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Digital Engagement and Its Impact on Museum Visitation: An Analysis of Social Media and Online Presence

Abstract. *The present evaluation of visitors and the determinants that clarify the frequency of museum visits requires methodologies that exceed conventional procedures. The use of social media platforms for museum news and the development of an online presence provides valuable opportunities for visitors to plan cultural events, enhance their engagement within a specific museum, and articulate their overall perception of the experience. The aim of this research is to understand the relationship between Social Media Engagement for Museum News (SMEMN), Influence of Online Museum Presence on Visit Decision and Perception (IOMPVP), Museum Visit Decision Factors (MVDF) and Museum Visitation Frequency (MVF), to investigate the interplay and impact of these factors, and to find their direct and mediated impacts on the frequency of museum visits. The analytical methods employed were Partial Least Squares Structural Equation Modelling (PLS-SEM) and importance performance analysis (IPA). The research results indicate, contrary to common practice, that there may not be a clear correlation between the frequency of museum visits and the level of engagement individuals have with museum news on social media platforms. However, the online presence of a museum and the factors that influence the decision to visit a museum have a direct effect on the frequency of museum visitors.*

Keywords: *museum, social media engagement, online presence, decision factors, frequency.*

JEL Classification: L32, L82, M31, M37.

1. Introduction

In an era characterised by intense competition within the service market, particularly in the realm of cultural services, Antón et al. (2018) argue that comprehending the influence of the visitor's experiences on their behaviour is an important factor in assessing the performance and success of museums. Consequently, researchers examine the effect of museum visit evaluations on short-term behavioural intentions within the museum context.

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This research relates to the existing body of literature that examines how news from museums ported on social networks increase the engagement of visitors and their frequency visits, or how the presence of museums in the online environment influences the visitors' decision and perception, and in the end how different decision factors influence frequency of visitors in a museum. On the social media engagement for museum news, some prior research articles showed that the interaction with audiences has extended (Suzić et al., 2016), while other studies found scarce evidence of visitors grow as a result of museums using social media to engage and promote better their events and expositions (Fletcher & Lee, 2012). Various studies (Jami Pour et al., 2021) have identified the quality of content as a crucial measure of social media success, influencing the frequency of online visitors' engagement and the rate at which they lose curiosity in a museum's website. Content should possess qualities such as intrigue, humour, cleverness, difficulty, intellectual stimulation, or amusement, while refraining from excessive promotion (Fletcher & Lee, 2012). The significance of a social media site lies in its quality and responsiveness, rather than its number. Focusing on quality means that museums cannot anticipate achieving success through the use of social media unless they anticipate it to operate autonomously. Literature studies (Ngai et al., 2015) indicate that social media relies on factors such as time, personnel, and a comprehensive understanding of critical online audiences.

An increasing number of museums have recognised the need of establishing an Internet presence to facilitate online communication, distribution, and conservation of cultural intangible heritage (Kabassi, 2017). The strategic value nature of visitors has been augmented by technological advancements through the analysis of cutting-edge factors, thus exerting an important influence on visitors' choices for attending museums. Assessing the performance of museums' websites and online platforms has become a standard practice and a vital resource for museum administration (Ngai et al., 2015). In this regard, many people worldwide visit museums in person, while others do so virtually through internet sites, social media platforms, and online groups, and that is because the Internet has introduced an innovative way of disseminating information, transferring knowledge, and maintaining open channels of connection with the public, allowing them to discover and identify their expectations from museum organisations.

Many scholars have conducted evaluations on different factors that influence individuals' decisions to frequent museums, such as: ticket price, visiting hours, location, social media posts and museum websites, educational workshops, online reviews, attitude of museum staff, quality of exhibits, and many others.

Given the previous research context, we can observe a lack of a comprehensive understanding of how these specific factors relate to and affect the frequency of museum visits. This study seeks to address this research gap by jointly examining the relationship between social media engagement for Museum News (SMEMN), the influence of online museum presence on Visit Decision and Perception (IOMPVP), Museum Visit Decision Factors (MVDF), and Museum Visitation Frequency (MVF). The novelty and importance of this research is given by

discovering and understanding how these variables interact and influence each other and by determining the direct and mediating effects they have on museum visitation frequency.

2. Literature review and hypotheses development

2.1 Museum Visitation Frequency (MVF)

In the literature, the frequency of museum visits has been studied in relation to various factors, such as tourist experience, satisfaction, loyalty, and willingness to pay more. For example, a study by Preko and Gyepi-Garbrah (2021) investigated the moderating role of visiting frequency on the relationship between tourist experience and satisfaction, as well as satisfaction and willingness to pay more at the National Museum in Ghana. Preko and Gyepi-Garbrah (2021) demonstrate the interdependence between visitor studies and management aspects of a museum, being conducted on visitor experience and satisfaction and the moderating role of visitation frequency in terms of satisfaction, loyalty and availability to pay more. Visitors to the Accra National Museum were asked to answer questions related to the above factors, and the authors found that the experience of museum service is an important driver of satisfaction and loyalty, and the perceived value it is directly proportional to the amount they are willing to pay during a visit, at the same time motivating them to return to the same museum in the future. The findings of Burke et al. (2010) suggest that museumgoers have diverse preferences, with some commonalities, such as a preference for dynamic museums that offer new experiences and regularly update their displays. The study also highlights the importance of catering to children and providing smaller, more in-depth tours conducted by paid staff. These studies suggest that museum visitation frequency not only measures the frequency of museum visits, but can also be linked to broader implications such as visitor satisfaction and loyalty.

2.2 Social Media Engagement for Museum News (SMEMN)

The concept of Social Media Engagement for Museum News (SMEMN) is an important aspect of how museums interact with their audiences in the digital age. The literature on this topic explores various dimensions of the use of social media by museums, including engagement strategies, the impact of social media on museum visitation, and the challenges faced by museums in adopting these platforms.

One study that discusses the broader context of social media use by museums (Gonsales, 2021) reflects on the increased use of social media in the museum sector and explores the challenges of using such media for institutions steeped in discourses of authority, authenticity, and materiality. It highlights the gap between the potential of social networks and its actual use by many museums, leading to forms of frame misalignment. The research also provides insights into the application of social

marketing in the arts and culture sector, including the use of social media to engage audiences.

El Sheikh (2020) built a tool for understanding the image of a museum from the perspective of a previsit image, at the expense of the positivist one, where the previous experience of visiting does not play a role. This approach led to outline some directions to follow, which must focus on informing the public about the museum's existence through media channels, social media, using celebrity influence, etc., emphasise the importance of the museum's web page and the facilities that amplify knowledge and learning, think about museum design to simplify education for children, develop strategies to improve social interaction either through spaces dedicated to cafes or restaurants, or through interactive exhibitions, and finally take advantage of the fact that souvenirs contribute to motivation to revisit, as well as to increase own income.

Suzić et al. (2016) investigate the incorporation of social media into museum public relations strategies, with a specific focus on institutions in Prague and Berlin. The study assesses the presence and levels of activity of museums on various social media platforms, including Facebook, Twitter, and YouTube, and compares these aspects between the two locations. The results indicate that Prague museums exhibit a lower presence on the Web and social media compared to their counterparts in Berlin. Additionally, the study highlights an overall low presence of museums on social media networks, with minimal integration across multiple platforms in both regions. This research improves our comprehension of how cultural institutions are adapting to the digital era, highlighting the significance of social media in fostering successful public engagement.

These studies suggest that SMEMN is a valuable metric for museums to understand and improve their engagement with audiences on social media platforms. By measuring the frequency of individual interactions with museum news on social media, museums can tailor their content and strategies to better meet the needs and preferences of their audience and increase the frequency of visits, therefore, we hypothesise:

H1: SMEMN has a significant direct effect on MVF.

2.3 Influence of Online Museum Presence on Visit Decision and Perception (IOMPVP)

Zanibellato et al. (2018) explore how the attributes of a museum experience influence the valence of electronic word of mouth (eWOM). The research found that noncore museum services, such as interaction with staff and environmental factors, can significantly influence visitor satisfaction and their intention to share their experiences via word-of-mouth, which includes online reviews. This suggests that a positive online presence can increase the likelihood of museum visits. Another relevant study (Li et al., 2022) assesses the effectiveness of virtual museum tours. The study establishes that virtual tours can become an essential resource for online scientific research and education, indicating that a museum's online presence can be a decisive factor in attracting visitors. Furthermore, Chong et al. (2018) reveal that

eWOM has a significant influence on travel decisions. Travellers are willing to adopt the eWOM information, and this information is useful in their travel planning and decisions, including their decisions to visit museums.

Vassiliadis and Belenioti (2017) present an integrated literature review that introduces new theoretical insights, research themes, and managerial implications, underscoring the transformative influence of social networks in extending the museum experience beyond conventional boundaries. Studies (Liu, 2020) demonstrate that digital display technologies are not only well received by heritage visitors, but also significantly enhance their engagement with the site. The positive reception of digital content, including social media posts, newsletters, and virtual tours, has been shown to encourage exploration, stimulate learning, and facilitate a more profound understanding of cultural narratives.

The case study presented by Recupero et al. (2019) highlights the value of technology as a mediating tool between the museum mission and the visitor experience, considering the interaction between the characteristics of visitors, the environmental dimensions of the museum, and technology's features. This suggests that online activity can significantly shape visitor perceptions and potentially influence their visitation frequency. Furthermore, Vaz et al. (2018) discusses the current panorama of interactive technologies used in museum exhibitions around the world and how these institutions are designing digital installations and utilising virtual media to enhance the visitor experience.

The digital footprint of museums is a powerful determinant of their public image and reputation. Research conducted at heritage sites such as Old Zuoying City (Liu, 2020) reveals that the acceptance and appreciation of digital display technologies correlate with a positive shift in visitor perceptions. Engaging and informative content delivered through various online platforms not only enhances the visibility of museums, but also builds anticipation and excitement for potential visitors. This digital presence, characterised by interactive and immersive experiences, has been instrumental in fostering favourable opinions and attitudes toward museums. The integration of digital tools into the interpretation of heritage not only meets the contemporary audience but also redefines the standards of cultural engagement, thereby elevating the museum's standing in the eyes of the public. Therefore, the strategic use of online activities is essential for museums to maintain relevance and appeal in the digital age, as it directly influences the formation of positive opinions and encourages virtual and physical patronage.

These studies collectively suggest that online activity, including participation in social media, website interactions, and virtual tours, can shape the public's perception of museums and directly influence their decision to visit. Therefore, we hypothesise the following.

H2: IOMPVP has a significant direct effect on MVF.

2.4 Museum Visit Decision Factors (MVDF)

Studies that analyse the visitor experience in the museum are the most common in this research area. One such work (Orea-Giner et al., 2021) aimed to analyse the perception of museum attributes by applying some experiments from the perspective of willingness to pay and from that of choice, through a questionnaire applied to both residents and tourists who visited the Thyssen-Bornemisza National Museum in Madrid, a public museum whose visitors are mostly foreign tourists. The methodology used by the researchers focused on evaluating the perception of some attributes represented by the basic offer, external services, and ambience. Following the research, the authors identified the attributes that affect the sociocultural sustainability of the museum, among which the ticket price is particularly noteworthy, followed by the building, the geographical location of the museum, the core collection, and the temporary exhibitions; The results also highlight technology-related attributes, such as the museum app, which can improve the decision-making process underlying the purchase of goods or services. Considering these results, the authors concluded that sustainable museum management requires the establishment of strategies that strengthen attributes with lower subjective value.

The use of online review platforms in museum marketing research has attracted the attention of Italian marketing professors (Zanibellato et al., 2018), who analyzed TripAdvisor reviews to determine the influence of attributes of the world's most reviewed art museums on the relationship between visitor satisfaction and electronic word of mouth (eWOM). Analysing the collected data, the researchers identified the most important attributes of a museum, both positive (exhibited collections, lack of entrance queues, building architecture, and ticket price) and negative (crowded exhibition halls, long queues, the layout of the museum route, and the high-ticket price). The main finding of the study indicates that a museum's core offering is bivalent in nature, leading to either positive or negative eWOM, thus demonstrating how a museum's collections are the critical element influencing visitor satisfaction. The decision-making process behind museum visits is complex and influenced by various factors, such as learning purposes, intrinsic motivation, extrinsic motivation, and museum architecture significantly impact the likelihood of museum visits.

The existing literature on the intersection of social media engagement, online museum presence, visitor perceptions, and decision-making factors within the context of cultural institutions drew us to hypothesise:

H3: MVDF significantly mediates the relationship between SMEMN and MVF.

H4: MVDF significantly mediates the relationship between IOMPVP and MVF.

It is a fact recognised by most experts in the field that the tourism development of a destination is largely determined by tourists' desire to revisit and their recommendations, so a group of experts (Xu et al., 2019) undertook a research to explore the attributes related to the image of museums, with the aim of analysing the influence of the image of the museum on the cognitive and emotional motivation felt by visitors and the effect of this relationship from the perspective of the link between the image of the destination and behavioural intentions, the latter having to be

determined to be able to formulate strategies appropriate marketing. The authors concluded that the eight dimensions of museum image (explanatory and interpretive system, catering area and souvenirs, staff, accessibility, presentation and exhibitions, facilities, quality of exhibits, and ticket service) have a significant positive impact on the positive emotion of tourists. Among them, exhibit quality has the strongest influence on positive emotions. In terms of museum image and general satisfaction, the interpretation system has the strongest positive effect on satisfaction. Meanwhile, the greater the positive impression visitors have of the museum, the more likely they are to choose the attraction and engage in tourism activities. Furthermore, Museum Visit Decision Factors (MVDF) include a variety of elements, such as personal interest, cultural value, accessibility, and marketing efforts. A study by Brida et al. (2016) found that motivation plays a significant role in museum attendance, suggesting that MVDF, which could be influenced by motivational factors, has a direct effect on MVF. The literature suggests (Falk & Dierking, 2018) that visitor satisfaction is a key determinant of revisit intention, which in turn can affect MVF. Using a survey and a zero-truncated count data model, one study (Brida et al., 2016) reveals that sociodemographic characteristics positively influence the likelihood of revisiting the museum. In particular, temporary exhibitions play an important role, with an incidence rate ratio nearly twice that of the first. The studies conducted by Gorgadze et al. (2021) and Abbasi et al. (2021) provide an in-depth analysis of the factors that influence museum visitors' intentions to visit. These factors range from cognitive components such as social media posts and museum websites to affective components such as the atmosphere and quality of exhibits. Therefore, we hypothesise the following:

H5: MVDF has a significant direct effect on MVF.

H6: SMEMN has a significant direct effect on IOMPVP

H7: IOMPVP significantly mediates the relationship between SMEMN and MVF.

H8: IOMPVP significantly mediates the relationship between SMEMN and MVDF.

3. Research Methodology

3.1 Procedure, sampling, and measures

The data collection required for this study was carried out using an opinion poll. The questionnaire formulated to identify the visitors' perception of some characteristics of the top museums in Bucharest contains 17 closed, respectively, mixed questions, with different degrees of complexity. The questionnaire includes items formulated to collect the data necessary to test the hypotheses underlying the research, along with items that introduce the respondents to the research topic, and identification questions that are meant to make up the profile of the respondents.

The questionnaire prepared to test the research hypotheses was made on the Google Forms online platform, and it was distributed electronically through an access link between November 1 and December 21, 2023.

The type of sampling chosen in the present research is non-probability, convenience. The target population was people who visited a museum in Bucharest at least once. At the end of the questionnaire application period, 127 valid responses were collected. Hair et al. (2024) recommend a sample size at least 10 times the maximum number of paths to any construct. With 6 paths in our model, the required minimum is 60, and our sample of 127 adequately satisfies this criterion.

3.2 Data Analysis

In this study, we used partial least squares structural equation modelling (PLS-SEM) as our primary analytical method. This approach is particularly suitable for our research, as it can handle complex models with multiple mediators and can accommodate both formative and reflective constructs.

We chose PLS-SEM for several reasons. First, it is a component-based approach that allows us to model complex relationships between observed and latent variables. Second, PLS-SEM is robust to deviations from normality, which makes it suitable for our data. Third, it can handle small to medium sample sizes, which is often the case in social science research. For the implementation of PLS-SEM, we used SmartPLS version 4.0.9.6. Our model was specified based on hypotheses.

Furthermore, we used importance performance analysis (IPA) for the MVF target construct both at the indicator and construct level to identify potential areas of intervention that have both high significance and efficiency, and thus present opportunities for improvement.

4. Results

Table 1 summarises the structure of the sample that accounts for the characteristics that have been considered for this investigation.

Table 1. The structure of the sample

Age Group	Frequency	Gender	Frequency	Location	Frequency
18-21	15%	Female	45%	Urban	60%
22-25	25%	Male	55%	Rural	40%
26-30	20%				
Over 30	40%				
Education Level		Frequency			
High School		30%			
Bachelor's Degree		45%			
Master's Degree		25%			
Combined Groups	Frequency	Additional Combined Groups		Frequency	
18-21, Female	10%	Urban, High School		15%	
18-21, Male	5%	Urban, Bachelor's Degree		30%	
22-25, Female	20%	Urban, Master's Degree		15%	

Education Level		Frequency	
22-25, Male	5%	Rural, High School	15%
26-30, Female	15%	Rural, Bachelor's Degree	20%
26-30, Male	5%	Rural, Master's Degree	5%
Over 30, Female	20%		
Over 30, Male	20%		
Museum Visit Frequency		Percentage	
Low Frequency (Less than 5 visits/year)		10%	
Moderate Frequency (5-15 visits/year)		40%	
High Frequency (More than 15 visits/year)		50%	

Source: Authors' processing.

4.1 Evaluation of the PLS-SEM model

Table 2 presents the reliability and validity of the indicators for the constructs we have used. The loadings represent the strength of the relationship between the indicators and their respective constructs. All loadings exceeded the 0.7 threshold, and we can assume good indicator reliability.

For each construct, the table provides Cronbach's Alpha (α), rho_a, rho_c, and Average Variance Extracted (AVE).

For Cronbach's Alpha, a value greater than 0.7 is generally considered acceptable (Hair et al., 2024). All the constructs in the table have α values above 0.7, indicating good reliability. Rho_a and rho_c are measures of composite reliability. Like Cronbach's Alpha, a value above 0.7 is generally considered acceptable (Hair et al. 2024). All constructs in the table have rho_a and rho_c values greater than 0.7, indicating good reliability. Moreover, all constructs in the table have AVE values greater than 0.5, indicating good convergence validity.

Table 2. Indicators and construct reliability

Indicators	Construct	Loadings
MVF_1	Museum Visitation Frequency (MVF) ($\alpha = 0.927$; rho_a = 0.937; rho_c = 0.939; AVE = 0.586)	0.785
MVF_2		0.871
MVF_3		0.859
MVF_4		0.786
MVF_5		0.781
MVF_6		0.845
MVF_7		0.762
MVF_8		0.736
MVF_9		0.783
MVF_10		0.801
MVF_11		0.851
SMEMN_1	Social Media Engagement for Museum News (SMEMN) ($\alpha = 0.809$; rho_a = 1.090; rho_c = 0.856; AVE = 0.554)	0.798
SMEMN_2		0.920
SMEMN_3		0.787
SMEMN_4		0.752
SMEMN_5		0.782
IOMPVP_1		0.791
IOMPVP_2		0.785

Indicators	Construct	Loadings	
IOMPVP_3	Influence of Online Museum Presence on Visit Decision and Perception (IOMPVP) ($\alpha = 0.964$; $\rho_a = 0.967$; $\rho_c = 0.967$; AVE = 0.594)	0.705	
IOMPVP_4		0.821	
IOMPVP_5		0.727	
IOMPVP_6		0.790	
IOMPVP_7		0.792	
IOMPVP_8		0.760	
IOMPVP_9		0.832	
IOMPVP_10		0.830	
IOMPVP_11		0.707	
IOMPVP_12		0.772	
IOMPVP_13		0.704	
IOMPVP_14		0.810	
IOMPVP_15		0.742	
IOMPVP_16		0.783	
IOMPVP_17		0.743	
IOMPVP_18		0.789	
IOMPVP_19		0.790	
IOMPVP_20		0.818	
MVDF_1		Museum Visit Decision Factors (MVDF) ($\alpha = 0.945$; $\rho_a = 0.989$; $\rho_c = 0.955$; AVE = 0.622)	0.938
MVDF_2			0.936
MVDF_3	0.968		
MVDF_4	0.754		
MVDF_5	0.839		
MVDF_6	0.932		
MVDF_7	0.901		
MVDF_8	0.891		
MVDF_9	0.926		
MVDF_10	0.932		
MVDF_11	0.940		
MVDF_12	0.957		
MVDF_13	0.919		
MVDF_14	0.914		
MVDF_15	0.958		
MVDF_16	0.956		
Note: α = Cronbach's Alpha; AVE—Average variance extracted			

Source: Authors' processing.

Table 3 presents the discriminant validity assessment of the constructs using two criteria, namely the Heterotrait-Monotrait Ratio (HTMT) and the Fornell-Larcker Criterion.

For the HTMT, in many practical situations, a threshold of 0.85 reliably distinguishes between those pairs of latent variables that are discriminant valid and those that are not (Hair et al., 2024). All HTMT values in the table are below this threshold, indicating good discriminant validity. The diagonal values in the Fornell-Larcker Criterion section of the table represent the square root of the average variance extracted for each construct, and these are greater than the off-diagonal values in the corresponding rows and columns, indicating good discriminant validity.

Table 3. Discriminant validity assessment

Constructs	HTMT Ratio				Fornell-Larcker Criterion			
	IOMPVP	MVDF	MVF	SMEMN	IOMPVP	MVDF	MVF	SMEMN
IOMPVP					0.771			
MVDF	0.310				0.315	0.788		
MVF	0.422	0.366			0.423	0.349	0.766	
SMEMN	0.351	0.287	0.282		0.346	0.302	0.287	0.744

Source: Authors' processing.

The evaluation of the structural model involved a thorough examination of potential collinearity issues and predictive capabilities. As all individual Variance Inflation Factor (VIF) values were well below 3, any concerns related to collinearity were deemed negligible.

As shown in Figure 1, the R^2 coefficients indicate that IOMPVP can explain 31.6% of the variance in MVF ($R^2 = 0.316$).

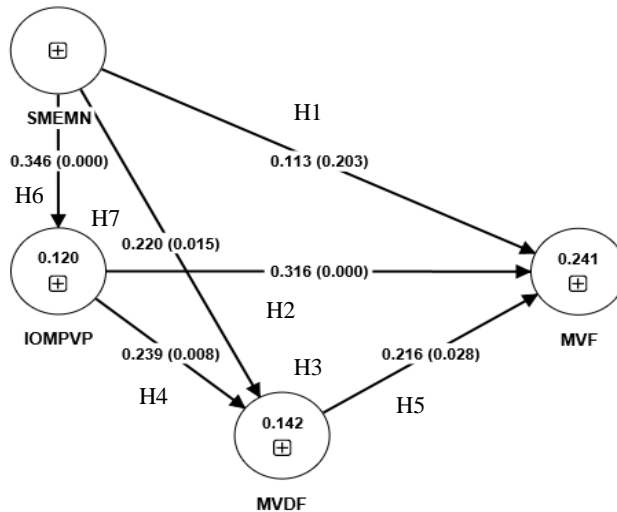


Figure 1. The structural model

Source: Authors' processing.

Furthermore, IOMPVP can explain 23.9% of the variance in MVDF ($R^2 = 0.239$), and SMEMN can explain 34.6% of the variance in IOMPVP ($R^2 = 0.346$) and 23.9% of the variance in MVDF. Finally, MVDF can explain 21.6% of the variance in MVF. Except for one case, all the path coefficients are statistically significant, proving the predictive power of the structural model.

4.2 Hypotheses Testing

Tables 4 and 5 present the direct and indirect effects that were tested to support our hypotheses. The results of direct effects indicate that the hypothesis that SMEMN has a significant direct effect on MVF (H1) was not supported ($\beta = 0.113$, $p > 0.05$).

Furthermore, the hypothesis that IOMPVP has a significant direct effect on MVF (H2) was supported ($\beta = 0.316, p < 0.001$).

Going further, the hypothesis that MVDF has a significant direct effect on MVF (H5) was supported ($\beta = 0.216, p < 0.05$).

Finally, the hypothesis that SMEMN has a significant direct effect on IOMPVP (H6) was supported ($\beta = 0.346, p < 0.001$).

Table 4. Direct effects

Hypotheses	Relationships	Beta Coef.	SD	Effect size	Decision
H1	SMEMN -> MVF	0.113	0.089	0.014	Not supported
H2	IOMPVP -> MVF	0.316***	0.074	0.109	Supported
H5	MVDF -> MVF	0.216*	0.098	0.053	Supported
H6	SMEMN -> IOMPVP	0.346***	0.079	0.136	Supported
Note: *** $p < 0.001$; * $p < 0.05$; SD - standard deviation					

Source: Authors' processing.

Regarding indirect effects, the hypothesis that MVDF significantly mediates the relationship between SMEMN and MVF (H3) was not supported ($\beta = 0.047, p > 0.05$).

Furthermore, the hypothesis that MVDF significantly mediates the relationship between IOMPVP and MVF (H4) was not supported ($\beta = 0.052, p > 0.05$).

Furthermore, the hypothesis that IOMPVP significantly mediates the relationship between SMEMN and MVF (H7) was supported ($\beta = 0.109, p < 0.01$).

The indirect effects show that the hypothesis that IOMPVP significantly mediates the relationship between SMEMN and MVDF (H8) was supported ($\beta = 0.083, p < 0.05$).

These results provide a better understanding of the relationships between SMEMN, IOMPVP, MVDF, and MVF. They highlight the significant direct and indirect effects that these variables have on each other, thus contributing to our understanding of the factors that influence museum visitation frequency.

Table 5. Indirect Effects

Hypotheses	Relationships	Beta Coef.	SD	BCCI		Decision	Type of Mediation
				Lower	Upper		
H3	SMEMN -> MVF (de) SMEMN -> MVDF -> MVF (ie)	0.113 0.047	0.089 0.034	0.001	0.128	Not supported	No effect (No mediation)
H4	IOMPVP -> MVF (de) IOMPVP -> MVDF -> MVF (ie)	0.316*** 0.052	0.074 0.032	0.006	0.132	Not supported	Direct effect only (No mediation)
H7	SMEMN -> MVF (de) SMEMN -> IOMPVP -> MVF (ie)	0.113 0.109**	0.089 0.038	0.047	0.190	Supported	Indirect effect only (Full mediation)

Hypotheses	Relationships	Beta Coef.	SD	BCCI		Decision	Type of Mediation
				Lower	Upper		
H8	SMEMN -> MVDF (de) SMEMN -> IOMPVP -> MVDF (ie)	0.220 * 0.083 *	0.090 0.040	0.016	0.170	Supported	Complementary (Partial mediation)
Note: *** p < 0.001; ** p < 0.01; * p < 0.05; de—direct effect, ie - indirect effect; SD - standard deviation; BCCI - bias corrected confidence interval.							

Source: Authors' processing.

4.3 Importance-performance analysis (IPA)

Figure 2 represents an Importance-Performance Map (IPM). On the IPM, the x-axis represents the importance (total effects) of the constructs, and the y-axis represents the performance. Each construct is represented by a coloured dot.

The IOMPVP construct falls in quadrant 2 (Q2), labelled “Priority for improvement”, it indicates that this construct is of high importance but currently has low performance. This suggests that this area should be a priority for improvement. Efforts and resources should be directed towards enhancing the performance of this construct to meet its high importance. SMEMN and MVDF constructs are in Quadrant 4 (Q4), labeled as “Possible overkill”. This indicates that while the performance of these constructs is high, their importance is relatively low.

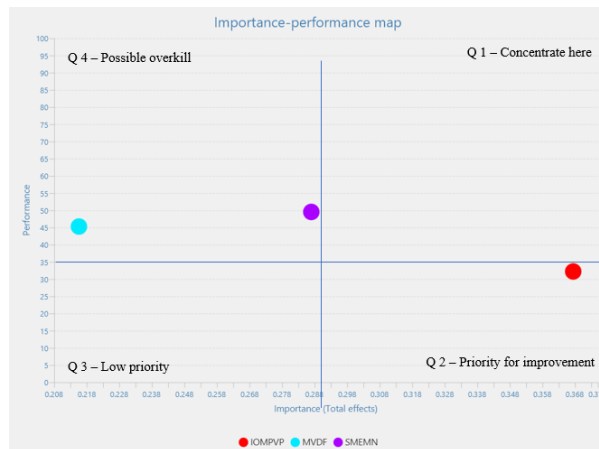


Figure 2. IPA for the MVF target construct (construct level)

Source: Authors' processing.

The Importance-Performance Analysis (IPA) results presented in Table 6, show the distribution of various indicators (IOMPVP, MVDF, and SMEMN) in four quadrants based on their importance and performance. The data reveals that most IOMPVP indicators are in Quadrant 3 (Low priority), indicating lower importance and performance, with some exceptions (IOMPVP_5, IOMPVP_6, IOMPVP_10,

IOMPVP_15, IOMPVP_20) in Quadrant 2 (Priority for improvement), and one (IOMPVP_12) in Quadrant 1 (Concentrate here). MVDF indicators predominantly fall into Quadrant 4 (Possible overkill), with one (MVDF_4) in Quadrant 2. SMEMN indicators are mainly in Quadrant 1, except for SMEMN_4 and SMEMN_5 in Quadrants 3 and 2 respectively. These findings suggest a need for strategic focus on improving Quadrant 2 indicators, maintaining Quadrant 1 performance, and considering resource reallocation from Quadrant 4. Quadrant 3 indicators are of lower priority.

Table 6. IPA for the MVF target construct (indicator level)

Indicator	Importance	Performance	IPA Quadrant	Indicator	Importance	Performance	IPA Quadrant
IOMPVP_1	0,020	30.512	Q3	MVDF_1	0,019	43.346	Q4
IOMPVP_2	0,021	39.764	Q3	MVDF_2	0,019	39.350	Q3
IOMPVP_3	0,022	33.465	Q3	MVDF_3	0,018	45.433	Q4
IOMPVP_4	0,021	32.677	Q3	MVDF_4	0,027	38.406	Q2
IOMPVP_5	0,029	31.890	Q2	MVDF_5	0,020	44.978	Q4
IOMPVP_6	0,031	33.268	Q2	MVDF_6	0,024	42.782	Q4
IOMPVP_7	0,021	35.630	Q3	MVDF_7	0,020	42.946	Q4
IOMPVP_8	0,021	27.756	Q3	MVDF_8	0,021	41.969	Q4
IOMPVP_9	0,022	30.512	Q3	MVDF_9	0,020	46.850	Q4
IOMPVP_10	0,029	27.953	Q2	MVDF_10	0,018	46.594	Q4
IOMPVP_11	0,025	28.150	Q3	MVDF_11	0,020	43.839	Q4
IOMPVP_12	0,028	43.898	Q1	MVDF_12	0,010	66.535	Q4
IOMPVP_13	0,021	35.827	Q3	MVDF_13	0,004	72.835	Q4
IOMPVP_14	0,023	32.283	Q3	MVDF_14	0,004	81.496	Q4
IOMPVP_15	0,028	33.465	Q2	MVDF_15	0,000	61.024	Q4
IOMPVP_16	0,024	32.677	Q3	MVDF_16	0,001	72.441	Q4
IOMPVP_17	0,017	32.874	Q3	SMEMN_1	0,057	48.819	Q1
IOMPVP_18	0,022	27.362	Q3	SMEMN_2	0,150	61.417	Q1
IOMPVP_19	0,020	30.906	Q3	SMEMN_3	0,074	44.685	Q1
IOMPVP_20	0,030	26.181	Q2	SMEMN_4	0,024	17.520	Q3
Note: The quadrants are delimited using the mean of performance (41.193) and mean of importance (0,0263) reported in the table of the IPMA results at indicator level.				SMEMN_5	0,053	38.583	Q2

Source: Authors' processing.

5. Discussion and conclusions

This article concludes that there is no correlation between museum news on social networks and the probability of museum visits, but there is a significant and positive relationship between museums and the possibility of participating in IOMPVP. A strong online presence of a museum positively impacts the frequency of physical museum visits by enhancing online engagement and promoting scientific research and education through various digital access and display technologies (Li et al., 2022; Vaz et al., 2018; Recupero et al., 2019).

By analysing the results of the IPA, only five museums, out of ten (for example, the National Museum of Natural History "Grigore Antipa", Bucharest City Museum, etc.), have a constant online presence that positively influence an individual's

opinion of them and an individual's decision to visit them. This means that only half of museums engage with visitors through social media platforms, organising virtual tours and interactive learning opportunities, but also posts, write, and publish newsletters, website publications, and other information about upcoming online events. The study results show a priority need for improvement of indicators such as IOMPVP_5, IOMPVP_6, IOMPVP_10, IOMPVP_15, IOMPVP_20, MVDF_4, SSMEMN_5. Consistent with previous research, museums have yet to make significant progress in enabling efficient communication and engagement with their intended audience in virtual spaces (Noviana et al., 2022).

Indicators from the studied museums in Bucharest, such as IOMPVP_12 and SSMEMN_1-3, show that visitors primarily engage with museum-related news on Facebook, Instagram, and TikTok, rather than Twitter or YouTube. This highlights the need to focus on quality news content, detailed information, and building emotional connections with clients.

5.1 Theoretical implications

Museum visitors' experiences are shaped not just by news shared on social media but also by positive experiences that influence their intent to return, often through a strong online presence. Modern museums have evolved from traditional displays to experiences deeply connected with the digital realm, making it crucial to evaluate user experience and decision criteria affecting visit frequency. Unlike traditional museums, an online museum engaging with visitors on social media can educate and motivate, enhancing their understanding of exhibits and content. The study's findings align with the media richness hypothesis, suggesting that online engagement helps audiences grasp complex topics. The study also offers theoretical insights by adapting and combining models like the Scale-Adjusted Latent Class Model (SALCM) and Discrete Choice Models (DCMs) to improve online museum presence and engagement from a user perspective (Burke et al., 2010).

This study also makes a valuable contribution to the existing body of knowledge in museum management by presenting an innovative framework aimed at improving the overall quality of the visitor experience in museums and increasing its overall attractiveness.

5.2 Practical implications

The results of this study can help managers develop tools to understand visitor satisfaction and willingness to return, and to segment visitors based on their expectations for targeted marketing strategies. Future research could explore differences in visitor expectations and preferences for grouping.

Museum managers should consider strategies such as increasing public awareness through social media, leveraging influencers, improving online presence, promoting upcoming events, and using the website for interactive learning. They should also focus on designing spaces that streamline educational experiences for children and others and implement visitor-centric approaches, such as interactive

exhibitions or designated cafes, to encourage return visits and boost word-of-mouth promotion.

To remain relevant in the 21st century, museums must transform to be audience-centred, aligning services with visitor expectations, emphasising a strong exterior image, and fostering an engaging environment through modern technologies and communication.

5.3 Research limitations and future research directions

This study focuses on the perspectives of museum visitors, excluding the viewpoints of museum staff and professionals. It is based on 127 valid responses from 10 leading museums in Bucharest, Romania. While limited in scope, the findings provide valuable insights within this specific context.

Despite the focus on a single city and a small sample, the study offers a foundation for further research, particularly given the evolving role of social media and technology in museum management. Future research could expand to multiple museums in the Balkans to better understand how digital engagement supports organisational goals.

Additionally, future studies could explore specific technological factors, such as touchscreen devices, olfactory displays, and virtual reality games, and their impact on different visitor groups. This would help develop cultural resources more aligned with visitor preferences in the Balkan region.

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