Stored collections of museums: an overview of how visible storage makes them accessible

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Abstract

Purpose – This study aims to provide an overview of the dimension of stored collections displayed in visible storage and to indicate the main factors which hinder their accessibility.

Design/methodology/approach – This study is based on quantitative analysis: a survey was conducted through the offices of International Council of Museums and direct invitations to 2,558 museums located worldwide.

Findings – The study estimated 32% on average the share of stored collections displayed in visible storage. The analysis provides a picture of how many stored items are made accessible in visible storage across the continents, according to the collection's type and size and the museums' legal status. In addition, several aspects of visible storage are investigated to highlight whether or not it truly enables museums to achieve accessibility of their stored collections and which factors might hinder the accessibility. Amid them, the foremost factors involve the inadequacy of resources, such as the lack of staff (71%) and poor budget (68%). Because of it, museums are prone to setting up offsite storage (37%), often 16 km far from the city centre, thereby questioning the concept of accessibility itself.

Research limitations/implications – One major limitation of this study is that it does not consider people's standpoints. Therefore, the author recommends that future studies focus on what people opine on visible storage, such as their appreciation of the display format, the behind-the-scenes, their need for interpretation and the degree of satisfaction with their information needs, as well as their perception of the size of stored collections.

Practical implications – These findings suggest that museums could take action in areas whereby the data demonstrated weaknesses in terms of accessibility. For instance, museums could set up a shuttle service or arrange public transportation service to allow people to visit offsite storage. Additionally, financial accessibility might be achieved by not charging some groups (elderly, students, etc.).

Social implications – The topic of stored collections and their accessibility has crucial social implications because not displaying collections triggers inequality amid social groups of excluded people and a small elite.

Originality/value – This study focuses on visible storage as a possible solution to enhance the accessibility of collections and indicates to what extent visible storage provides this accessibility. On the contrary, previous research did not estimate how much visible storage impacts the accessibility of stored collections.

Keywords Accessibility, Stored collection, Offsite storage, Onsite storage, Open depot, Visible storage

Paper type Research paper

Introduction

Collections were made available to anyone with the birth of museums (Bazin, 1967; Cataldo and Paraventi, 2007; Griesser Stermscheg, 2014). Extensive collections could be enjoyed by people, regardless of being curators, scholars or not. The idea of democratisation has started to flicker as curators and museums collected thoughtlessly, regardless of space availability (Gilson, 1914; Ferriot, 1995; Ames, 2015; Crenn, 2021). That perfunctory approach caused overwhelmed premises. To remediate that unpleasant display, museums adopted some aesthetic criteria to lighten exhibitions (Bazin, 1967; Griesser Stermscheg, 2014; Murray, 1904; Reinach, 1909; Avery-Quash and Crookham, 2018). As a result, many collections have not been displayed in museums, thereby mismatching the original idea of their democratisation. Accordingly, a considerable amount of collections

can be seen only by professionals instead of people for their enjoyment. Therefore, the topic of stored collections has become a serious issue as it threatens the museum's concept itself as an institution whose collections are supposed to be enjoyed by anyone.

The idea of democratising collections developed throughout the years, even though collecting things and human beings have walked abreast since prehistory (Simmons, 2004; Cataldo and Paraventi, 2007; Thiemeyer, 2017). The collecting activity initially boiled down accumulating objects as behaviour archetypes and gradually conveyed towards precious items. For instance, coming back to the fifth century, the Greek civilisation gathered *thesaurus votives*, and Byzantine or Islam ones amassed treasuries inside churches, monasteries or

cathedrals (Bazin, 1967; Gimatzidis, 2011). Only from the 16th century were objects made available by private collectors through cabinets of curiosity (Griesser Stermscheg, 2014; Bazin, 1967; McCombe, 2009). Starting from the birth of the Ashmolean Museum in 1683, private, princely and religious collections were progressively displayed in museums for people's benefit.

The phenomenon of democratising collections through "modern museums" for people peaked during the 18th century in Europe (Hooper Greenhill, 1992; Meijer-van Mensch and van Mensch, 2010). Since then, museums accumulated so many items that there has been no space to display them in the main museum galleries. Many studies demonstrated how museums struggled with the lack of space due to the considerable growth rate of collections (Henderson and Parkes, 2007; Heritage Health Index, 2005; The Institute of Museum and Library Services, 2019; Haydn, 2015). Due to the lack of space, most collections have been doomed to lay in storage and become accessible only to small elite groups (Gilson, 1914; Ferriot, 1995; Jaoul, 1995; Ames, 2015; Crenn, 2021; Henderson and Parkes, 2007). The debate around this social inequality exacerbates if financial considerations are taken into account as museums receive public aid (Fleming, 2001; Keene, 2005; Bond, 2018; Caesar, 2007).

The phenomenon of stored collections is so far-reaching that only 10% of museum collections are displayed, according to a survey conducted worldwide by International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM) and United Nations Educational, Scientific and Cultural Organization (UNESCO, 2011). There are some studies on this matter, albeit geographically limited. For instance, prior research involved museums in England and Wales, whose results were confirmed by those obtained by ICCROM and UNESCO (Keene *et al.*, 2008). Other studies gauged stored collection of museums in 80%; thus, a significant part of them is not accessible to people (Lord *et al.*, 1989; Wilkinson, 2005). Following these studies, Groskopf (2016) demonstrated that only 5% of masterpieces were exhibited in some prestigious museums. Most recently, de Erfgoedmonitor (2020) confirmed how a substantial quantity of items was kept in storage (20%), hence devoid of active use.

Despite the relevance of previous studies, whose data is presently outdated, research concerning how and how many stored collections are used is currently lacking. There is a profusion of literature focused on specific museum practices to use collections, e.g. visible storage (also referred to as open depot), as a solution to improve the use of stored collections. Nevertheless, they deal with specific case studies (Lisney *et al.*, 2013; Antonini *et al.*, 2019; Griesser-Stermscheg, 2013; Crenn, 2021; Godfrain, 2022; Reeves, 2018; Singh, 2018; Bond, 2018). Consequently, this study aims to provide a general overview of the size of stored collections made accessible through visible storage. Specifically, it highlights how many stored collections are used in each continent, according to the type and size of collections and the museum governance.

Methodology

This study is based on quantitative data provided by museums through a questionnaire. This survey was disseminated amid the offices of international council of museums located in 48 countries across the continents, which, in turn, let it circulate within their museum community. To refrain from gathering low feedback, two main actions were carried out. Firstly, 2,558 museums located worldwide in 25 countries were directly invited to take part in the study. The direct invitations stemmed from a selection from national museum directories to have equal participation of museums according to the type and size of the collection and the museum's legal status. Secondly, participants were informed that the study maintained the respondents' anonymity. This research tool was considered appropriate for obtaining an overall assessment of museums about the controversial issue of stored collections.

The questionnaire was delivered online due to the need to gather data in the short term. To determine the dimension of stored collections and their usage, the survey consisted of 40 questions involving several aspects of stored collections. Firstly, the questionnaire was designed to determine the main traits of participants in terms of the collection type and size and the museums' legal status. Secondly, the questions focused on the size of stored collections and their uses, such as how and how much they were being used. Incidentally, participants were allowed to add comments to obtain any additional information they wanted to point out. In an attempt to reduce the risk of digression, questions were supplied with responses and participants needed to click on them. To be eligible for the study, participants had to fill out all questions.

Once the survey was completed, data was collected to perform a quantitative analysis. The sample numbered 131 museums located in 31 across the continents. Afterwards, the sample was divided into groups according to some variables, such as the type and size of the collection and the museum governance. For instance, museums were clustered into small (if owing up to 100,000 items), medium (up to 1,000,000 items) and large museums (from 1,000,001 items). These variables were measured in relation to the share of stored collections used within visible storage. The data was analysed using pivot tables generated in excel sheets. This approach has some strengths as it allows connections between two or more variables and helps make comparisons amid findings.

Results and discussion

This study focuses on visible storage as a solution to improve the accessibility of stored collections. The discussion of the results of this study entails considering the data gathered through the survey from the respondents located across the continents. (Respondents are listed in the *List of participants.*) A crucial finding that emerges from the data is that museums use their stored collections through loans, exchanges, exhibitions, preservation cares, digitalising, visible storage and for research purposes. Additionally, a part of collections has no usage in the least. These findings suggest that museums diversify the use of their stored items to balance the advantages and disadvantages of each one.

List of participants:
1   Africa
   • Chad
   • Cote d'Ivoire
   • Morocco
   • South Africa
2   *Americas*
   • Argentina
   • Canada
   • Chile

- • Ecuador
- • Guatemala
- • Mexico
- • USA
3   *Asia*
  - • India
  - • Japan
  - • Philippines
  - • Saudi Arabia
4   *Europe*
  - • Croatia
  - • Czech Republic
  - • Denmark
  - • Estonia
  - • Finland
  - • France
  - • Italy
  - • The Netherlands
  - • Poland
  - • Portugal
  - • Russia
  - • Spain
  - • Turkey
  - • UK
5   *Oceania*
  - • Australia
  - • New Zealand

From the analysis of the collected data, it is possible to obtain an overview of museums which open up their stored collections to the general public through visible storage, according to their size. As can be seen in Table 1, museums with large collections are not more inclined to set up visible storage (7%) in comparison to medium museums (15%). On the contrary, approximately eight in ten participants (78%) with small collections have visible storage. These results are consistent with Ames' study (2015), which demonstrated how stored items in large museums are used less. Additionally, open depots are more concentrated in Europe (55%), whereas they are few and far between in African countries (6%). A likely explanation for these results might be that museums in Africa cannot afford the cost of establishing visible storage, and they prioritise other needs due to the lack of funds.

According to the data gathered, participants have different types of depots (Table 2). Specifically, approximately three fifths (63%) of participants have onsite depots, and the remaining (37%) have offsite depots. The data shows an average distance of 16 kilometres from offsite depots to museums and the city centre. Moreover, the collected information highlights the lack of public

Table 2 Onsite and offsite storage

Onsite storage	Offsite storage	No public transportation service	Average distance
63%	37%	56%	16 km

Source: Created by authors

transportation for almost three in five museums with offsite depots (56%). This challenges the idea of (physical) accessibility. Hardly can collections be accessed if people struggle to reach the facility physically and financially (Ambrose and Paine, 2018; Solima *et al.*, 2021; Proudlove, 2001; Matassa, 2011; Solima, 2012; Dodd and Sandell, 1998; Schmetzke, 2015; Culture for All, 2022). Indeed, offsite storage threats financial accessibility inasmuch as it implies people need cars (and pay for fuel) or pay extra tickets for the public transportation service (if it runs). These findings suggest that not many museums have the space to accommodate their objects inside the museum facility, as some museums successfully did (Thiemeyer, 2017; VV, 2018). If premises are unavailable, an alternative might be to set the storage very close to the museum. For instance, the Boijmans Museum built its *Depot* in front of the museum and opened its collections to people in November 2021 (Kisters, 2021; Delpeur *et al.*, 2019; Godfrain, 2022; Holligan, 2021; Somers, 2018). As a result, these findings can be interpreted in the way that, due to lack of space, museums are forced to go outside the city centre due to financial considerations.

Another significant result of this study is that many respondents shared their offsite depot with one or more (up to eight) institutions. These results reflect the depot's model recently developed in northern Europe (Knudsen, 2005; Knudsen and Steen Rosenvinge, 2017; Woer, 2018). This might mean that more and more museums operate with limited resources, prioritising preservation to access. Consequently, museums decide to share costs with others, thereby finding a suitable accommodation for their collections with high-quality preservation requirements inside sustainable facilities.

With regard to the constraints related to resources, museums' complaints convey towards common areas, such as the conditions of the facilities (including the lack of space), the staff (considering both the number and the know-how) and the budget. Table 3 shows that more than four in ten (41%) respondents judge their storage as inappropriate in terms of location and conditions of the depot (45%), as well as one in five (20%) in terms of conditions of their visible storage, including the lack of space. The lack of space has become such a severe problem that museums could decide to be accessible only in the digital realm to cut down costs, as

Table 1 % Museums with visible storage

Continent	Large	Medium	Small	Total
Africa		1	5	6
Americas	1	2	18	21
Asia	2			11
Europe	5	10	40	55
Oceania		2	6	8
Total	7	15	78	100

Source: Created by authors

Table 3 Assessment of resources

Inadequacy	% museums
Size of Staff	71
Know-how	28
Budget	68
Conditions of storage (e.g. space)	45
Adequate conditions of visible storage (e.g. space)	20
Location of the storage	41

Source: Created by authors

currently occurring for the Cardiff Museum in Wales (Kendall Adams, 2022). Furthermore, welcoming people entails several undertakings. Recruiting volunteers cannot solve the matter as they do not have the expertise, they are unreliable because typically elderly, and they tend to be proprietorial, let alone a possible path in countries where it is not permitted (Flemons and Berents, 2012; Gardner, 2010). Moreover, they increase the exposure to risks, thereby increasing the need for security. This argument boils down to additional needs for professional staff and funds. Bear in mind the limited resources museums can manage, this study confirms that visible storage cannot be a feasible model for any museum and recruiting volunteers for free does not fully solve the matter (Kisters, 2021). Therefore, these results might help to shed light on the tendency of museums to locate their storage in a detached facility, often far from the city centre (Table 2).

The analysis highlights how a wide range of people is interested in enjoying stored items in open depots (Table 4). This result is consistent with the idea of accessibility elaborated by Pallozzi, which entails the usability of spaces and contents from a varied public, with no distinction in the least (Pallozzi, 2020). Specifically, researchers are the most represented category of people visiting open depots (36%). Researchers considerably outnumber the general public two to one (17%), meaning people deliberately urge to see (only) the storage. On the contrary, data indicates that people visit visible storage to accomplish their visit to the museum collections (28%). At first glance, it could be alleged that a likely explanation for this result might be that people do not consider independent visits to see stored items as worthy. Nevertheless, it could be argued that people simply refrain from visiting depots because some storages are offsite and devoid of public transportation (63%), as shown in Table 2. These findings imply that people are prone to consider stored collections qualitatively less important than items exhibited in the main galleries.

The survey findings suggest that museums make their storage accessible in different ways (Table 5). The modality of access museums adopted the most is by arranging appointments (31%). On the contrary, visible storage offering a generalised opening for

no scholar people is few and far between (8%). On the one hand, these results are in line with the fact that researchers depict the prominent part of visitors (36% versus 17% of the general public), as shown in Table 4. On the other hand, these results differ from the analysis conducted by Keene *et al.* (2008), whose findings reported more comprehensive access at regular times. One potential reason for this discrepancy could be that ensuring regular access implies resources, *inter alia* staff, know-how and budget, which are not affordable by all museums (Kisters, 2021). For this reason, museums tend to arrange appointments the most. Another interesting result of this study is that respondents highly adopt special events and store tours amid the modalities of access (26% each). This research gives further support to the theory that considers ordinary people more likely to appreciate stored collections if provided with the adequate interpretation they can have through store tours (Handa *et al.*, 2010; Caesar, 2007; Keene *et al.*, 2008; Matassa, 2010; Delbourgo, 2018). These findings indicate that people urge to know more about collections and consider guided tours a tool to meet their intellectual access needs (Dodd and Sandell, 1998; Ambrose and Paine, 2018; Solima, 2021). These results might be interpreted in the way that it is incorrect to consider people less interested in stored items than researchers, as can be assumed at first glance from the data in Table 4. Indeed, it seems that the distance from the city centre, the lack of public transportation service (Table 2), the lack of guided tours to understand collections and the poor availability of regular time openings (Table 5) might hinder people's visits.

Museums are asked to estimate the number of visits to their visible storage in comparison to those to their museums (Table 6). The peak is reached by visible storage in the Americas (22%). Open depots in Europe (19%) and Asia (18%) slightly differ from the Americas. African museums report they do not record this data. According to this information, museum visits outnumber visits to depots almost six to one on average (17%). This study confirms previous studies which shed light on the fact people lean towards underestimating the value of stored items (Thiemeyer, 2017; Jaoul, 1995). Nevertheless, we have to bear in mind that, as shown in previous Tables (2, 4 and 5), some factors could affect the decision to visit (distance, lack of public transportation service, lack of store tours to understand collections, access only on demand).

The survey also considers the frequency of charging a fee to access storage (Table 7). Six out of ten respondents let people access depots for free (63%), and a small part (4%) charge only for guided tours. Deciding on whether or not to charge a ticket to access visible storage is crucial inasmuch as it affects the financial accessibility sphere (Solima, 2012, 2021; Ambrose

Table 4 Types of visitors

Visitors	%
Researcher	36
Museum visitor	28
Schools	19
General public	17
Source: Created by authors	

Table 5 Types of access

Access	%
Appointment	31
Special event	26
Tour	26
Regular times	8
Exhibition hall	8
Source: Created by authors	

Table 6 Number of visits to visible storage

Continent	% visits to visible storage
Africa	
Americas	22
Asia	18
Europe	19
Oceania	5
Average	17
Source: Created by authors	

Table 7 Ticket for visiting visible storage

Ticket	% museums
Free for researchers	13
Free for schools, students, families, seniors and children	4
Free for anyone	63
Free and tickets for guided tours	4
Tickets for anyone	16
Total	100
Source: Created by authors	

and Paine, 2018; Dodd and Sandell, 1998). On the one hand, the data shows that eight in ten museums (80%) offer free educational programs in museums (Table 8). On the other hand, only 4 in 100 museums (4%) admit access to school for free. Accordingly, at first glance, it might be argued that museums do not seem to acknowledge the educational role of stored items as necessary as those exhibited in the main galleries. Nevertheless, museums operate with limited resources (Table 3). Therefore, they merely need to prioritise their needs.

With regard to the size of the usage of stored items, this study starts from a pivotal result depicted by the dimension of stored collections. This is gauged 74% on average, as reported by participants located across the continents. This result is in agreement with previous studies which highlighted how poor conditions of museum collections and lack of collection management are far-reaching and might affect the size of stored collections (Corona, 2022; ICCROM, 2017; UNESCO-ICCROM, 2011; The Institute of Museum and Library Services, 2019; Heritage Health Index, 2005; Keene *et al.*, 2008; Pandya *et al.*, 2011; Haydn, 2015). Indeed, not all items are in healthy conditions or have appropriate documentation and, thus, are eligible to be exhibited, regardless of the space's availability. Likewise, this study challenges one of the two scenarios. Jaoul (1995) described people's opinion on stored collections and how items were deliberately "hidden" from the public eye because curators long to retain the "treasures" for themselves. Indeed, many items are not displayed merely because they are for scholars' interests or repetitive items (Corona, 2022). With regard to the size of stored collections (74%), it appears that an appropriate comparison of it can be fruitful to other research with similar geographical widths. Consequently, this result is lower than the 90% obtained from the worldwide survey conducted by UNESCO-ICCROM, 2011. The observed difference might have been caused by the different sample sizes (it involved 136 countries).

Table 8 Free educational programs in museums

Continent	% museums
Africa	100
Americas	78
Asia	80
Europe	83
Oceania	68
Average	80
Source: Created by authors	

The analysis also shows the share of stored collections made accessible through visible storage (Table 9). This information is crucial as, although participants have open depots, it does not mean stored collections are sufficiently accessible to people. For instance, there is no abundance of visible storage in Oceania (8%), as shown in Table 1. Nevertheless, museums display a considerable amount of their stored items in that continent (36%), as shown in Table 9. This result outnumbers the average percentage of usage of stored collections in visible storage (32%). By contrast, museums in the Americas are those that – after African ones with 15% – display fewer items in their visible storages (24%), albeit their numeric presence (21%). The analysis suggests that the continent that, on average, shows more items in visible storage in the world is Asia (45%). This result is unexpected as approximately one in ten (11%) museums have an open depot in Asia versus one in ten (21%) in the Americas. Although there are no previous studies on the dimension of the collections displayed through visible storage involving all continents, these findings imply that the number of open depots does not match increased accessibility.

Another important result of this study is that Europe is the continent leading the world in displaying more items in visible storage, according to the parameter of the type of collection (Table 9). Specifically, museums that display more than half of their stored items within visible storage are art museums (55%). On the contrary, museums with archaeological items have the lowest degree of usage of their stored objects (15%). These findings are consistent with the results of a previous study that estimated 70/80% the size of stored collections in art museums and 90% in archaeological museums (Lord *et al.*, 1989). These findings could be interpreted in the way that museums are more or less virtuous according to their collection type.

Table 10 shows how collections are used more (90%) in visible storage of museums whose governance is a partnership (State and a Trust). On the contrary, the usage decreases in public museums or are part of the State, central, federal or municipal government (26%). This might mean that the width of the territorial governance affects the accessibility of collections. According to the size of the collection, large museums display a lower number of items (15%) compared to medium and small museums (39% and 32%). These findings are in agreement with that of Ames (2015), who reported how large museums kept a prominent part of their collections in storage (95%–99%). These results indicate that the bigger the collections are, the more museums struggle with their accessibility.

Bearing in mind that the dimension of stored collections is 74% on average, and 32% of stored collections are made accessible through visible storage (Tables 9 and 10), it means that 24% of the whole collection is displayed in visible storage, and 26% is exhibited in museums. The remaining 50% of the entire collection is accommodated and unseen inside the depot. To grasp the development of visible storage in the future amid the respondents, museums are asked about their plans to enhance the accessibility of the remaining stored collections, which are not kept in visible storage and, hence, unseen. Three out of ten (30%) participants plan to open additional open depots in the next five years. This feedback is consistent with the assessment museums made of their resources (Table 3). Indeed, more than four in ten (41%) participants complain about the location and conditions of their depot (45%), as well as one in five (20%) is

Table 9 Stored collections in visible storage for the type of collection

Type of collection	Africa (%)	Americas (%)	Asia (%)	Europe (%)	Oceania (%)	Average (%)
Archaeology		15		15		15
Art		19	20	*55*	15	29
Ethnography and anthropology	15	30		42		34
History		15	53	30	45	33
Natural history and natural sciences		15		*53*		40
Other		20	75	15	45	44
Science and technology				15	30	23
Total	15	24	45	33	36	32

Source: Created by authors

Table 10 Stored collections in visible storage for governance and size

Legal status	Large (%)	Medium (%)	Small (%)	Average (%)
Partnership (state and a trust)		90		90
Private, commercial enterprise			60	60
Private, non-profit body	15	15	50	43
Public, part of the state, central, federal or municipal government	15	19	27	26
Trust (public)		90	15	40
Total	15	39	32	32

Source: Created by authors

critical of the requirements of their visible storage. These findings suggest museums urge to find more suitable accommodation for their stored items in the next future.

Conclusions

The key issue this paper investigated was the usage of stored collections in visible storage. The analysis revealed that the average share of stored collections displayed in visible storage is 32% on average. Specifically, the study indicated how many stored items were made accessible across the continents, according to the size and type of collection and the museum governance. We found that the leading museum displaying more items in visible storage is a European art museum of medium size with a governance of partnership (State and a Trust) or a public Trust. On the contrary, museums with large collections display a very small part of their stored collections (15%) in their visible storage, thereby underusing them to the detriment of people's enjoyment. These results reflect those of previous studies highlighting how the bigger the collection is, the more difficulties museums encounter in making them accessible (Ames, 2015; Corona, 2022). This research might contribute in several ways to our understanding of how museums manage stored collections to achieve their democratisation for anyone's benefit.

This study sheds light on how the inadequacy of resources is the foremost factor that might hinder the accessibility of collections. Amid these factors, the findings suggest that the lack of staff (71%), poor budget (68%) and the need for more space (45%) lean museums towards setting up offsite storage (37%). The analysis showed that offsite storages (56%) are approximately 16 km on average from the museum or city centre, and several (56%) are devoid of public transportation service. In addition, some museums (37%) charge a ticket to allow people to access visible storage. These results put into question the notion of accessibility, not least physical and financial access (Dodd and Sandell, 1998; Ambrose and Paine, 2018; Culture for All, 2022; Solima *et al.*, 2021). Most notably, this research could show that setting up visible storage does not mean making museum collections genuinely accessible. One practical implication of that is museums could eradicate or, at least, mitigate the impact of the overriding threats to accessibility by making arrangements with local authorities to set up public transport to remediate the distance. An alternative action could be offering a shuttle service from the museum. Additionally, financial accessibility might be achieved by not charging some groups (elderly, students, etc.).

The data of this research is based on quantitative analysis. Accordingly, one major limitation of this study is that it does not consider people's standpoints. Therefore, we recommend that future studies focus on what people opine on visible storage, such as their appreciation of the display format, the behind-the-scenes, their need for interpretation and the degree of satisfaction with their information needs, as well as their perception of the size of stored collections. This might provide museums with helpful directions on how to meet people's needs.

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