



When Shoe Heritage is on Display

A Digital Fashion Communication Approach

Charlotte Stachel^(✉)  and Lorenzo Cantoni 

USI – Università della Svizzera italiana, Lugano, Switzerland
{charlotte.stachel, lorenzo.cantoni}@usi.ch

Abstract. This paper contributes to the field of digital culture and fashion communication by presenting a comprehensive overview of publicly available shoe museums and collections worldwide, which have an online presence. To the best knowledge of the authors, this listing is the first of its kind on institutions that exhibit shoes. It shows what types of contents and services shoe museums offer online and to what extent they digitally enable access to their collections. Through a content analysis, museums’ websites and their presence on social media are examined. A scattered map shows how much the shoe museums rely on a digitally enhanced access to their collection in comparison to service and institutional information that they provide on their websites.

Keywords: Shoe Museum · Digital Fashion · Digital Collection · Virtual Museum · Fashion Communication

1 Introduction

More than 20 years ago, when the ‘digital information age’ just began [1], Finnish media archaeologist Erkki Huhtamo [2: 130] asked the following question: “Should a virtual museum be addressed to the home user or the museum goer or both?” After more than twenty years, of which two years of pandemic, this question has lost none of its relevance.

Research on the role of technology and technical innovation in the production of value has often taken place outside the cultural context [3]. An exception is the international series of conferences ‘Museums and the Web’, which has annually explored “the social, cultural, design, technological, economic, and organizational issues of culture, science and heritage on-line” since 1997 [4]. Conferences like the aforementioned played a crucial role in the times when the first museums established their websites [5]. The potential uses of websites and social media, particularly in the context of museums, still need further research. The goal of this paper is to present a comprehensive overview of publicly available shoe museums and collections worldwide, which have an online presence. To the best knowledge of the authors, this listing is the first of its kind on institutions that exhibit shoes. Through a content analysis, both museums’ websites and their presence on social media are examined. A scattered map shows what types of contents and services shoe museums offer online and to what extent they digitally

enable access to their collections. For this paper, not only shoe museums in the strict sense, but also other institutions that either exhibit shoes as part of their collection, physically or digitally, have been considered. Hence, for the sake of simplicity, the term shoe museum will be used in a broader way, intending to include all relevant institutions that are concerned with providing public access to their shoe collections.

2 Literature Review

2.1 Fashion and Shoes in Museums

Fashion exhibitions are taking an increasingly important role in museums and “have become a great source of attraction” over the last years [6: 34]. This trend of increased acknowledgement was accentuated by UNESCO, which recognised traditional craftsmanship such as the production skills and knowledge of clothing as intangible cultural heritage in 2003 [7]. Nowadays, fashion items are often either part of large collections, be it in public general museums or private ones, or they belong to museums of a fashion sub-sector, such as shoes, a specific designer, or a company [6]. Garments, including shoes, are especially prone to damages caused by improper handling or storage due to their delicate materials. In the past years, new technological possibilities such as 3D digital representations for displaying clothing and accessories found their way into museums. These allow mitigating the risks when archiving and handling the items and can at the same time offer an enhanced view of the exhibited artefact to a much larger audience. Many major fashion museums thus began to digitise their items, enriching them with metadata, and creating online exhibits and multimedia galleries. This creation of an enhanced digital access to museums’ collections has gone in line with their strengthened digital and social media presence in general [8].

2.2 Museums on the Internet

In order to positively influence online visitors’ intentions to revisit the website as well as the physical premises of a museum, design factors of a website such as “content, ease of use, aesthetics, (...) and emotion” are important to consider [9: 383–384]. Additionally, for digital costume museums’ websites, the perceived usefulness and playfulness of the provided information can influence the relation between the visitor and the institution [10]. However, some findings suggest, “social networks and virtual communities (...) can be important in driving visitor traffic to museums, whereas the website does not seem to play the same role” [11: 5]. Nevertheless, websites are part of museums’ communication standard as well as a marketing tool and should be considered as strategically important for museums [12, 13]. The search for information on museums’ websites can be categorised into two types: (i) information search for action planning; and (ii) topic-related information search [14]. The most popular part of a museum’s website is the ‘visiting’ and ‘opening times’ section, with the address and location map being the most clicked features. “Exhibitions, galleries and events” are the second most popular features that visitors of museum websites are aiming at [15]. Moreover, museums continue to add further products and services to their websites, such as web shops, marketing podcasts,

and educational offers, thus making use of the technological possibilities online [3]. This information allows users to engage thematically deeper with the museum's contents. A museum's website should therefore not only deliver practical information, but also tie in with the users' curiosity, interests, and prior knowledge [14]. During the COVID-19 lockdowns, museums mainly relied on social media to disseminate their contents, especially through Facebook, Twitter, and Instagram [16]. Today, museums are increasingly user-centred by promoting "a space of innovation and a platform for collaboration, (...) by engaging (...) visitors as active participants in knowledge sharing and creation" [17: 86]. These so-called social museums use the potential of the online environment to encourage users to be "co-producers of knowledge in cultural heritage contents" [17: 86–87]. This participatory approach aims at establishing loyal relationships between the museums and the users, independent from a visit of the museums' physical premises [3].

2.3 Virtual Museums

The existing literature uses the term 'virtual museum' for three different concepts: (i) a physical museum's online presence; (ii) entirely digital spaces, which do not exist offline, with objects that were either digitalised or originally created in the 3D space for this very purpose; or (iii) physical exhibitions which are enriched through digital means [8]. In this paper, we focus on the meaning of (i) and (ii), intending collections that are curated for and transmitted on the Internet. One of the central tasks of museums is to make their collections as accessible as possible to the public [18]. Virtual museums and digital exhibitions originated from the museums' attempts to digitise their inventories and databases [3]. However, simply replicating an archival storage approach with descriptive metadata complicates the possibility for private users to acquire effectively cultural knowledge [19]. A non-specialised public "wants to be guided and inspired" [12: 42]. This means that information on single items should be complemented by thematic or contextualised information, visualisations, and storytelling [12]. Furthermore, a digital artefact can be augmented, for example, with animations, videos, and hyperlinks. Another case of virtual museums are entirely digital spaces, which do not exist offline, with objects that were either digitalised or originally created in the 3D space for this very purpose. Due to the widely available technologies, many of which are free of charge, it is increasingly feasible to create fully digital virtual museums [8].

In their categorisation of virtual museums, Geser & Niccolucci [19: 14–19] distinguish between three different variants, which can co-exist within museums:

- *Content-centric*: object-oriented, one-way communication
 - brochure-like, general information about the museum
 - online exhibitions of collection highlights or digital extension for a temporary exhibition
- *Communication-centric*: context-oriented, one-way communication
 - museum as a learning space, didactically enhanced

- storytelling, knowledge and enjoyment through providing context, variety of media for narration
- *Collaboration-centric*: participation-oriented, two-way communication
 - web 2.0 environment, user engagement apart from the museum’s website
 - organising, sharing and exploring of user communities’ own online collections

A digitised inventory enables cultural organisations to collaborate in jointly curated digital exhibitions [12]. Examples of such platforms and mobile applications are the non-commercial initiatives ‘Google Arts & Culture’ and ‘Europeana’. 3D worlds such as the Metaverse at large “aim to replicate the user experience of visiting a physical museum space and observing the exhibits”, while at the same time enriching and extending it [20: 22]. They can also offer a multi-user and thus a more interactive experience [20].

3 Research Design

To obtain an overview of shoe museums and significant shoe collections, and to analyse how they present themselves and their collections online, it has been chosen to (i) perform a Google search; (ii) conduct a content analysis on the museums’ websites; and (iii) assess the different digital means they use to present their collections and to build relations with the public. A content analysis is a suitable methodology in analysing web-content as it allows to detect patterns in communication [21].

This paper aims to answer the following research questions:

1. Which shoe museums have an online presence?
2. What types of contents and services do they offer online?
3. How much do shoe museums rely on a digital access to their collection in comparison to the information they provide on their websites?

4 Methodology

The research is structured in several stages, following McMillan [22].

First, in order to gain an overview on which shoe museums exist worldwide and have an online presence, the following keywords in 5 different languages were run in a Google search in October 2022: ‘shoe museum’, ‘Schuhmuseum’, ‘musée chaussures’, ‘museo calzatura scarpe’, and ‘museo calzado zapato’. The first 10 pages of search results were analysed and merged with the list of shoe museums available on Wikipedia as well as through a Wikipedia search under the category ‘shoe museums’, where the results in English, German, French and Italian were taken into account [23]. All museums were checked if they were still open through the Google Knowledge Panel or a further Google search. Other shoe museums that appeared in the literature were assessed and classified accordingly [24–26]. A total number of 67 shoe museums has identified.

To conduct reliable research on the shoe museums’ online presence, two criteria were applied: (i) the museums needed to be open at the time of the analysis; and (ii) they needed to have their own web domain. 5 shoe museums were temporarily closed, 5

museums were fully closed. For 3 museums, it was not clear if they were still or already open or closed, and the URL of 1 museum was invalid. These 14 shoe museums were excluded from the analysis, because it could not be assumed that their web presence was still managed and thus up to date. A qualitative content analysis has then been applied on the sample of the remaining 53 shoe museums, which are open and have an online presence. 14 museums did not have their own domain, but a tourism platform, the municipality, or another author provided the online information. As it could not be assumed that the museums themselves had the authority on the published content, they were excluded from the analysis. 39 shoe museums remained, one of them was exclusively an online museum with no physical site.

Second, in order to find out what types of contents and services shoe museums offer online, a content analysis was conducted on the remaining 39 shoe museums in October and November 2022. The codes derived from combining a top-down and a bottom-up approach: certain types of information could be expected to appear on the shoe museum's websites, based on the analysis of other museum websites (cf. Sect. 2.2). Other codes were identified inductively by analysing the different sections of the shoe museums' websites.

In total, 37 codes were taken into account (cf. Table 1 and 2). For each of these codes, the presence or absence of the element was analysed on the 39 shoe museums by using the following values: 1 = present/available; 0 = absent/not existent. The codes were then grouped into four main categories.

Codes based on the types of information derived from the analysis of the shoe museums' website:

- *Service information* (16 codes): the museum acts as a service provider by publishing basic information that is relevant for (potential) visitors, e.g. address and opening hours, details on the collection, or news and events.
- *Institutional information* (7 codes): the museum provides further information on the institution itself, e.g. the history of the museum, members of the management, or the possibility to rent the venue.

Codes based on the shoe museums' social media accounts and the visual presentation of parts of their collection on the website and other platforms:

- *Social media* (9 codes): the museum communicates on other platforms than the website with the aim of building and maintaining relations and nurturing interactions with the public, e.g. social media, newsletters, and blogs.
- *Virtual museum* (5 codes): the museum offers online access to parts of its collection, e.g. through virtual tours and digital exhibitions, such as on google arts & culture.

Third, in order to understand how much the analysed shoe museums rely on a digital access to their collection in comparison to the other information they provide on their websites, a scattered map was elaborated (Fig. 1). The X-axis consists of the sum of the present codes from the categories *Service information* and *Institutional information* (23 codes). This gives an indication on how rich the provided information for potential or past visitors is. The Y-axis consists of the sum of the present codes from the categories *Social media* and *Virtual museum* (14 codes). It shows how much the museums invest

in building and maintaining relations and how enhanced the digitally enabled access to the museums' collections is.

5 Results and Discussion

5.1 Which Shoe Museums Have an Online Presence?

In total, 53 active shoe museums with an online presence have been found.

Geography. The museums are located in 22 different countries on 5 continents, mostly in Europe (72%, 38) and in North America (13%, 7). The countries with the highest presence of shoe museums are Germany (19%, 10), Spain, (13%, 7), Italy (11%, 6), and the United States (9%, 5). This result might be partly ascribed to the languages, which were used for the Google search. Most websites offer their content in English (72%, 38) and German (39%, 21). These numbers might be influenced by websites, which are addressed to an international public and intended to rate touristic activities. Almost half of the museums (47%, 25) offer their website in only one language, 23% (12) in two languages, the remaining 16 provide a website in three or more languages.

Thematic Focus. Three quarters of the museums (75%, 40) are dedicated exclusively or mainly to shoes. One quarter (25%, 13) are museums that have a substantial collection of shoes but exhibit further related objects (e.g. machines for shoe manufacturing) or not directly associated items. 58% (31) indicate that their collection shows items related to the shoe industry, technology, and craftsmanship. 47% (25) exhibit historical shoes or show the history of shoes. 43% (23) contain shoes that were manufactured by specific brands, companies, or designers. 28% (15) exhibit shoes that were worn by famous people. 21% (11) focus on shoe fashion and design in general, 15% (8) show sports shoes, and 13% (7) claim to present a different aspect of shoes or a sort of specialised collection.

Management. 60% (32) of the museums are managed by a private entity: almost a quarter (25%, 13) are run by a shoe company and 23% (12) by a private association or foundation. 30% (16) are operated by a public entity. For 3 museums (6%) no information was found and 2 (4%) are managed by public-private associations.

5.2 What Types of Contents and Services Do They Offer Online?

For this section, only the 39 shoe museums, which have an online presence, are open, and have their website hosted on their own domain, have been analysed by using a content analysis. The first two categories, *Service information* and *Institutional information*, focus on information, which is intended to serve interested website visitors in their decision whether to physically visit the museum or to facilitate the planning of their visit (cf. Table 1). The latter two categories, *Social media* and *Virtual museum*, comprise the availability of a digitally enabled access to the museum's collection (cf. Table 2).

Service Information and Institutional Information. On an average, the 39 analysed museums provide their website visitors with 56% of the coded service information and

43% of the coded information on the museum as an institution. Most frequently, they publish information on their collection as well as their contact details (95%), and the address of their physical location (92%). The least information is given on job offers (21%) and an annual report (18%). Only a fifth (21%) of the museums has a web shop and on the websites of 18% of the museums, visitors can profit from an online counter to buy their tickets. These results prompt that the analysed museums mostly do not fully rely on the affordances that the web offers them as service providers. Less than half as many codes cover information on the museum as an institution (7) in comparison to service information (16). This indicates that the museums rather use their website as an online brochure to provide information for potential visitors, which can be considered content-centric.

Table 1. Categories on service and institutional information for website visitors (#39).

Category	Code	Description	#	%
Service information	Collection	Presented items/topics in the exhibition/collection	37	95
	Contact	Contact form/phone number/e-mail address	37	95
	Address	Indication of physical location, how to get there	36	92
	Opening hours	Days/times the museum is open/closed	33	85
	News/events	Past/current exhibitions, past/upcoming events	31	80
	Ticket price	Admission fees for different publics/groups, discounts	27	69
	Map	Graphic map of the physical location	20	51
	Support	Audio/video guide, guided tours	20	51
	Education	Activities for schools, courses for further education	19	49
	Accessibility	Information for people with special needs	17	44
	Catalogue	Publication about the museum/exhibitions	15	39
	Donations	Ways to support the museum as a private person, volunteering	15	39
	Search bar	Search bar for keyword search	13	33
Shop/café	Offer of products/food/beverages	12	31	

(continued)

Table 1. (continued)

Category	Code	Description	#	%
	Web shop	Possibility to purchase products online	8	21
	Ticket counter	Possibility to purchase tickets online	7	18
Institutional information	History	Museum history	32	82
	Building	Information about the building the museum is located in	24	62
	Sponsors	Partners, who support the museum	21	54
	Management	Museum management/board members	13	33
	Venue hire	Possibility to rent rooms	11	28
	Job offers	Employment advertisements	8	21
	Annual report	Disclosure of business information	7	18

Social Media. 34 shoe museums (87%) are present in at least one way on social media. On an average, the 39 museums are engaged with interested people through about a third (36%) of the analysed channels. The most popular social media platforms are Facebook and Instagram, where 31 (80%) and 24 (62%) respectively have a profile. The least popular ways to keep the public informed are through a Blog or Flickr (7 each, 18%), as well as Pinterest (6, 15%). However, no distinction was made between updated accounts with regular posts and those that seem to have been abandoned for some time. Through accounts on social media, a blog or via a newsletter, museums can build and foster relations to stakeholders and interested people. Apart from providing contact details on a website, this is the only form that allows for direct feedback by the public. Furthermore, social media allow users to share and comment on the museums' communication efforts as well as the collection and items in a larger sense, which can be considered collaboration-centric.

Virtual Museum. 25 of 39 shoe museums (64%) provide users some sort of digitally enhanced access to at least a part of their collection. 8 (21%) are engaged in doing so in 3 or more of the 5 analysed ways, which can be considered communication-centric.

The most popular way to give an interested public insight into a museum's collection is by a virtual tour. 13 out of 39 museums (33%) allow their website visitors to roam through their premises digitally. In most cases, this is enabled by applications from or similar to Google Maps or Matterport, which allow a 360° view. Some provide points to click on, which offer more in-depth written or multimedia information. Even more museums rely completely on the photographs of the museum interior. This complicates the view of items and related information and makes the virtual visit much less profitable compared to a physical visit. Other ways for virtual tours are interactive floor plans with additional information to click on, a simple slideshow with photos, and YouTube videos.

Table 2. Categories on a digitally enabled access to a museum's collection via social media (#39).

Category	Code	Description	#	%
Social media	Facebook	Institutional account/profile	31	80
	Instagram	Institutional account/profile	24	62
	YouTube	Institutional account/profile	15	39
	Twitter	Institutional account/profile	13	33
	Newsletter	Newsletter to be received upon subscription	13	33
	LinkedIn	Institutional account/profile	9	23
	Blog	Webpage for institutional articles with a possibility for users to leave comments	7	18
	Flickr	Institutional account/profile	7	18
	Pinterest	Institutional account/profile	6	15

Two museums request a registration to join a virtual guided tour or a small fee to access a video. A virtual tour requires the least effort for curation, as the existing structure of the museum and its exhibitions is reproduced. Some texts and detailed photos of the artefacts, however, might be adapted and/or digitally enhanced for the users, which calls for a further curation.

11 museums (28%) offer their website users a thematically curated online exhibition. Mostly, the exhibition is presented as a slideshow with only few information on the content of the pictures. There are two exemptions: the Bata Shoe Museum's bilingual exhibition 'Boots & Blades: The Story of Canadian Figure Skating' uses music and makes visitors scroll up and down, and sideways, as well as click on file cards, among others, and provides a side navigation. The Museo Salvatore Ferragamo organized its exhibition 'Donne in equilibrio' as a virtual tour with the possibility to navigate on the floor plan or on dollhouse perspective. During the lockdowns for the COVID-19 pandemic, it was assumed that the format of online exhibitions could act as a temporal substitute of physical museum visits, together with virtual tours [27]. However, it does not seem that many analysed shoe museums hopped on this trend. Rather, in the majority of cases, the online exhibition was just a selection of contents around a topic, without providing a clear storyline or a comprehensive and thoroughly curated insight into the topic.

Online collections and online archives/inventories are equally popular, with 10 museums (26%) providing each of them. An online collection, in contrast to an online exhibition, is usually a selection of items of the collection or highlights. It is not thematically coherent, and only provides little information in an accompanying text. Most online collections are presented through slideshows, a few of them through individual photos. An exception is the Bata Shoe Museums, which gives insight in its collection through its YouTube series 'Unboxing the BSM'.

An online archive or inventory is a digital access to the museum's artefacts with characteristic data on the single items, such as object type, measurements, material, and style, just to name some. Out of the 10 archives, 8 have a search option. The search is

mostly guided by default keywords, only a few museums offer a full text search. The majority of the shoe museums does not provide extensive metadata. Whereas almost all online archives show one or more pictures of the item to explore its different angles, only one archive has 3D views of the shoes. All archives were publicly available, besides the ‘Catalogue’ of the Museo Internazionale della Calzatura, which requested an online registration to gain access. The Museo Salvatore Ferragamo grants access to its archive via a virtual tour and a video. Two archives were on other websites apart from the museums own domain. The online archives and inventories made available by the analysed shoe museums seem to occupy an ambiguous position: on the one hand, they are too detailed and specific to appeal to a public without any previous knowledge, leaving it unguided and potentially overwhelmed [19]. On the other hand, they do not seem to be oriented towards an expert public due to the lack of completeness and standardisation.

7 museums (18%) participate in Google Arts & Culture. This relatively low number suggests that they principally rely on their own website to present parts of their collection, instead of engaging in a more collaborative environment. Whereas museums enjoy greater freedom content- and design-wise when presenting parts of their collection on their own website, they would benefit from a possibly greater visibility and joint initiatives with other cultural institutions on Google Arts & Culture (Table 3).

Table 3. Categories on a digitally enabled access to a museum’s collection via means of a virtual museum (#39).

Category	Code	Description	#	%
Virtual museum	Virtual tour	Virtual tour through the museum as an institution, e.g. via Google Maps	13	33
	Online exhibition	Thematic selection of items with further information	11	28
	Online collection	Selection of items presented through photos/videos	10	26
	Online archive/inventory	Online inventory with search/classification possibilities	10	26
	Google Arts & Culture	Institutional account/profile on Google Arts & Culture	7	18

5.3 How Much Do Shoe Museums Rely on a Digital Access to Their Collection in Comparison to the Information They Provide About Themselves?

In order to understand how much the analysed shoe museums rely on a digital access to their collection in comparison to the information they provide on their websites, a scattered map was elaborated (Fig. 1). The 39 shoe museums, which have an online presence, are open, and have their website hosted on their own domain, have been taken

into account. The X-axis consists of the sum of the present codes (total 23) from the categories *Service information* and *Institutional information*. This gives an indication on how rich the provided information is. The Y-axis consists of the sum of the present codes (total 14) from the categories *Social media* and *Virtual museum*. This shows how enhanced the digitally enabled access to museums' collections is and how much the museums invest on building and maintaining relations.

One cluster can be identified, which comprises 6 museums with an advanced digital presence: Victoria & Albert Museum (UK), Bata Shoe Museum (CA), Smithsonian (USA), Northampton Museum & Art Gallery (UK), Museo Salvatore Ferragamo (IT), and Norfolk Museums (UK). On the one hand, they provide comprehensive information on the museum and its services for website visitors. On the other hand, they build and maintain relations through their extensive use of social media and offer a digitally enhanced access to their collections through virtual tours, online collections, exhibitions, archives, or on Google Arts & Culture. The other 33 shoe museums are widely dispersed (the full list is available on the following page: <https://digitalfashion.ch/shoemuseums/>). While there are some museums with an emerging digital presence, 3 (8%) are neither present on social media nor do they use any means that could be considered a virtual museum. 12 (31%) were found to be present on social media, but to have no means for a virtual museum. In the opposite case, only 2 (5%) were found to provide a digitally enhanced access to their items, without any presence on social media. In terms of the scope of the service and institutional information they provide, the 33 not clustered shoe museums are scattered as well, indicating different levels of information completeness.

6 Conclusions and Limitations

“Can a virtual museum be merely a replica of the physical one, or should it be something radically different?” Erkki Huhtamo [2: 130] wondered almost 20 years ago. This paper does not give a normative answer, but it shows how shoe museums happen to present themselves in the digital world as of 2022.

The museums are not easily comparable with each other. They vary remarkably in terms of their geography, management, and thematic focus. This diversity is portrayed in the content analysis: The websites fulfil the categories on service and institutional information for website visitors with mostly high percentages. However, they are lower in the category of a digitally enabled access to a museum's collection via social media and in the category, which gives online insight in the collection via means of a virtual museum.

Only one distinctive cluster was detected in the scattered map. These 6 museums invest broadly in their web presence and in building relations. The other 33 shoe museums are classified in different stages. They have in common that they only provide minor insights into their collections by using a rather small range of digital means other than text, photos, and sometimes videos. The museums do not take advantage of the full spectrum of technological possibilities on the Internet. Additionally, the quality of the two third (25, 64%) who provide a digitally enabled access to their collection varies greatly. One possible reason why the shoe museums seem to lag behind in the adoption of digital means on their websites is that many of them are managed, operated and curated

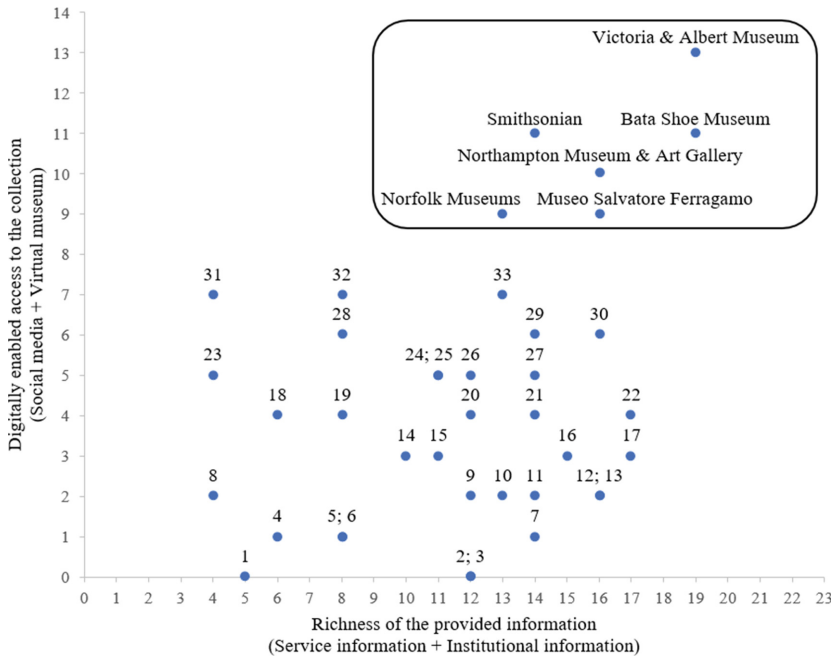


Fig. 1. Scattered map of how much the shoe museums rely on a digital access to their collection in comparison to the information they provide on their websites (#39).

by smaller local and private associations. It can be assumed that these institutions do not have the personnel, financial, strategic, and technical means to create a state-of-the-art web presence. The shoe museums in the cluster, on the contrary, are publicly owned general museums or managed by world-famous shoe companies.

The scattered map suggests that the museums largely follow a more content-centric than a communication- or collaboration-centric approach. Some seem to be unsure of their online strategy: on the one hand, they show parts of their collection to online visitors, but not to an extent that would create real value for them. On the other hand, they provide extensive databases with metadata to the users, but not in a user-friendly curated way. Content-centric information for potential visitors of the physical site and a communication-centric access to curated online exhibitions are not mutually exclusive. On the contrary, museums could benefit from upgrading their web presence also in terms of building stronger relations with interested publics, in addition to their collaboration-centric social media engagement.

As the search for museums and collections has been limited to five languages, it is expected to have not identified all shoe museums or similar institutions. Thus, the map does not claim completeness. The content analysis provides qualitative and quantitative descriptive results from a content-centric view. However, the websites have not been analysed in a communication-centric approach. Aspects of usability or storytelling in texts, pictures, videos, and games have been as neglected as the two-way stream of

communication from the users to the museum as well as to other users. This can be subject of further research.

References

1. Computer Hope: Computer history - 2002 (2022). <https://www.computerhope.com/history/2002.htm>. Accessed 19 Dec 2022
2. Huhtamo, E.: On the origins of the virtual museum. Nobel Symposium (NS 120) Virtual Museums and Public Understanding of Science and Culture, 26–29 May 2002, Stockholm, Sweden (2002). <http://www.nobel.se/nobel/nobel-foundation/symposia/interdisciplinary/ns120/lectures/huhtamo.pdf>
3. Padilla-Meléndez, A., del Águila-Obra, A.R.: Web and social media usage by museums: online value creation. *Int. J. Inf. Manag.* **33**(5), 892–898 (2013). <https://doi.org/10.1016/j.ijinfomgt.2013.07.004>
4. Museums and the Web LLC: <https://www.museumsandtheweb.com/about.html>. Accessed 16 Jan 2023
5. Gaia, G., Boiano, S., Bowen, J.P., Borda, A.: Museum websites of the first wave: the rise of the virtual museum. In: Proceedings of EVA London 2020 (EVA 2020), 6–9 July 2020, London, UK (2020). <https://doi.org/10.31235/osf.io/d8q2c>
6. Noris, A., Cantoni, L.: Digital fashion communication. Brill (2022). <https://doi.org/10.1163/9789004523555>
7. UNESCO: Traditional craftsmanship (2022). <https://ich.unesco.org/en/traditional-craftsmanship-00057>. Accessed 9 Nov 2022
8. Meier, C., Berriel, I.S., Nava, F.P.: Creation of a virtual museum for the dissemination of 3D models of historical clothing. *Sustainability* **13**(12581), 1–13 (2021). <https://doi.org/10.3390/su132212581>
9. García-Madariaga, J., Recuero Virto, N., Blasco, F.: The influence of museums' websites on users' intentions. *Esic Market Econ. Bus. J.* **48**, 397–420 (2017). <https://doi.org/10.7200/esicm.157.0482.4e>
10. Wu, Y., Jiang, Q., Liang, H., Ni, S.: What drives users to adopt a digital museum? A case of virtual exhibition hall of national costume museum. *SAGE Open* **12**(1) (2022). <https://doi.org/10.1177/21582440221082105>
11. Fernandez-Lores, S., Crespo-Tejero, N., Fernández-Hernández, R.: Driving traffic to the museum: the role of the digital communication tools. *Technol. Forecast. Soc. Change* **174**, 1–8 (2022). <https://doi.org/10.1016/j.techfore.2021.121273>
12. Franken-Wendelstorf, R., Greisinger, S., Gries, C., Pellengahr, A.: Das erweiterte Museum. Medien, Technologien und Internet. Deutscher Kunstverlag DKV (2019). <https://doi.org/10.1515/9783422981010>
13. Kamaritou, V., Kamaritou, M., Champipi, E., Kitsios, F.: Moving towards museum digital strategy: a transformational framework (2021). https://www.researchgate.net/profile/Fotis-Kitsios/publication/348926406_Moving_Towards_Museum_Digital_Strategy_A_Transformational_Framework/links/61a22163f1d62445716ebd76/Moving-Towards-Museum-Digital-Strategy-A-Transformational-Framework.pdf
14. Schweibenz, W.: Wer sind die Besucher des virtuellen Museums und welche Interessen haben sie? *i-com* **7**(2), 11–17 (2008). <https://doi.org/10.1524/icom.2008.0017>
15. Haynes, J., Zambonini, D.: Why are they doing that!?! How users interact with museum web sites. In: Trant, J., Bearman, D. (eds.) *Museums and the Web 2007: Proceedings. Archives & Museum Informatics* (2007). <http://www.archimuse.com/mw2007/papers/haynes/haynes.html>

16. Agostino, D., Arnaboldi, M., Lampis, A.: Italian state museums during the COVID-19 crisis: from onsite closure to online openness. *Mus. Manag. Curatorsh.* **35**(4), 362–372 (2020). <https://doi.org/10.1080/09647775.2020.1790029>
17. Romanelli, M.: Becoming social museums by being virtual-oriented and technology-driven organisations. *Cult. Soc. Econ. Polit.* **1**, 79–92 (2021). <https://doi.org/10.2478/csep-2021-0006>
18. Schmidt, A.: Digitalisierte Sammlungen online. In: Franken-Wendelstorf, R., Greisinger, S., Gries, C., Pellengahr, A. (eds.) *Das erweiterte Museum. Medien, Technologien und Internet*, pp. 28–35. Deutscher Kunstverlag DKV (2019). <https://doi.org/10.1515/9783422981010>
19. Geser, G., Niccolucci, F.: Virtual museums, digital reference collections and e-science environments. *Uncommon Cult.* **3**(5/6), 12–37 (2012). <https://uncommonculture.org/ojs/index.php/UC/article/view/4714>
20. Vosinakis, S., Tsakonas, Y.: Visitor experience in google art project and in second life-based virtual museums: a comparative study. *Mediterr. Archaeol. Archaeom.* **16**(5), 19–27 (2016). <https://doi.org/10.5281/zenodo.204963>
21. Kim, I., Kuljis, J.: Applying content analysis to web based content (2010). <https://doi.org/10.2498/cit.1001924>
22. McMillan, S.J.: The microscope and the moving target: the challenge of applying content analysis to the world wide web. *J. Mass Commun. Q.* **77**(1), 80–98 (2000). <https://doi.org/10.1177/107769900007700107>
23. Wikipedia: Liste von Schuhmuseen (2021) https://de.wikipedia.org/wiki/Liste_von_Schuhmuseen. Accessed 12 Oct 2022
24. ShoeInfoNet: Full text search “Museum” (2021). https://www.shoeinonet.com/search?search_api_views_fulltext=museum. Accessed 9 Nov 2022
25. Swann, J.: Safeguarding an age-old craft: a shoe museum in England. *Museum Int.* **45**(3), 44–49 (1993). <https://doi.org/10.1111/j.1468-0033.1993.tb01122.x>
26. Paul, W.: *Schuhe - Drei Jahrtausende in Bildern*. AT Verlag (1994)
27. Giannini, T., Bowen, J.P.: Museums and digital culture: from reality to digitality in the age of COVID-19. *Heritage* **5**(1), 192–214 (2022). <https://doi.org/10.3390/heritage5010011>

Open Access This chapter is licensed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter’s Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter’s Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

