Chen et al. (2007)	4
	Self-made (author)	2
PEOU	Bhattacharjee (2000), Chen et al. (2007), Hung et al. (2013)	3
Attitude	Taylor and Todd (1995), Chen et al. (2007)	3
	Self-made (author)	1
Intention	Yu et al. (2005), Chen et al. (2007)	2

## 4 Data analysis

### 4.1 Demographic profile

Respondents of the study resided in urban cities of India and the data was spread over respondents from mainly five cities – Indore, Pune, Surat, Vadodara and Delhi. Majority of the respondents (N = 125) were male (64%) and the rest (36%) were female respondents. 52% of respondents were in the age group 18–25 years, 20% in the age group of 25–35 years, and the remaining were in the age group of 35 to 50 years. 44% of the population were full time professionals, 40% of the population was working part time and 16% were full time university students. 83% did not have any prior experience of interacting with a digital museum and 12% respondents had visited digital museum spaces in India (respondents mentioned about the 360° imaging, digital galleries and digital catalogues available on museum websites), and only 2% had visited the digital museum spaces of foreign museums. See Table 2 for demographic profile of respondents.

**Table 2** Demographic profile of respondents

<i>Characteristic</i>	<i>Distribution</i>
Gender	64% male, 36% female
Occupation	44% full time professionals, 40% part time professionals, 16% full time university students
Age	52% (18–25 years), 20% (25–35 years), 18% (35 to 50 years)
Do you know about a digital museum?	52% did not know about digital museums, 48% knew about digital museums
Of those who knew about digital museums – have you visited a digital museum before?	83% not visited a digital museum, 12% visited a digital museum in India, 2% visited a foreign digital museum, 3% no response

### 4.2 Reliability analysis

Since the questionnaire was based on previously conducted studies as shown in Table 1, it helped to establish convergent validity of the test (Bryman, 2012). The quantitative

study was conducted using pre-existing scales to measure TAM previously tested in several academic research papers (Chen et al., 2007; Lee et al., 2012), and therefore measurements were deemed valid for the purpose of the study. Reliability analysis was done to measure internal validity and consistency of the items used in the study. The mean scores of all dimensions were above 4 indicating a positive inclination among respondents towards the dimensions explored in the study. Of the four dimensions, PEOU had the highest mean score ( $M = 4.899$ ) and intention had the lowest mean score ( $M = 4.122$ ). Factor loadings on all constructs were more than 0.35 (Hair et al., 1998) indicating reliability of the survey questions. Cronbach's alpha values are a measure of internal consistency and scale reliability (UCLA, 2021). A reliability coefficient of 0.70 is acceptable (Bryman, 2012) and all obtained Cronbach alpha values of the study were above 0.8. Following Pallant (2016), results indicated that there was high inter reliability between items and all dimensions – PU, PEOU, attitude, and intention showed Cronbach alpha values were above 0.8, high inter-reliability was indicated.

Table 3 shows mean values ( $M$ ), standard deviation and Cronbach alpha values for all dimensions.

**Table 3** Reliability coefficients

<i>Dimension</i>	<i>Mean (M)</i>	<i>Std. deviation</i>	<i>Cronbach alpha</i>
PU	4.899	1.067	$\alpha = .966$
PEU	4.692	1.062	$\alpha = .931$
Attitude	4.566	0.845	$\alpha = .910$
Intention	4.122	0.851	$\alpha = .902$

Further, regression analysis showed that the values for  $R^2$  explained how the model had a good fit with the data analysed and expressed its variability as the values were close to 1 (Saunders et al., 2009). Similarly, all b-values followed a positive sign thereby indicating a positive relationship between dependent and independent variables (Miller and Brewer, 2003).

**Table 4** Pearson's correlation between dimensions

<i>Dimension</i>	<i>PU</i>	<i>PEU</i>	<i>Attitude</i>	<i>Intention</i>
PU	1	-	-	-
PEU	.634**	1	-	-
Attitude	.807**	.628**	1	-
Intention	.709**	.613**	.796**	1

Note: \*\*Correlation is significant at the 0.01 level.

### 4.3 Correlation analysis

The correlation among items was tested and scored Pearson's correlations are presented in Table 4. The Pearson's correlation values are also an indicator of validity and in the recommendation of Pallant (2016), all Pearson values above 0.5 are indicative of a strong relationship. As is seen in Table 3, Pearson's correlations between dimensions are more

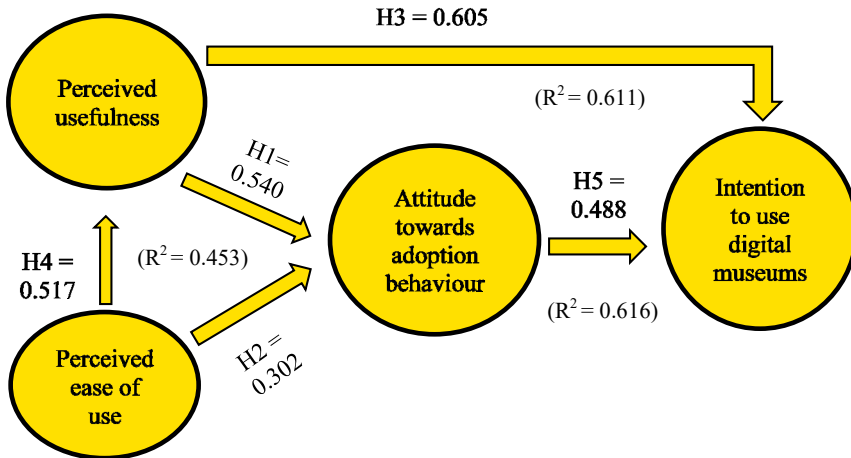
than 0.5 and indicate a strong positive relationship between the tested dimensions. All correlations are significant at the 0.01 confidence level.

4.4 Hypothesis testing

To test the model, regression analysis was conducted in SPSS 21 to predict how PU and PEOU influenced attitude to use digital museums and further, the intention to use digital museums. The standardised path coefficients of predictors helped to explain the impact of PU and PEOU on dependent variables attitude and intention ( $R = 0.708$  and adjusted  $R^2 = 0.616$ ). PU-attitude relationship ( $\beta = 0.540$ ,  $p = 0.000$ ) showed a larger impact than PEOU-attitude ( $\beta = 0.302$ ,  $p = 0.000$ ). The model showed that both PU and PEOU had a significant and positive impact on attitude towards adoption behaviour for digital museums. Hence, H1 and H2 were supported in the study. Similarly, path coefficients for PU and attitude towards intention ( $R = 0.765$ , adjusted  $R^2 = 0.611$ ) showed positive influence. PU-intention ( $\beta = 0.605$ ,  $p = 0.000$ ) showed a significant impact of perceived usefulness on intention, while attitude-intention showed a positive impact of attitude on Intention to use digital museums ( $\beta = 0.488$ ,  $p = 0.000$ ). Hence, Hypotheses H3 and H5 were also supported in the model. Finally, the impact of PEOU-PU was tested ( $R = 0.702$ , adjusted  $R^2 = 0.453$ ) and it was seen that PEOU had a positive influence on PU ( $\beta = 0.517$ ,  $p = 0.000$ ), hence supporting H4. Table 5 shows the hypotheses tested and supported by the study.

The path relationships and path coefficients that validate the study are given in the research framework in Figure 2.

Figure 2 Path coefficients for the influence of PU and PEOU on attitude towards adoption behaviour and intention to use digital museums (see online version for colours)



Note: All Hypotheses H1, H2, H3, H4 and H5 were supported.

Results show that perceived usefulness (PU) has the highest predictable influence on Intention to use digital museums, followed by the influence of PU on attitude towards acceptance behaviour. PEOU has a strong influence on PU and also positively influences attitude, although not as strongly as PU. The positive attitude of respondents towards acceptance of new digital experience gives a positive influence on Intention to use digital

museums. The results thereby support a positive speculation for the sustenance of digital museums and give an encouraging picture regarding the creation of a new digital market for cultural consumption.

**Table 5** Hypothesis testing

H1	Perceived usefulness positively impacts user attitude for digital museums	Supported
H2	Perceived usefulness positively impacts the intention to use digital museums	Supported
H3	Perceived ease of use positively impacts user attitude for digital museums	Supported
H4	Perceived ease of use positively impacts perceived usefulness of digital museums	Supported
H5	Attitude has a positive impact on Intention to use digital museums	Supported

## 5 Discussion

The main contribution of the paper is to investigate the tendency towards acceptance of digital museums in a developing economy context, which has previously not been well explored. This study provides an insight into consumer perceptions towards the concept of digital museums and presents that people in India hold a positive attitude and intention of use towards digital museums as for cultural consumption (Srinivasan et al., 2009a; Mason, 2006). Both perceived usefulness and PEOU contribute towards a positive attitude towards digital museums and perceived usefulness makes a higher contribution to attitude than PEOU. Perceived usefulness is also seen to make a positive impact on the intention to use digital museums and there is a significant positive effect of PEOU on perceived usefulness. Overall, the results of the study are consistent with prior studies on TAM (see for, e.g., Hung et al., 2013; Ozturk et al., 2016).

A high degree of perceived usefulness ( $M = 4.899$ ) is indicative that the respondents are positive towards the concept of digital museums. This was evident as most respondents also strongly agreed that digital museums are a good channel for cultural consumption in pandemic and post-pandemic times. The findings of the study support TAM which predicts that attitude towards technology-based product/service is a significant determinant of behavioural intention (Chen et al., 2007). In this study, the respondents' positive attitudes support the high tendency for intention to use digital museums in the future. It can be thus derived that intention to use has a sustainable future and that the Indian consumers will be interested to navigate through digital museums as attractive zones for knowledge acquisition, cultural competence and culture-based experiences. Users are willing to adopt those digital services that they find value in, are perceived as easy to understand, and are judged as highly relevant to their current and future interests (Malik et al., 2019; Bertacchini and Morando, 2013). The positive results of the study are thus encouraging in that it highlights a positive scope to leverage digital museums for increasing the interaction between cultural heritage, cultural consumption and consumers (Katz-Gerro, 2017; Howes, 2002). This is particularly relevant in the current context where global society may need to operate on the dynamics of social distancing, quarantine or lockdown for a long time to come (Iwanek, 2020; Karri, 2020). However, the results also draw attention to the fact that even as perceived usefulness for digital museums is high, the PEOU still needs to be developed. The difference between the PU and PEOU take the attention towards the need for relevant changes in the existing

systems of content and experience delivery from a customer centric perspective so that ease of use can be highlighted.

The theoretical implications of the study thus underline the importance of understanding the antecedents that strengthen consumer perception regarding the ease of using technology for cultural consumption. Factors such as the consumer's own confidence in handling digital tools, level of digital literacy, and in particular their engagement with digital cultural consumption need to be explored (Bertacchini and Morando, 2013). The enablers and barriers surrounding the digital knowledgescapes (Cameron and Robinson, 2007) are crucial indicators of the possible development in the field of cultural digitalisation and related consumption. Further, digital museums should be studied through the lenses of consumer affinity to cultural diversity, and approaches such as content dissemination, accessibility, user-friendliness and experience creation. The study also implores cultural industries to design new digital platforms and strengthen existing ones with more innovative approaches to encourage consumer participation and reduce hesitancy (Srinivasan et al., 2009a, 2009b; Navarrete, 2019). The experiential value can be enhanced by adopting a highly consumer-centric approach (Giannini and Bowen, 2019) by providing training and instructions to better support digital consumption. Therefore, one can begin to draw policy implications for enhancing an audience-oriented approach (Mosca et al., 2018), and build new digital markets with relevant business ecosystems for services around cultural consumption (Koseki et al., 2010).

With specific relevance to the status of digital museums in India, there have been concerns about the poor condition of museums as a public body despite the rich cultural heritage of the country. Further, there is a low level of digitalisation involved in Indian museums (Singh, 2018; Karri, 2020). On the flip side, Indian consumers are strong in reacting to digital services (Sharma and Pal, 2020). Hence, there is a large scope for leveraging this consumer-based advantage to narrow the gap between physical and digital spaces. Hence, from a managerial perspective, the results of the study underline the efforts in transforming the politics of cultural consumption (Katz-Gerro, 2004, 2017) and that of the digital museums as institutional entities that encourage cultural consumption. The associated experiential perspective should be treated as vital for the sustainability of the digital museums. This effort can be especially relevant in the pandemic times and investments can be made to cater to the interest and capability of users to interact creatively and confidently with digital interfaces (Karri, 2020).

To the best of the authors' knowledge, this study is the first of its kind to explore consumers' perceptions for digital museums in a developing country and initiate a discussion on the formation of a digital market for cultural consumption in the Indian market. Thus, it makes an academic contribution in raising the important points that are valid for a new business ecosystem from the perspective of the TAM model. From a practical perspective, this study identifies how policymakers and strategists could leverage and reinforce existing resources to create innovative digital market spaces. The digital museums can support consumer engagement with culture. They can also provide the socialscape for interactions on the e-platform which otherwise could be in jeopardy if the pandemic situation continues for a long time or if it resurfaces in the future.

## 6 Conclusions

As custodians of cultural heritage, museums give access to their collections, in the digital interfaces for sustained interaction with cultural symbols, objects and heritage. Until now, museums have functioned as a mix of physical and digital interfaces in varying degrees to provide a hybrid experience for consumers. The increased focus on complete digitisation due to the pandemic situation has opened the need to explore how new consumer experiences may be created via a completely digital museum ecosystem. The results of the study are indicative of a highly encouraging situation for the further development and evolution of cultural consumption through digital means and in the absence of physical environments. Given that digital museums are still in nascent stages in the cultural context of a developing country like India, this study has predicted a high level of user acceptance for technology-based services in this case, for digital museums. However, this study also has limitations that can be addressed in future research. First, the study is exploratory and respondents are mainly in the age group of 18–50 years from five large cities of the country, thereby implying that the results are derived only from a certain section of the Indian population and cannot be generalised. Second, as the study was more focused on exploring attitude and intention as a first-level research approach, there was no inclusion of any other external variable influencing any other dimension of the research framework. Further studies can include several external variables such as subjective norms, perceived behavioural control, self-efficacy, personal innovativeness, etc. as extensions to the TAM model of the study, as is seen in some other works in this area. More research can also be directed towards the ethical perspectives regarding use of technology as well as the presentation of cultural objects in the digital manner. One might also wonder about the differences between physical experiences and digital experiences related to cultural consumption and future research can focus on the sensorial aspects of digital museum to elicit differences from a consumer's perspective.

## References

- Agostino, D., Arnaboldi, M. and Lampis, A. (2020) 'Italian state museums during the COVID-19 crisis: from onsite closure to online openness', *Museum Management and Curatorship*, Vol. 35, No. 4, pp.362–372.
- Antara, N. and Shuvro, S.E.N. (2020) 'The impact of COVID-19 on museum and the way forward to be resilience', *Uluslararası Müze Eğitimi Dergisi*, Vol. 2, No. 1, pp.54–61.
- Aron, J. (2011) *Ancient Buildings Brought to Life from Historic Maps* [online] <https://www.newscientist.com/article/mg20927986-000-ancient-buildings-brought-to-life-from-historic-maps/> (accessed 23 May 2020).
- Averweg, U. (2008) 'Information technology acceptance in South Africa: an investigation of perceived usefulness, perceived ease of use, and actual system use constructs', *The African Journal of Information Systems*, Vol. 1, No. 1, pp.44–66.
- Bautista, S.S. (2013) *Museums in the Digital Age: Changing Meanings of Place, Community, and Culture*, Rowman & Littlefield, Lanham, MD.
- Bertacchini, E. and Morando, F. (2013) 'The future of museums in the digital age: new models for access to and use of digital collections', *International Journal of Arts Management*, Vol. 15, No. 2, pp.60–72.

- Bhattacharjee, A. (2000) 'Acceptance of e-commerce services: the case of electronic brokerages', *IEEE Transactions on Systems, Man, and Cybernetics – Part A: Systems and Humans*, Vol. 30, No. 4, pp.411–420.
- Bhawani, D. and Gowri, S. (2020) *Heritage Alone No More: India's Museums Adapt to the Virtual Zeitgeist* [online] <https://www.thehindu.com/society/history-and-culture/how-india-museums-go-digital-during-after-coronavirus-lockdowns/article32981816.ece> (accessed 10 April 2021).
- Billore, S. and Billore, G., (2020) 'Consumption switch at haste: insights from Indian low-income customers for adopting Fintech services due to the pandemic', *Transnational Marketing Journal*, Vol. 8, No. 2, pp.197–218.
- Bozkurt, A., Jung, I., Xiao, J., Vladimirschi, V., Schuwer, R., Egorov, G., Lambert, S., Al-Freih, M., Pete, J., Olcott Jr, D. and Rodes, V.(2020) 'A global outlook to the interruption of education due to COVID-19 pandemic: navigating in a time of uncertainty and crisis', *Asian Journal of Distance Education*, Vol. 15, No. 1, pp.1–126.
- Bryman, A. (2012) *Social Research Methods*, Oxford University Press, Oxford.
- Cameron, F. and Robinson, H. (2007) 'Digital knowledgescapes: cultural, theoretical, practical, and usage issues facing museum collection databases in a digital epoch', *Theorizing Digital Cultural Heritage: A Critical Discourse*, pp.165–191, MIT Press, USA.
- Chan, T.W. (Ed.) (2010) *Social Status and Cultural Consumption*, Cambridge University Press, Cambridge.
- Chen, C.D., Fan, Y.W. and Farn, C.K. (2007) 'Predicting electronic toll collection service adoption: an integration of the technology acceptance model and the theory of planned behavior', *Transportation Research Part C: Emerging Technologies*, Vol. 15, No. 5, pp.300–311.
- Clifford, J. (1997) *Routes: Travel and Translation in the Late Twentieth Century*, Harvard University Press, Cambridge, MA.
- Cooper, D.R. and Emory, C.W. (1995) *Business Research Methods*, Richard D. Irwin. Inc., Chicago.
- Davis, F.D. (1989) 'Perceived usefulness, perceived ease of use, and user acceptance of information technology', *MIS Quarterly*, Vol. 13, No. 3, pp.319–340.
- Diaz Ruiz, C.A., Penalosa, L. and Holmqvist, J. (2020) 'Assembling tribes: an assemblage thinking approach to the dynamics of ephemerality within consumer tribes', *European Journal of Marketing*, Vol. 54, No. 5, pp.999–1024, <https://doi.org/10.1108/EJM-08-2018-0565>.
- Fenech, T. (1998) 'Using perceived ease of use and perceived usefulness to predict acceptance of the World Wide Web', *Computer Networks and ISDN Systems*, Vol. 30, Nos. 1–7, pp.629–630.
- Geber, K. (2006) 'Digital heritage news participatory digital cultural content', *Museum International*, Vol. 58, Nos. 1–2, pp.121–122.
- Giannini, T. and Bowen, J.P. (2019) *Museums and Digital Culture*, Springer, Cham, Switzerland.
- Goodman, L.A. (2011) 'Comment: on respondent-driven sampling and snowball sampling in hard-to-reach populations and snowball sampling not in hard-to-reach populations', *Sociological Methodology*, Vol. 41, No. 1, pp.347–353.
- Grover, P., Kar, A.K., Janssen, M. and Ilavarasan, P.V. (2019) 'Perceived usefulness, ease of use and user acceptance of blockchain technology for digital transactions – insights from user-generated content on Twitter', *Enterprise Information Systems*, Vol. 13, No. 6, pp.771–800.
- Gursoy, D. and Chi, C.G. (2020) 'Effects of COVID-19 pandemic on hospitality industry: review of the current situations and a research agenda', *Journal of Hospitality Marketing & Management*, Vol. 29, No. 5, pp.527–529, DOI: 10.1080/19368623.2020.1788231.
- Hair, J.F., Anderson, R.E., Tatham, R.L. and Black, W.C.(1998) *Multivariate Data Analysis*, Vol. 5, No. 3, pp.207–2019, Englewood Cliff, New Jersey, USA.
- Howes, D. (Ed.). (2002) *Cross-cultural Consumption: Global Markets, Local Realities*, Routledge, London.

- Hung, S.Y., Chen, C.C., Hung, H.M. and Ho, W.W. (2013) 'Critical factors predicting the acceptance of digital museums: user and system perspectives', *Journal of Electronic Commerce Research*, Vol. 14, No. 3, p.231.
- Iwanek, K. (2020) *Virtually There: Visit These Indian Museums Online During the Global Lockdown* [online] <https://thediplomat.com/2020/03/virtually-there-visit-these-indian-museums-online-during-the-global-lockdown> (accessed 8 July 2020).
- Karri, R. (2020) *Indian Museums Go the Digital Way in the Wake of Covid-19* [online] <https://www.mojarto.com/blogs/indian-museums-go-the-digital-way-in-the-wake-of-covid-19> (accessed 12 July 2020).
- Katre, D. (2011) 'Digital preservation: converging and diverging factors of libraries, archives and museums – an Indian perspective', *IFLA Journal*, Vol. 37, No. 3, pp.195–203.
- Katz-Gerro, T. (2004) 'Cultural consumption research: review of methodology, theory, and consequence', *International Review of Sociology*, Vol. 14, No. 1, pp.11–29.
- Katz-Gerro, T. (2017) 'Consumption of culture and lifestyles', in *Routledge Handbook on Consumption*, pp.409–419, Routledge, London.
- Koseki, Y., Shimizu, H. and Iio, J. (2010) 'Business ecosystem for digital museums', in *2010 16th International Conference on Virtual Systems and Multimedia*, IEEE, October, pp.382–385.
- Kunjir, A.R. and Patil, K.R. (2020) 'Challenges of mobile augmented reality in museums and art galleries for visitors suffering from vision, speech, and learning disabilities', in *Virtual and Augmented Reality in Education, Art, and Museums*, pp.162–173, IGI Global, DOI: 10.4018/978-1-7998-1796-3.ch009.
- Lee, W., Xiong, L. and Hu, C. (2012) 'The effect of Facebook users' arousal and valence on intention to go to the festival: applying an extension of the technology acceptance model', *International Journal of Hospitality Management*, Vol. 31, No. 3, pp.819–827.
- Malik, A., Suresh, S. and Sharma, S. (2019) 'An empirical study of factors influencing consumers' attitude towards adoption of wallet apps', *International Journal of Management Practice*, Vol. 12, No. 4, pp.426–442.
- Mao, Y. (2019) 'Image representation, visual performance and embodied practice: cultural memory construction of online digital museum', *Advances in Social Sciences*, Vol. 8, No. 7, pp.1157–1161.
- Mason, R. (2006) 'Cultural theory and museum studies', in *A Companion to Museum Studies*, pp.17–32, Wiley-Blackwell Publications, West-Sussex.
- Meghji, A. (2020) 'Contesting racism: how do the black middle-class use cultural consumption for anti-racism?', *Identities*, Vol. 27, No. 5, pp.595–613, DOI: 10.1080/1070289X.2019.1611074.
- Mencarelli, R., Marteaux, S. and Pulh, M. (2010) 'Museums, consumers, and on-site experiences', *Marketing Intelligence & Planning*, Vol. 28, No. 3, pp.330–348, DOI: 10.1108/02634501011041453.
- Mick, D.G. and Fournier, S. (1998) 'Paradoxes of technology: consumer cognizance, emotions, and coping strategies', *Journal of Consumer Research*, Vol. 25, No. 2, pp.123–143.
- Mihelj, S., Leguina, A. and Downey, J. (2019) 'Culture is digital: cultural participation, diversity and the digital divide', *New Media & Society*, Vol. 21, No. 7, pp.1465–1485.
- Miller, R.L. and Brewer, J.D. (Eds.) (2003) *The AZ of Social Research: A Dictionary of Key Social Science Research Concepts*, Sage Publications, London.
- Ministry of Culture (2021) *Digitization of Museum Collection* [online] <https://www.indiaculture.nic.in/scheme-financial-assistance-digitization-museum-collections> (accessed 12 April 2021).
- Moore, G.C. and Benbasat, I. (1991) 'Development of an instrument to measure the perceptions of adopting an information technology innovation', *Information Systems Research*, Vol. 2, No. 3, pp.192–222.
- Mosca, F., Bertoldi, B., Giachino, C. and Stupino, M. (2018) 'Facebook and Twitter, social networks for culture. An investigation on museums', *Mercati & Competitività*, Vol. 2, pp.39–59.



- Navarrete, T. (2019) 'Digital heritage tourism: innovations in museums', *World Leisure Journal*, Vol. 61, No. 3, pp.200–214.
- Nhamo, G., Dube, K. and Chikodzi, D.(2020) 'Implications of COVID-19 on gaming, leisure and entertainment industry', in *Counting the Cost of COVID-19 on the Global Tourism Industry*, pp.273–295, Springer, Cham.
- Nižetić, S. (2020) 'Impact of coronavirus (COVID-19) pandemic on air transport mobility, energy, and environment: a case study', *International Journal of Energy Research*, Vol. 44, No. 13, pp.10953–10961.
- Ntounis, N., Parker, C., Skinner, H., Steadman, C. and Warnaby, G. (2021) 'Tourism and Hospitality industry resilience during the Covid-19 pandemic: evidence from England', *Current Issues in Tourism*, pp.1–14, <https://doi.org/10.1080/13683500.2021.1883556>.
- Ozturk, A.B., Bilgihan, A., Nusair, K. and Okumus, F. (2016) 'What keeps the mobile hotel booking users loyal? Investigating the roles of self-efficacy, compatibility, perceived ease of use, and perceived convenience', *International Journal of Information Management*, Vol. 36, No. 6, pp.1350–1359.
- Pallant, J. (2016) *SPSS Survival Manual*, Vol. 6, McGraw-Hill, Maidenhead.
- Parry, R. (Ed.) (2013) *Museums in a Digital Age*, Routledge, Oxford.
- Pfefferbaum, B. and North, C.S. (2020) 'Mental health and the Covid-19 pandemic', *New England Journal of Medicine*, Vol. 383, No. 6, pp.510–512.
- Ramayah, T. and Ignatius, J. (2005) 'Impact of perceived usefulness, perceived ease of use and perceived enjoyment on intention to shop online', *ICFAI Journal of Systems Management (IJSM)*, Vol. 3, No. 3, pp.36–51.
- Samaroudi, M., Echavarria, K.R. and Perry, L. (2020) 'Heritage in lockdown: digital provision of memory institutions in the UK and US of America during the COVID-19 pandemic', *Museum Management and Curatorship*, Vol. 35, No. 4, pp.337–361.
- Saunders, M., Lewis, P. and Thornhill, A., (2009) *Research Methods for Business Students*, Pearson Education, Harlow.
- Sharma, B.K. and Pal, V.K. (2020) 'Application of TAM model in teaching and learning – a behavioural study on social media', *International Journal of Management Practice*, Vol. 13, No. 4, pp.478–497.
- Singh, V. (2018) *Technology Elevating Museums in India* [online] <https://mediaindia.eu/culture/technology-elevating-museums-in-india/> (accessed 27 May 2020).
- Srinivasan, R. (2006) 'Indigenous, ethnic and cultural articulations of new media', *International Journal of Cultural Studies*, Vol. 9, No. 4, pp.497–518.
- Srinivasan, R., Boast, R., Furner, J. and Becvar, K.M. (2009a) 'Digital museums and diverse cultural knowledges: moving past the traditional catalog', *The Information Society*, Vol. 25, No. 4, pp.265–278.
- Srinivasan, R., Enoté, J., Becvar, K.M. and Boast, R. (2009b) 'Critical and reflective uses of new media technologies in tribal museums', *Museum Management and Curatorship*, Vol. 24, No. 2, pp.161–181.
- Tan, B.Y., Chew, N.W., Lee, G.K., Jing, M., Goh, Y., Yeo, L.L., Zhang, K., Chin, H.K., Ahmad, A., Khan, F.A. and Shanmugam, G.N. (2020) 'Psychological impact of the COVID-19 pandemic on health care workers in Singapore', *Annals of Internal Medicine*, Vol. 173, No. 4, pp.317–320.
- Taylor, S. and Todd, P.A. (1995) 'Understanding information technology usage: a test of competing models', *Information Systems Research*, Vol. 6, No. 2, pp.144–176.
- The Heritage Lab (2018) *Bringing Museums Alive with Digital Technology* [online] <https://www.theheritagelab.in/museums-digital-technology/> (accessed 2 June 2020).
- The Heritage Lab (2021) *Campaigns* [online] <https://www.theheritagelab.in/campaigns/> (accessed 30 March 2021).

- UCLA (2021) 'What does Cronbach alpha mean?', Institute for Digital research and Education [online] <https://stats.idre.ucla.edu/spss/faq/what-does-cronbachs-alpha-mean/> (accessed 2 June 2020).
- Venkatesh, V. (2000) 'Determinants of perceived ease of use: integrating control, intrinsic motivation, and emotion into the technology acceptance model', *Information Systems Research*, Vol. 11, No. 4, pp.342–365.
- Venkatesh, V. and Davis, F.D. (2000) 'A theoretical extension of the technology acceptance model: four longitudinal field studies', *Management Science*, Vol. 46, No. 2, pp.186–204.
- Wu, L. and Chen, J.L. (2005) 'An extension of trust and TAM model with TPB in the initial adoption of on-line tax: an empirical study', *International Journal of Human-Computer Studies*, Vol. 62, No. 6, pp.784–808.
- Yu, J., Ha, I., Choi, M. and Rho, J. (2005) 'Extending the TAM for a t-commerce', *Information & Management*, Vol. 42, No. 7, pp.965–976.