



# From the Real to the Virtual: the Spatiality of the Museum on its Website

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## Abstract

In our digital era, the interaction between physical and digital spaces is a key issue. This paper raises a question which has been relatively neglected in the literature: it is commonly thought that the museum through its website can seek to enrich the informational context of its collections for its visitors, but does the museum also *re-present* itself and its *spatiality* – that is, the architectural layout of the museum spaces and the spatial and conceptual arrangement of the display – on its website? And if so, in what ways and why? The grounding for this question is provided, on the one hand, by the interdependence between the website and the real museum stressed by studies of the use of museum websites; and on the other, by the importance, increasingly acknowledged in the museological literature, of the museum's *spatiality* in the way it generates and transmits knowledge. To explore the question, the paper takes forty-three websites of the most visited European art museums as case studies and examines the way each interprets *spatiality* in its digital space through a comparative analysis on the basis of sixteen themes. The paper identifies three modes in which museums relate the real to the virtual and argues that these reflect the degree to which they opt for a *performing museology* approach to the website (the museum itself is on display), or an *informing* one (the exhibit as a neutral vehicle for the transmission of information). From a practical point of view, the paper develops a conceptual and methodological framework for interpreting strategic differences between websites. Theoretically, it seeks to provide a better understanding of how current museum thought, and in particular a move towards a more 'participatory' website culture, can shape the way websites are conceived and designed in relation to the real museum.

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## Introduction

The objects in a museum have two contexts: an informational context, covering geographical and temporal sources and the wider field of comparable objects; and the physical, spatial and conceptual structure of the museum itself and its display. The first can be thought of as the *field* of knowledge within which the museum operates, the second as the *form* of knowledge created by the museum, as expressed in its fundamental function, the display. We can also increasingly think today of two concepts of the museum: the *real* physical museum, and the *virtual* museum, as found for example on museum websites, which are increasingly important in the structure and functioning of museums. The relations between the *form* of knowledge created by the real museum and its *re*-presentation in the virtual museum is the focus of this paper.

The idea that the conceptual, physical and spatial arrangement of objects in the museum is an ordering system in itself, which generates and structures knowledge, has long been acknowledged. Davallon defines the museum display as the realization of a mediation between the world of science and the world of the visitor (1999, 278). It proposes a mode of encounter and interpretation (1999, 180), and it is through this that the visitor has access to the objects. As Chaumier adds (2012, 23), the display has some degree of autonomy from the objects in the sense that by bringing them together it creates something that is more than the sum of its parts, that is, it creates 'effects of meaning' (Davallon 1999, 75). Whitehead (2009; 2012) goes a step further by contending that displays 'are in a sense embodied theory', and the museum is 'a map of knowledge' in that it creates the spatial layout through which the visitor experiences the objects. 'It should be recognized', he argues, 'that museum interpretation is constructive rather than merely reflective, that it plays a role within discourse and contributes to narratives of art and art history' (2012, 174).

Two factors, and their relations, are commonly seen (for example Whitehead 2009, 26; 2012, xiii) as particularly significant to the way the museum operates to create the *form* of knowledge it presents: the display organization, with its curatorial intentions and choices; and the character, disposition and connectedness of the architectural and display spaces, through which curatorial intentions are realized. Both of these involve space organization, and can perhaps be summarized as the *spatiality* of the museum. This raises the key question addressed in this paper: it has always been thought that the museum through its website can seek to enrich the informational context of its collections for its visitors, but does the museum also *re*-present itself and its *spatiality* on its website? And if so, in what ways and why?

In exploration of this question, the paper focuses on art museums and takes forty-three (43) websites of the most visited in Europe as case studies, and examines the way each interprets its *spatiality* in its online space through a comparative analysis on the basis of 16 themes, which index *spatiality* in some way: how the website presents the architecture of the building, its spatial character, and the organization of display spaces; how it informs visitors about the objects on view and introduces them to the logic behind the structure of the display; how it seeks to recreate aspects of visitor experience through virtual walk-through tours, and how it allows visitors to engage with and investigate the museum through interactive floor plans, qualitative visual material, and the creation of personal collections and itineraries. The paper seeks first to clarify the variability in the way websites engage with the real museum, and then, through the clarification of the differences, to arrive at an understanding of why museums make the strategic choices they do. The differences, it is argued, can be accounted for by the duality of *informing museology* (the exhibit as a neutral vehicle for the transmission of information) and *performing museology* (the museum itself is on display) (Kirshenblatt-Gimblett 2006, 41).

From a methodological point of view, the paper develops a conceptual framework for exploring the relationship between real and virtual in terms of the *re*-presentation of the museum's *spatiality*, and so its *form* of knowledge, on its website. Theoretically, it seeks to provide a sharper understanding of how current museum thought, and developments in the social role of museums, can shape the way websites are conceived and designed in relation to the real museum.

## Context: The Interdependence of Real Museum and Website

Looking back, it is almost thirty years since the first museum website, that of the Metropolitan Museum of Modern Art (1996), was established, and museums are now more and more turning to online visitors as an integral part of their audience, seeking to understand their profile and analyse their motivations and expectations. It is also five years since Google launched the Art Project (2011), and museums are increasingly collaborating with the Google Cultural Institute (GCI) to allow their digital visitors to virtually walk through the museum galleries, with the British Museum, one of the more recent partners, considering this an opportunity 'to give the Enlightenment ideal on which the Museum was founded a new reality' (MacGregor 2015).

Studies of the use of websites point to their practical and theoretical interdependence with the real museum. Exploring this relationship in the lives of visitors, Marty (2007, 2008) concludes:

"the results indicate that online and in-house museum visitors are not separate entities: not only are many online museum visitors using museum websites to plan visits to physical museums, but many are also using museum websites to learn more about museums after a visit. The relationship between museums and museum websites is complementary, and one should not assume that online and in-house museum visitors need access to completely different types of information resources." (2007, 355)

Website survey research in individual museums confirms that visits to the website tend to be related to gallery visits, and a key issue is to understand the location of objects in the real museum. For example, roughly 50% of the visitors to the website of Tate Modern use it as a planning tool before (38%), during (1%) and after (8%) the gallery visit (Villaespesa, Doolin and Stack 2015). Likewise, 60% of those visiting the website of SFOMA seek to get information on current exhibitions and are interested in finding out if a specific artwork is currently on view (Mitroff 2007).

Research studies carried out in the context of the redesign of the museum's website, or sections of it, also indicate that among the proposed improvements is to make clear links between website and real museum. For example, many users of the British Museum's Collection Database online thought that objects should be linked to their physical location in the museum (Terras 2012). Similarly, a study of Tate Modern showed that users were looking for information 'about which artworks were on display in order to plan a visit or find more information or to remember artworks seen during their visit' (Villaespesa 2014, 3). An improvement proposed by the museum was to reinstate the interactive map with the artworks on display, that had existed in an earlier version of the website. Among other suggested improvements was to increase the quantity of information about artworks and make 'links to related content such as videos, downloads, teaching resources or essays' (Villaespesa 2014, 16).

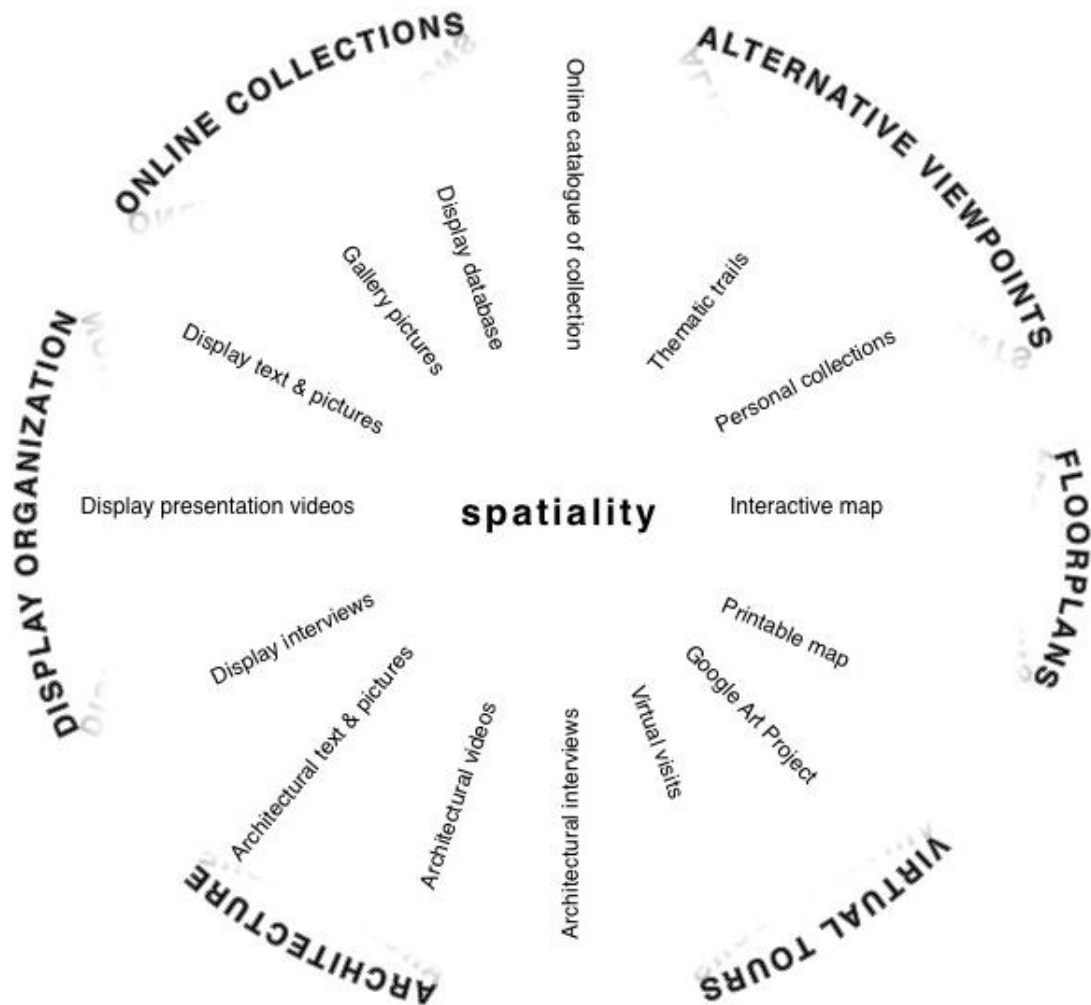
What is widely acknowledged is that 'the challenge for the digital is how to create new viewing experiences that do not negate the museum visit but work in tandem' (Meecham 2013, 49). From a marketing point of view, it has been argued (Kotler 2001, 422) that 'simulated online museum experiences one day could compete with onsite museum visits'. It is intriguing to find that currently the Museum of Modern Art, New York, offers virtual tours of the museum to its members as an exclusive membership benefit. Ideally, Barry (2006) suggests, there could be a 'virtuous circle' between the physical space of the real museum and the information space of the website, through creating connections (for example, by bookmarking or sending links of information), so that the experience of the visitor in the real museum is augmented with a much richer field of information from the online. Building upon this idea of interdependence, the paper will address the inverse relation: how far might the 'virtuous circle' aim to reflect the richness of the real museum in the virtual?

## Methodology: Indexing Spatiality on Museum Websites

The study presents results from an exploratory survey of European art museums, all housing permanent collections. The sample comprises all those that respond to these two parameters

and are on the list of the top 100 world art museums in terms of attendance in 2014 (*The Arts Newspaper* 2015), leading to a total of 43 cases. Following a preliminary review of the websites, 16 themes were identified as indexing the *spatiality* of the museum, and so forming collectively an analytical tool for describing their variability in this respect (Fig. 1). We will first look qualitatively at how the individual themes are interpreted in the museums, and then numerically at the patterns in different museums, suggesting that different strategic approaches can be identified. Tab. 1 constitutes the informative background to the sections that follow. It shows the websites of the sample set out in order of their number of visitors (from the Louvre as the highest, with 9,260,000 visitors, down to the Triennale di Milano, with 615,232), and the occurrence of each theme in each case. The bottom row 'Totals' summarizing the frequency of each of the themes in the sample, and the last column 'Theme Totals' the total occurrence of themes on each of the museum websites.

The study did not include themes related to online educational tools, such as visitors making their own creation from a work of art or tagging museum objects. Though important in actively engaging the visitors with museum collections and rendering the website an open platform, they are not directly linked to the key spatial focus of the paper. It should also be noted that the 16 themes are discussed as concepts, and not evaluated in terms of effectiveness or other quality principles.



**Figure 1.** The 16 themes that index museum spatiality.

**Table 1.** The 16 themes as found in the 43 European art museum websites of the sample and their resulting modes.

	MUSEUM	COUNTRY	ONLINE CATALOGUE					DISPLAY ORGANIZATION					ARCHITECTURE		VIRTUAL TOURS	FLOOR PLANS		ALTER VIEW POINTS		THEME TOTALS	MODE OF RELATION	
			1. online catalogue of collection (or highlights)	2. display database	2a. object location as search filter	2b. object location as information	2c. no information about object location	3. gallery pictures	4. display text and pictures	5. display presentation videos	6. display interviews	7. museological rationale	8. architectural text and pictures	9. architectural videos	10. architectural interviews	11. virtual visits	12. Google Art Project	13. printable map	14. interactive map			15. personal collections
1	Louvre	FR	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	14	Blue
2	British Museum	UK	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	9	Red
3	National Gallery London	UK	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	14	Blue
4	Vatican Museums	ITA	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	8	Green
5	Tate Modern	UK	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	11	Blue
6	Musée d'Orsay	FR	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	12	Green
7	Centre Pompidou	FR	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	11	Blue
8	State Hermitage Museum	RU	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	9	Red
9	Victoria and Albert Museum	UK	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	10	Green
10	Reina Sofia	SP	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	14	Red
11	Museo Nacional del Prado	SP	*	*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	11	Green
12	Rijksmuseum	HO	*	*		*		*	*	*	*	*	*	*	*	*	*	*	*	*	8	Blue
13	National Portrait Gallery	UK	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	9	Red
14	MuCEM	FR	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	7	Blue
15	Galleria degli Uffizi	ITA	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	13	Green
16	National Galleries of Scotland	UK	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	8	Blue
17	Moscow Kremlin Museums	RU	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	7	Red
18	National Museum of Scotland	UK	*	*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	7	Blue
19	Van Gogh Museum	HO	*	*		*		*	*	*	*	*	*	*	*	*	*	*	*	*	7	Green
20	Musée du quai Branly	FR	*	*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	13	Blue
21	Acropolis Museum	GR	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	4	Red
22	State Tretyakov Gallery	RU	*	*		*		*	*	*	*	*	*	*	*	*	*	*	*	*	5	Blue
23	Tate Britain	UK	*	*			*	*	*	*	*	*	*	*	*	*	*	*	*	*	11	Red
24	Palazzo Ducale	ITA	*	*		*		*	*	*	*	*	*	*	*	*	*	*	*	*	6	Green
25	Galleria dell'Accademia	ITA	*	*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	4	Blue
26	Teatre-Museu Dalí	SP	*	*		*		*	*	*	*	*	*	*	*	*	*	*	*	*	6	Green
27	Kelvingrove Art Gallery and Museum	UK	*	*		*		*	*	*	*	*	*	*	*	*	*	*	*	*	10	Blue
28	Österreichische Galerie Belvedere	AU	*	*		*		*	*	*	*	*	*	*	*	*	*	*	*	*	7	Green
29	Guggenheim Museum Bilbao	SP	*	*		*		*	*	*	*	*	*	*	*	*	*	*	*	*	7	Red
30	Museo Thyssen-Bornemisza	SP	*	*		*		*	*	*	*	*	*	*	*	*	*	*	*	*	10	Blue
31	Pergamonmuseum	GE	*	*		*		*	*	*	*	*	*	*	*	*	*	*	*	*	7	Green
32	Museu Picasso Barcelona	SP	*	*		*		*	*	*	*	*	*	*	*	*	*	*	*	*	8	Blue
33	Imperial War Museum	UK	*	*		*		*	*	*	*	*	*	*	*	*	*	*	*	*	5	Red
34	Stedelijk Museum	HO	*	*		*		*	*	*	*	*	*	*	*	*	*	*	*	*	6	Green
35	Musée de l'Orangerie	FR	*	*		*		*	*	*	*	*	*	*	*	*	*	*	*	*	8	Blue
36	Kunsthistorisches Museum, Vienna	AU	*	*		*		*	*	*	*	*	*	*	*	*	*	*	*	*	6	Green
37	Deutsches Historisches Museum	GE	*	*		*		*	*	*	*	*	*	*	*	*	*	*	*	*	6	Blue
38	Museu Nacional d'Art de Catalunya	SP	*	*		*		*	*	*	*	*	*	*	*	*	*	*	*	*	7	Red
39	Musées Royaux des Beaux-Arts	BE	*	*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	7	Blue
40	Louisiana Museum of Modern Art	DK	*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	9	Green
41	National Museum in Krakow	POL	*	*		*		*	*	*	*	*	*	*	*	*	*	*	*	*	5	Red
42	Neues Museum	GE	*	*		*		*	*	*	*	*	*	*	*	*	*	*	*	*	8	Blue
43	Triennale di Milano	ITA	*	*		*		*	*	*	*	*	*	*	*	*	*	*	*	*	5	Green
	TOTAL		42	16	5	2	19	10	43	18	13	16	43	18	4	15	17	31	23	15	9	

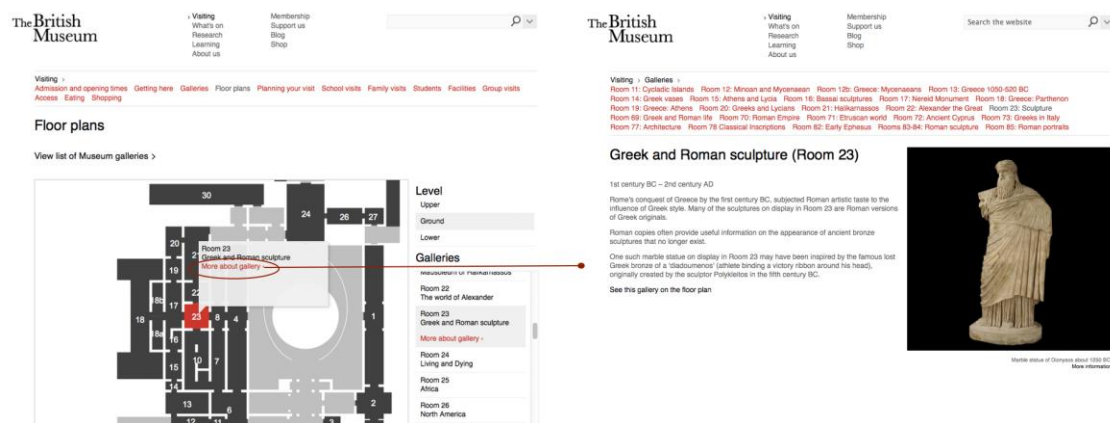
## Findings: The Variability of the Re-presentation of the Museum's Spatiality

### Presentation of the Museum Collection Display: The Objects in Context

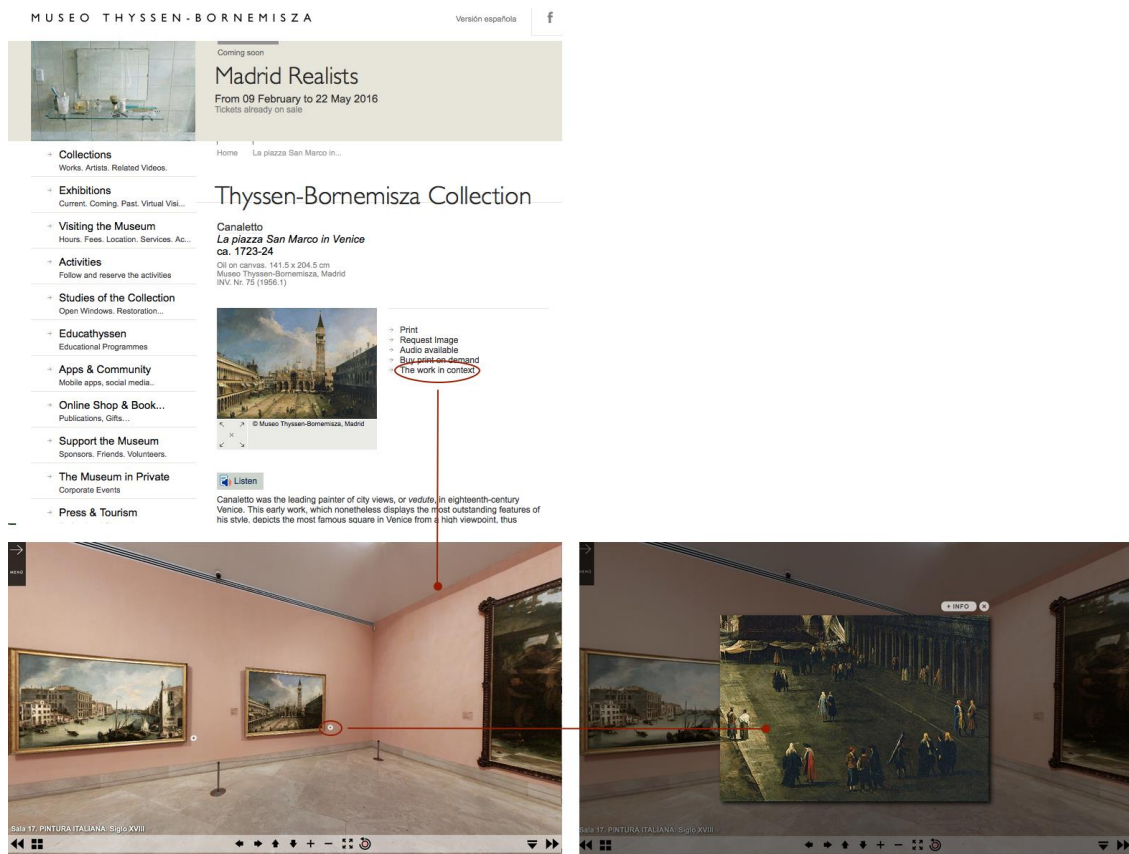
We will begin with the basic questions of how museums present their collections online, through catalogues, which reflect and develop the informational dimension (see T.1 in Tab. 1), and in particular how they inform the online visitor which objects are currently on view and in which galleries (T.2), potentially providing gallery pictures (T.3). Almost all (98%) offer an online catalogue of the collections, or of their highlights, while 38% (T.2c) make available a distinct database dedicated to the display. Additional differences between cases are whether, within the online catalogue, location is a search criterion in itself (as in T.2a) or not (as in T.2b), and whether the search for a single object leads to information about all the objects displayed in the same gallery (e.g. Rijksmuseum). The museums with 'display databases' tend to be those at the top of the list of the most visited museums, and are exemplified by the Louvre which provides



the complete and dedicated database 'Atlas', making possible the search by department and by room. However, individual cases differ considerably in the range and material of information provided, with, on the one hand, cases such as the British Museum (Fig. 2), Tate Modern and Tate Britain lacking any visual material about the galleries; and, on the other hand, with Louisiana providing, in the search for an artist, installation views from previous displays of the work in the museum across its history, and the Museo Thyssen-Bornemisza, linking the database to a virtual walk-through experience of the galleries, through a distinct field called 'Work in context' (Fig. 3).



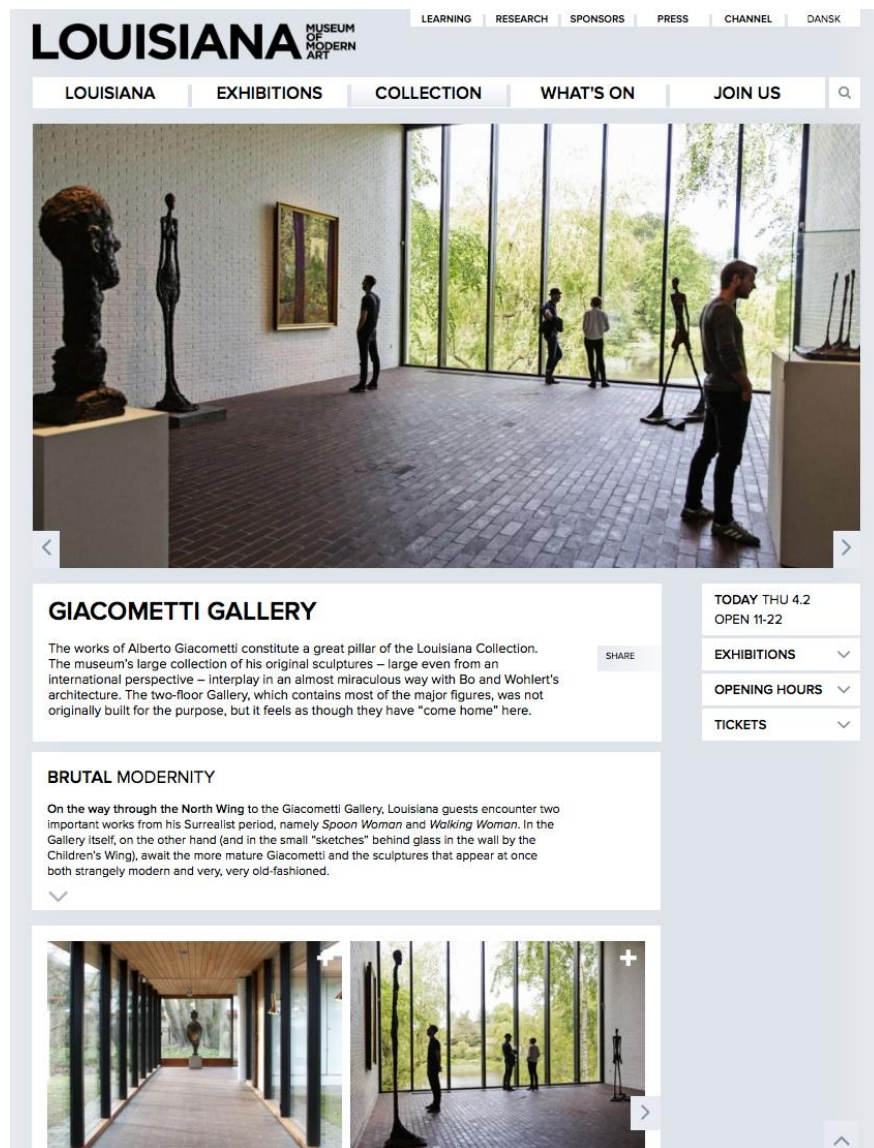
**Figure 2** . Two screenshots of the British Museum website, linking the interactive plan to information about the content of the galleries and images of objects.



**Figure 3.** Three screenshots of the online catalogue of collections of Museo Thyssen-Bornemisza: the field 'Work in context' offers a view of the gallery and the other works displayed with the Canaletto painting, combined with a zoom function.

## Presentation of the Conceptual and Spatial Structure of the Display: The Museum's Interpretative Framework

If we now turn to the way museums introduce online visitors to the conceptual structure and spatial organization of the permanent collection, or familiarize them with curatorial choices and intentions, we find that, as might be expected, almost all (see T.4) offer some kind of 'introductory text', accompanied by images (of objects and in some cases of galleries), referring to the reasoning behind the grouping of exhibits in a particular space, presenting the intended messages to be communicated, and occasionally explaining the titles of collection displays. A notable proportion also make use of non-text based evidence, mainly video presentations or interviews<sup>1</sup> (see T.5 and T.6), or in certain cases audio commentaries. More significantly perhaps, more than a third of the museums of the sample (37% – see T.7) seek to offer a deeper understanding of the contextual meaning of objects and the role of the physical display environment, by exposing the museological rationale.



<sup>1</sup> Videos made available through a link to YouTube are not taken into account here.

**Figure 4.** Screenshots of the Louisiana website, explaining the rationale behind the disposition of the works of Giacometti in the museum spaces.

Looking at distinctive individual cases, in the National Gallery a range of access points into the display are provided (through its 'Channel'), inviting visitors to explore paintings in depth, 'unlocking the stories behind them' from a variety of perspectives – of the director, curators, conservators, as well as contemporary artists, authors, historians and media personalities. The Rijksmuseum adds a different dimension by 'opening up' its historical archive and juxtaposing contemporary views of its buildings and galleries to earlier ones, so allowing, for instance, a 'visual' survey of the way the same painting (e.g. Rembrandt's *Night Watch*) was displayed in different periods. A series of museums explicitly confront the spatial grouping and arrangement of the display. Tate Modern, for example, in a behind-the-scenes video, takes visitors through the process of installing a new wing of displays, from idea to installation. Through a similar video, the director and curators at Reina Sofia talk about the research that precedes the display, the heuristic value of the installation of works in space, and the 'plurality of interwoven visions' they seek to present. Louisiana explains, through text and visual material, how earlier works by Giacometti are placed on the way to the Giacometti Gallery, preparing visitors to encounter his mature sculptures in one of the museum's key spaces (Fig. 4). Orsay exposes the ideas behind its recent renovation, including the new itinerary and the choice of wall colours, and uses a visual comparison of spaces before and after the renovation and rehang to illustrate the arguments. Similar examples about renovation plans and new displays are in the Prado and the Van Gogh Museum websites. In Pompidou, an interview with the curator accompanies a short video presenting the new hang (2015), aiming to illuminate 'the narrative that the museum aims to construct through the new display'.

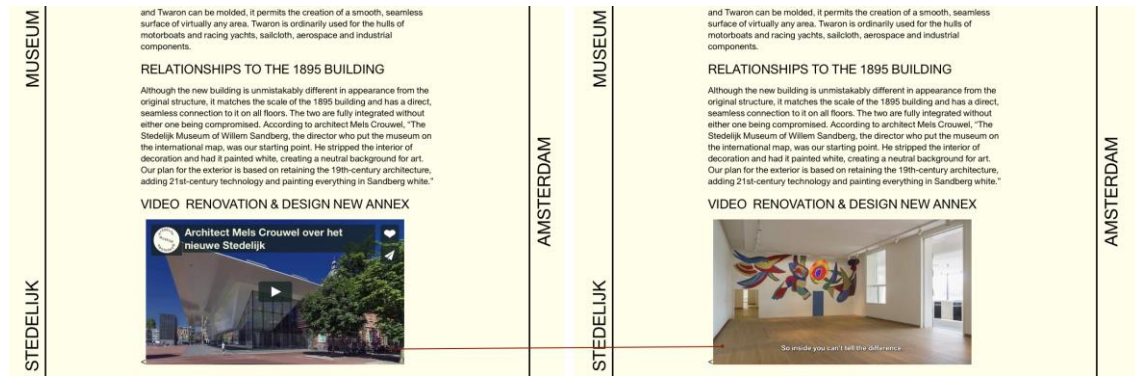
More interestingly perhaps, videos are used not only to communicate the museum's perspective through its presentation by the director or curator, but also to present visitors' points of view through short comments by diverse audiences. Kelvingrove Art Gallery and Museum, and Museo Thyssen-Bornemisza provide two indicative cases of this.

### Presentation of the Museum Building: Its Spatial Character

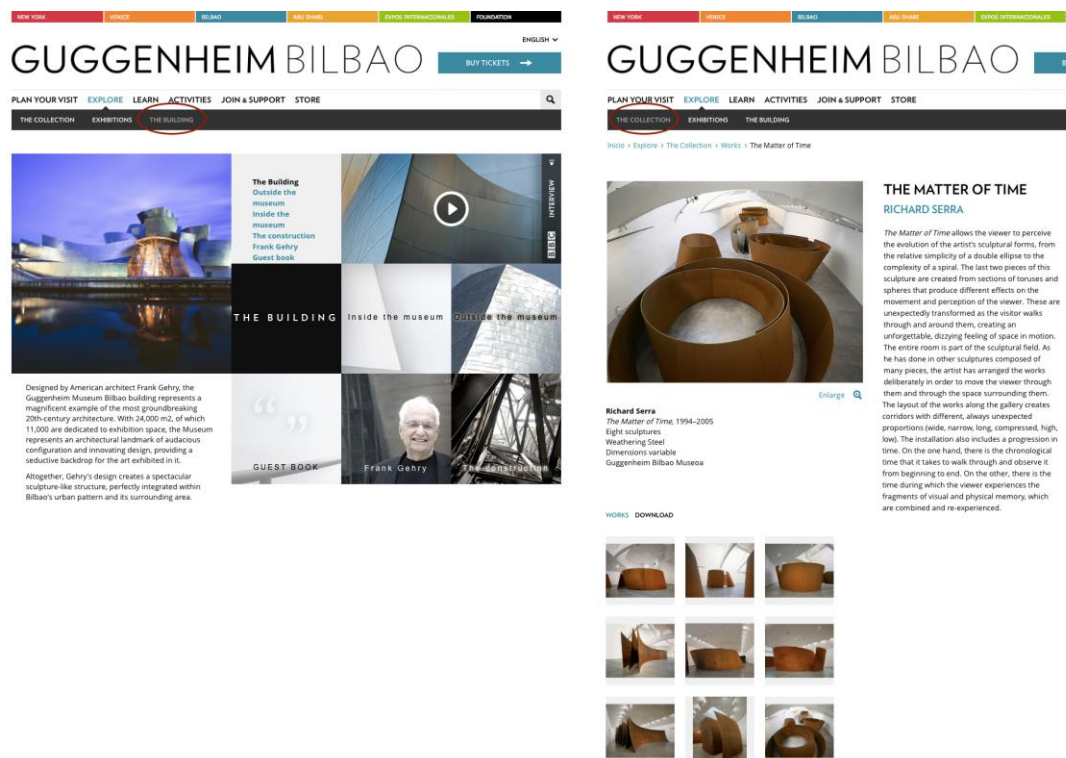
There is no museum in the sample that does not *re-present* the architecture of its building (through text-based information, accompanied in most cases by pictures of the building itself and its spaces) on the website (T.8), though, as we will see, the range and form of the information vary greatly. This consistency can be juxtaposed to the fact that only in two cases (the Neues Museum and the Pergamon Museum – both of the National Museums in Berlin) are views of the building – exterior in the former case and interior in the latter – used as the key pictures of the website home page, though, as will be suggested in the 'Discussion', different spaces of museums are also visually exploited to express individuality.

In a quarter of the cases (23%), the presentation of the building is part of the section devoted to the history of the museum, rather than discrete, and in almost half (42% – see T.9), it is done through videos, with their content, ranging from a general introduction to the museum to a discussion about its role in relation to the collections it is designed to accommodate, and to its urban environment (e.g. Branly, National Gallery). In contrast, in a few cases there are videos of interviews with the architect (e.g. Guggenheim Bilbao, Stedelijk Museum – see T.10). It is worth noting that special emphasis is given to the architectural-spatial design in cases of new projects, such as the World Conservation and Exhibitions Centre of the British Museum, the extension of Tate Modern, and the refurbishment of Tate Britain, the annex of the Stedelijk (Fig. 5), the new entrance of the Van Gogh Museum, and in particular the new spaces of the Galleria degli Uffizi, to which a microsite is devoted. Finally, two cases privilege the museum architecture with respect to display: the Guggenheim Museum, Bilbao, where the 'Explore' section of the website, which in most cases is devoted to the collections or the exhibitions, here includes also 'The building' (Fig. 6); and the Neues Museum which proposes an architectural virtual tour, accompanied by audio commentary, focusing on the presentation of the spaces after the restoration work by David Chipperfield, and before the setting up of the display.





**Figure 5.** Two screenshots of the Stedelijk Museum website, with the architect presenting the architecture of the annex in relation to the city and the main building.



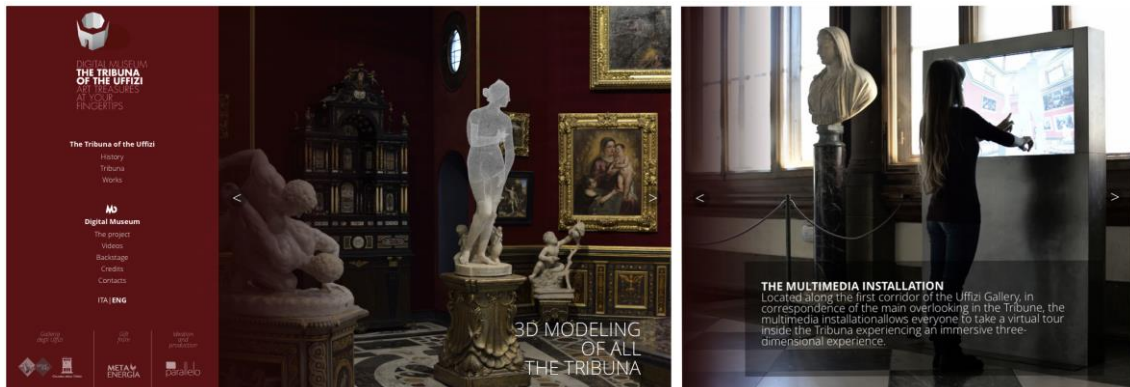
**Figure 6.** Two screenshots of the Guggenheim Bilbao website, illustrating the emphasis on the architecture of the building, shown in parallel to the museum collections on display.

## Virtual Visits: Aspects of Spatial Experience

The case of the Neues' architectural tour brings us to our next theme, the availability of virtual visits. 35% provide some kind of 'virtual tour' of the museum or selected galleries (e.g. National Portrait Gallery), 40% offer this through the Google online platform, while 12% do both (T.11 and T.12). In some cases, the virtual tour allows the visitor to 'walk through' the spaces, with either no information (e.g. Belvedere) or information restricted to the theme of each gallery (e.g. Kelvingrove), or with musical accompaniment (e.g. Vatican Museums' Capella Sistina, Kremlin Museums). In other cases, online visitors have a more 'real' sense of moving in space (e.g. Louvre, Thyssen-Bornemisza), in that they can 'circulate' from one gallery to the next, click on a

painting to get a closer view, read its text label, and be directed to the database for additional information.

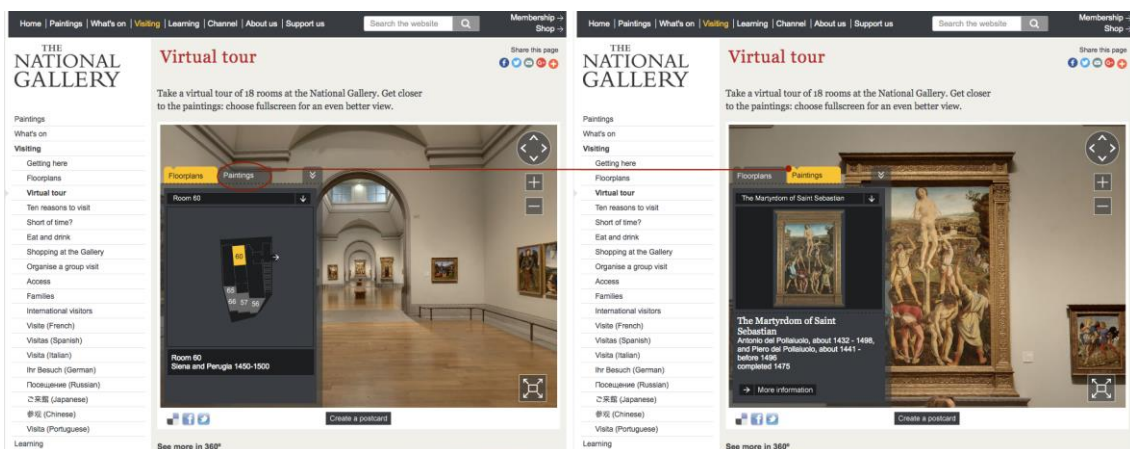
Special reference should be made to the Galleria degli Uffizi and in particular its key space, the Tribuna. Since its restoration in 2012, the Tribuna is not accessible to museum visitors, and instead a 'Digital Museum' is offered, a multimedia installation that recreates the experience of visiting it, accompanied by information and comments on the works of art and 3D models. Intriguingly, this project is presented in depth on the Uffizi website, creating an unexpected synthesis between museum and website (Fig. 7).



**Figure 7.** Two screenshots of the Uffizi website, with the online presentation of the 'Digital Museum' of the Tribuna, which is accessible from the real space of the museum.

### Interactive Plans: The 'Map of Knowledge'

Another form of navigation through the spaces of the museum is possible through interactive floor plans. The majority of cases (72% – see T.13) provide maps in the form of printable pdfs, and over half (54% – T.14) offer interactive floor plans, while a considerable number (42%) provide both, and only 16% neither. The interactive floor plan allows some degree of exploration, depending on the depth and extent of material made available. This varies from basic information about themes of galleries (e.g. Vatican Museums) or departments (e.g. Kunsthistorisches Museum, Museu Nacional d'Art de Catalunya) to links to the online catalogue (e.g. National Galleries Scotland); and from pictures of exhibits (the majority of cases) to panoramic views of galleries and even sequences of spaces and connections to other galleries (e.g. Hermitage, National Gallery – Fig. 8).



**Figure 8.** Two screenshots of the National Gallery London website, where interactive plans are linked to the virtual walk-through experience of the galleries and the online catalogue of the collections.

## Personal Online Collections and Visitor Trails: Alternative Viewpoints

We last turn attention to two features that could be seen as allowing a degree of more individual exploration and as potential alternatives to the 'formal' museum itinerary: personal online collections and visitor trails, available in about a third and a quarter of the museum websites respectively (T.15 and T.16), while four museums propose both.

From the point of view of personal collection systems, Orsay, Reina Sofia, Museu Nacional d'Art de Catalunya and Hermitage can be described as best examples, allowing the online visitor to select his/her favourite exhibits from the interactive map, and on this basis create a personal route through the display, which can be printed as a customized map showing their location as well as information about them. Moving to the visitor trails, and with the exception of the Louvre, the British Museum and the Prado which propose mainly itineraries based on the length of the visit, museums tend to offer themed trails, including architectural trails (e.g. National Gallery, Victoria and Albert Museum). Distinctively the routes proposed by the National Gallery and Branly are organized as a continuous narrative, rather than a sequence of objects, accompanied by the museum layout in a printable format.

Concluding the above discussion of the individual themes, two comparative comments are in order. First, the only themes common to all websites (see bottom row 'Theme Totals' in Tab. 1), are information, textual and visual, about the architecture of the building and the display, closely followed by the online catalogue for the collections (or their highlights), while architectural interviews are the rarest. Second, in terms of the number of themes used by each museum, Louvre, National Gallery and Reina Sofia are the cases with the highest number of themes (14), followed by Branly and Uffizi (13), against an overall average rate of 8 themes.

## Comparative Analysis: Three Modes of Relating Real Museum and Website

In the light of the above description of some of the main dimensions of variability in the ways museums index *spatiality* on the website, this section will focus on nine themes (T.2, T.3, T.5-7, T.9-11, T.14) which most explicitly cover the presentation of the museum's *form* of knowledge, that is, the display organization and the curatorial intentions and choices, and the clarity of representation of the spaces through which the display is realized. Taking into account the proportion of these themes on each website, the way they are formally 'interpreted' (for example through visual or textual information) and the degree of the interrelations between the themes, we propose that three strategic approaches, and so groups of museums, can be identified, corresponding to three modes of relating the real and the virtual, which we will term the *synergetic*, the *presentational* and the *discursive*.

**Table 2.** Comparative frequency of key themes in the *synergetic*, the *presentational* and the *discursive* cases.

KEY THEMES		MODE OF RELATION MUSEUM-WEBSITE		
		synergetic	presentational	discursive
1	display database	91%	43%	22%
2	gallery pictures	82%	7%	–
3	interactive floorplans	82%	64%	28%
4	museological rationale	73%	29%	22%
5	virtual visits	73%	43%	6%
6	display videos	64%	50%	22%
7	display interviews	55%	29%	17%
8	architectural videos	55%	64%	17%
9	architectural interviews	36%	22%	6%

A quarter of the museums in the sample belong to the first group (in red in the last column of Tab. 1). These have in common that they *re-present* the different dimensions of their *spatiality* through a richness of material (all but one have more than the average number of themes), in terms of both content and format, and, most importantly, systematically interrelate them. As indicated by the theme percentages (Tab. 2), nearly all their websites include pictures of

galleries in the database, and combine this with one or more of the three themes of display video, display interview and museological rationale. They structure the information about the display organization, by relating, for example, pictures to galleries, and galleries to works displayed; they encourage exploration by making available interactive floor plans and dedicated databases that allow search by gallery; they introduce online visitors to curatorial work through behind-the-scenes videos and interviews. It might be argued that these museums seem to communicate, through the website, the idea of 'the architecture, the collection, the authorship' [as] important': 'how these things intermingle and guide you is what matters', 'they are a Gesamtwerk' (Ex 2014, 81, 86). The National Gallery (Fig. 8) and Branly are perhaps among the best examples of this mode of relating the museum and its website which can be identified as *synergetic*. Through synergetic relations of the themes, the museum seems to aim at a picture on its website of the visual, intellectual and spatial experience of the real museum, expressing its identity and distinctive character, and conveying the 'spirit of the place'.

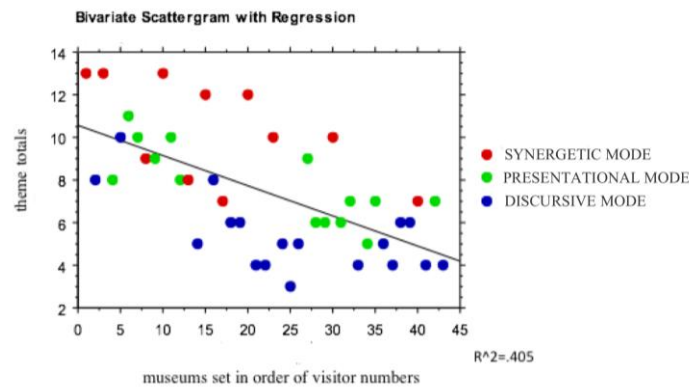
Museums of the second group make up nearly a third of the total (in green in Tab. 1). What differentiates them from the previous group is that they *re-present* dimensions of their *spatiality*, either through comparatively fewer key themes (less visual material in particular) or through themes being less integrated with each other. By implication, the different dimensions of the *spatiality* tend to be 'experienced' individually and their meaningful relations are not brought to the surface (Tab. 2). However, though only a very small percentage of these websites includes gallery pictures in the database, they make available visual material in other forms, namely through the availability of display and architectural videos as well as virtual visits. These combined with interactive maps allow online visitors to form a reasonable picture of the architectural and exhibition spaces and the collections displayed, but not to sense the individual character of the visiting experience as clearly as with the first group. Guggenheim Bilbao is good example of this *presentational*<sup>2</sup> mode of relating museum and website (Fig. 6) .

Museums which are included in the third group make up a little under half of the total cases (in blue in Tab. 1). The defining feature of their websites is the absence of pictures of galleries in the display database and of interactive maps featuring individual galleries, combined with a very low percentage of virtual walks and videos. Overall, they restrict – in varying degrees – material about the visual experience of the displays and the physical qualities of spaces (Tab. 2), and leave such aspects of these as they have even less interrelated than the second group. It could be argued that museums of this group privilege object information rather than aspects of display experience, that is, the *field* – rather than the *form* – of knowledge of the museum, and so promote a *discursive* (language-based) mode of relating to the website. It is exemplified by MuCEM, and the Imperial War Museum where physical and online space seem two worlds that exist in parallel. The most intriguing cases are the British Museum (Fig. 2) and Tate Modern, where the depth and breadth of the information provided about the objects displayed is in contrast to the paucity of representations of galleries.

As noted, Tab. 2 provides a quantitative profile of each group. More intriguingly perhaps, Tab. 1 which shows their distribution in the sample, reveals at a glance an underlying relation between visitor numbers and models: the *synergetic* cases are concentrated on its upper part with the most visited museums, while the *discursive* tend to be in its lower part. This pattern can be confirmed by plotting the total number of themes for each museum against its position in Tab. 1 (Fig. 9), and dividing the sample into the three groups. The scattergram shows that the *synergetic* cases (red points in the scattergram) use, in the majority of instances, significantly more themes to *re-present* the real museum than would be expected on the basis of visitor numbers alone; and that, in contrast, the *discursive* ones (blue points) use significantly less. This suggests that, in both types of case, there is a distinct philosophy in operation which we will explore next.

<sup>2</sup> The distinction is adapted from Langer (1951) and her concepts of *discursive* (of language) symbolism as opposed to non-discursive or *presentational* symbolism.





**Figure 9.** Scattergram plotting the total number of themes for each museum (coloured in terms of its mode), on the vertical axis, against its position in Tab. 1, from left to right, on the horizontal axis.

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### Theoretical Interpretation: The Performing Museology Approach to the Website

What principles then underlie the differences between the websites? How can these differences be accounted for in terms of current museum thought? First, we will argue that which of the three modes museums select for relating the real to the virtual seems to reflect the degree to which they see the website *re-presentation* of *spatiality* in terms of a *performing*, as opposed to an *informing*, *museology*. The distinction between the two museological approaches has been discussed by Kirshenblatt-Gimblett (2000; 2006; Frey and Kirshenblatt-Gimblett 2002), arguing that the latter considers the museum as ‘a neutral conduit for the transmission of information’, while the former focuses on the specificity of the museum and treats it as ‘an art practice’, ‘a distinctive medium’, through which the *form* of knowledge can be communicated. A related argument was advanced by Bal (cited in Mason 2006; 28; also Bal 1992), who contrasted the ‘object-function’ of museums to what she called the ‘metamuseal function’, namely the ‘foreground[ing of] their own histories and contexts within the space of their displays’. More recently, Scorch (2009) drew attention to ‘a shift in conceptualizing exhibitions from products to be presented to *processes* to be revealed’, in the sense of the exhibition functioning ‘as a medium to open the door to behind-the-scenes, and to both museum discourse and agency’.

In our sample the first and the third groups (or the *synergetic* and the *discursive* modes) represent respectively the two theoretical poles of *performing* and *informing museology*, since so many themes indexing *spatiality* are present in the former and are dealt with in an interrelated way, while most of these themes are lacking in the latter, and emphasis is given to information. The second type (the *presentational* mode) seems to lie between the two, but comparison of the theme percentages suggests that it is closer to the *performing* than to the *informing museology* approach. Fig. 10 summarises the conceptual and methodological framework for interpreting the strategic differences between websites.

The fundamental distinction between *performing* and *informing*, which is increasingly addressed in the museum studies literature, enables us to propose a possible insight into a key

question initially raised at the beginning of the paper, why museums – and, as evidence suggests, many leading museums – seek to transmit their *spatiality* through the website. It is suggested that this can be summarized in terms of two interrelated theoretical objectives, both of which express currently changing views of the relation between museum and visitor:

- To enable visitors to see its interpretative ‘processes in practice’;
- To open up to bottom-up exploration and place emphasis on the visitor-as-reader.

Let us briefly explore each of these objectives with examples of their expression on websites.

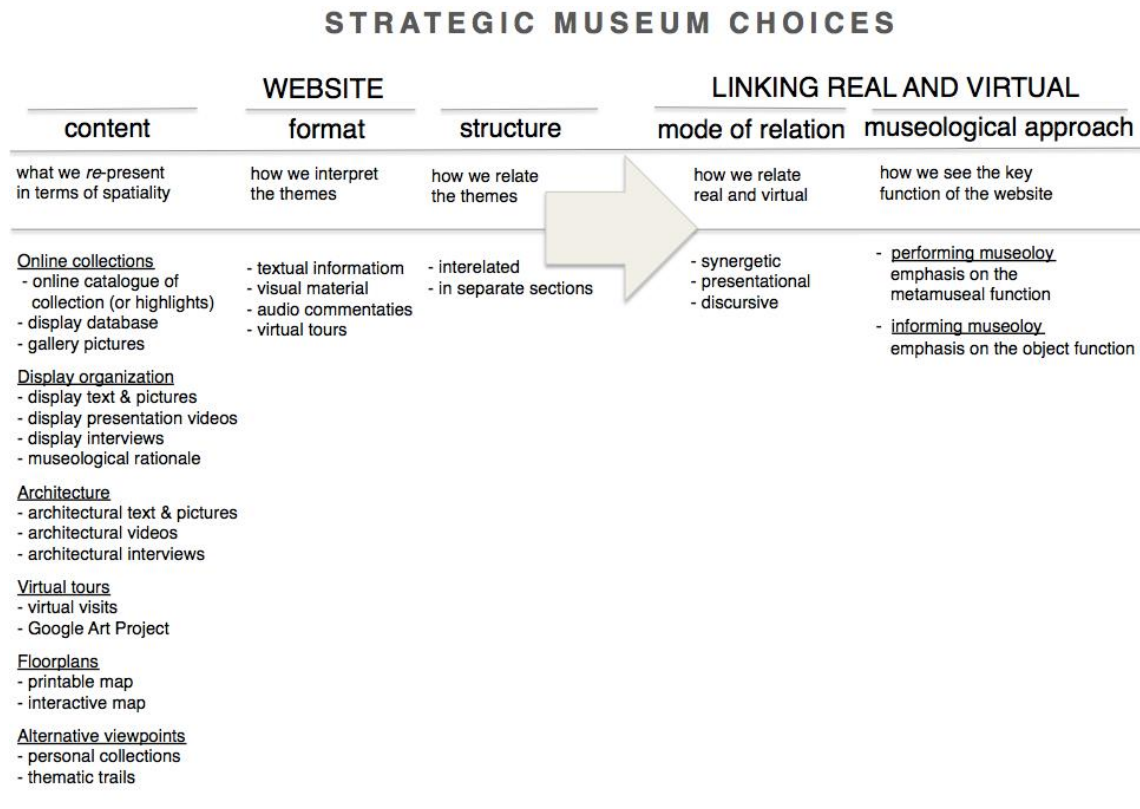
### Enabling Visitors to See the ‘Processes in Practice’

The *re*-presentation of the real museum, especially through videos, can support in a powerful way the intent to show visitors how space in the galleries plays a critical part in realizing the *form* of knowledge the museum transmits. In the National Gallery London, for example, the director explains how the architecture of the Sainsbury Wing suggests an elemental expression of the ecclesiastical context of the paintings. Similarly, the director of the Musée du quai Branly uses sequences of spatial views to illustrate the logic of the display and show how the real museum, through its form and layout, can contribute to its meaning. In a series of videos, the director and curators of Tate Britain explain their idea of a more open display by ‘dispensing with traditional art historical constructs’ to present new ways of thinking about British art. Aiming to show how the museum works both ‘as showcase and laboratory’, they introduce online visitors to the displays by room, revealing the meanings of their groupings as well as of their disposition in space, and so emphasizing in Bal’s terms the ‘*metamuseal function*’.

The very fact of presenting the museological rationale on the website (as in 73% of the *synergetic* museums), and so making ‘visible’ the physical, spatial and conceptual logic of the museum, aims to draw attention to the museum’s interpretative contexts, or what is described as ‘the constructed and plural nature of “histories”’ (Mason 2006, 22), showing ‘a call to understand the meanings of museum objects as situated and contextual rather than inherent’ (Macdonald 2006, 2). In Pompidou, the director presents the new hang of the modern art collection, pointing out, at the very beginning of his commentary, that the circuit is based on the history of art but at the same time is subjective, as are all circuits. In a comparable way, in the Reina Sofia it is explicitly acknowledged in the online mission statement that the museum does not present an ‘exclusive’ story. In this way the museum renders visible to its visitors the function of interpretation, ‘a core function of art museums and as much a part of their reason for being as conservation, collecting and exhibiting’ (Whitehead 2012, 179).

### Facilitating a Bottom-up Approach and Placing the Emphasis on the Visitor-as-reader

The techniques of interactive plans (found in 82% of the *synergetic* cases), through which the visitor can explore the structure of the museum and its display as well as create personalized itineraries, and thematic trails, show different spatial interpretations of the display, and all have, as McTavish argues, the potential both to ‘reaffirm traditional definitions of museums and suggest critical challenges to them’ (2006, 235). The emphasis is shifted ‘away from the curator-as-author [...] toward the visitor-as-reader’ (Mason 2006, 27). Similarly, as variations of this, videos and audios, offering ‘behind-the-scenes insights and viewpoints from a range of voices’, allow online visitors to approach museum information from a different point of view to that which the information creators might have considered. So even by using these techniques to present the top-down views of curators and architects, the way is opened up to their use for bottom-up exploration and challenge’. From the perspective of the arguments in this paper, the critical point is that bottom-up challenge is facilitated by the degree to which the spatial, visual and intellectual structure of the real museum is represented on the website and made accessible to the online visitor.



**Figure 10.** A conceptual and methodological framework for exploring the *re-presentation* of the museum's *spatiality* on its website.

## Discussion

If these arguments, and the interpretative framework that binds them together, are plausible, then the *re-presentation* of the museum's *spatiality* on the website reflects changes in the social and cultural significance of the museum as well as in the interface of museum and visitor. This discussion can only be an elementary step in the direction of developing a wider understanding of the generative, rather than reflective, role of the museum website. But it is clear that one area that should be explored in technical terms is the relation between the *synergetic* model and the current preoccupation with interoperability, both within the museum's different knowledge bases, and between museums. Our research suggests that making visible the *form* of knowledge of the museum, and so its *spatiality*, requires the bringing together of different aspects of the museum, and so the linking of its different departments and areas of research. It is of interest from this point of view that the Prado Museum explicitly argues that launching an integrated document management system, based on knowledge bases belonging to the different museum departments that work with the collections, had changed the 'institution's mentality' and 'way of working'. Its future aim is to interconnect the museum's document database with other museums via their websites (Pantoja et al. 2016). These developments indicate that the virtual can increasingly contribute to the real through augmenting the opportunities for exchange and re-use of information, both internally – by bringing together and *re-presenting* the different dimensions that make up the museum on its website, as in the case of the *synergetic* model – and externally – by aiming to create interoperable networks of museums.

In more theoretical terms, future work must extend the research not only by examining and comparing cases outside Europe, but also by exploring the contribution of the *re-presentation* of the museum's *spatiality* on its website beyond museological goals to include the shifting roles of the contemporary museum – enhancing access and supporting learning, for example, as well as being an income generator. It is widely acknowledged that, in the competitive leisure marketplace, museum architecture provides added value to the museum experience (Kotler, Kotler and Kotler 2008, 311) and that the museum's image and individuality, both as a building

and in terms of its internal spatial character, are increasingly powerful, economically as well as culturally. This is clearly a feature of our sample. For example, Guggenheim Bilbao strongly expresses its role as a dominant factor in the image of the city by showing its unusual internal spaces without reference to exhibits, so giving the impression that these spaces are part of what is being exhibited by the museum. The same may be said for the architectural tour of the Neues Museum, shown before the installation of the collections (see above).

It is no accident that galleries which are distinctive in some sense are also used to project the individual recognizability of the museum. Hermitage, for instance, shows images of striking gallery spaces where works of art seem an integral part of the design of space. Similarly, Louisiana provides a series of pictures of both its galleries and its park, with the works of art consistently related to the spatial setting. This interweaving of art and nature emphasizes the distinctive and attractive character of the spaces and promotes the museum's unique and memorable sense of place.

But perhaps it is more intriguing to find that in museums of the *informing museology* approach, that place the emphasis on the 'object function' and so restrict visual information about the galleries, as for example the British Museum or Tate Modern, their social spaces, the Great Court and the Turbine Hall respectively, are visually exploited in the website to define the museum's dominant image.

## Conclusion

Concluding, and looking back at the concept of the 'virtuous circle' between 'physical and virtual spheres' (Barry 2006) noted in the Introduction, we can now see that, beyond enriching the visitors' experience of the real museum by creating access to additional information, websites can enrich the online visitors' experience by making them vividly aware of the *spatiality* of the real museum and its relation to its *form* of knowledge. Even more significantly perhaps, it has been shown that this added dimension of the 'virtuous circle' can be pervasively visitor-oriented. This is critical in the context of the contemporary aims of museums to develop a more 'participatory culture', with their websites increasingly incorporating user-generated content and encouraging social networking. The relation between the museum and its website, through the *re-presentation* of its *spatiality*, may be seen as the museum exploiting in its online space the potential to reveal its nature as 'an active agent in constituting knowledge and experience' (Frey and Kirshenblatt-Gimblett 2002, 59) and so, in the manner of *performing museology*, 'make the museum perform itself by making the museum qua museum visible to the visitor' (Kirshenblatt-Gimblett 2000).

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