Web Strategy in Museums:
An Italian Survey Stimulates New Visions

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The **Digital Cultural Heritage** research group was created in 2015 by the Italian National Committee of ICOM. It is made up of five professionals with interdisciplinary expertise in the field of cultural heritage: Sarah Dominique Orlandi, coordinator; Gianfranco Calandra; Vincenza Ferrara; Anna Maria Marras; and Sara Radice. The research focuses on web strategy in museums, creating tools for their promotion, self-evaluation and planning. A research agreement was signed with the Italian Ministry of Culture. Enrico Bertacchini, University of Turin, carried out the data analysis. Tiziana Maffei, Chair of ICOM Italy, and Valentino Nizzo, Director of the Museo Nazionale Etrusco, supported the project.

Museums and cultural organisations have the public duty to present, communicate and make heritage accessible to the public. Online presence is an important opportunity for museums, which enables them to establish a continuous dialogue with their visitors, as well as other institutions. In this digital age, online infrastructures such as institutional websites, social media, and online catalogues have become essential in the elaboration of a web strategy connected to and integrated in all museum activities.

Digital technology provides new opportunities and challenges for museums in terms of the communication and dissemination of knowledge, access and use of digital collections as well as creation of bonds and interaction with their audiences (Bertacchini and Morando 2013). The potential offered by the Web is diverse and ever-evolving, as documented by the pluri-decennial experience of the *Museums and the Web* international conference, the first edition of which was held in 1997.

Museum communication and the Web

For any institution, a precise and well elaborated online strategy is one of the principal tenets of its overall communication strategy. The Web provides museums with additional tools to reach and consolidate the 'heritage community', an aim articulated in the Faro Convention (2005). John Stack argues that 'there are significant opportunities for social media and new digital platforms to revolutionise the visitor experience as well as transform the practices of learning, research, curating and fundraising within the museum' (Stack 2013, p.3). Tallon and Walker likewise question whether museums are 'ready to deal with a future of user-generated content' in terms of 'rights management, information management, permissions, workflow, and strategy' (Tallon and Walker 2008, p.7).

A web strategy connects the main institutional website with all other digital tools. It elaborates criteria to evaluate the content and quality of a museum's website and social platforms. Online presence should be coherent across the Web, designed as a connected system, and comply with the museum's mission. Museum practice tends to act in both physical and virtual contexts. As the museum becomes more digital, which approach—if any—should it take regarding digital strategy? Recent studies suggest that web strategy should not be considered as disconnected from the 'real', physical museum, but as a part of the museum's core (Evjen and Stein 2017).

The Italian context

In Italy, the 2014 reform of the State Museums was approved; it led to the articulation of a 'definition for the standards of management and promotion of museums, in line with international standards'.[1] The reform also brought about organisational changes, and created new opportunities for communication and digitisation strategies within cultural institutions, in accordance with national and international guidelines. This reform has also affected non-state museum institutions. The most explicit element of this 'transformation' is the constant search for new communication and digitisation-related strategies, together with a renewed attention towards the engagement of the public.

Italian museums must now implement a web strategy, although there is evidence that web presence is not widespread. According to the 2016 survey conducted by the Italian National Institute of Statistics (ISTAT), only half of the Italian museums have a dedicated website (57.4 per cent against 50.7 per cent in 2011) and 40.5 per cent have a social media account (such as Facebook, Twitter, Instagram, etc.). Therefore, websites and social platforms do not promote cultural accessibility by themselves. Cultural accessibility should be pursued through other activities.

A 2011 European Commission Recommendation on the digitisation and online accessibility of cultural material and digital preservation highlights the use and re-use of digital cultural heritage content for different purposes, such as learning, tourism and other applications, to improve the engagement of a diverse public audience. Educational departments in museums have created many projects aimed at discovering new ways of reusing content in cultural institutions. Web strategy is particularly useful to motivate user collaboration (Ferrara 2014).

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The National Committee of ICOM in Italy is committed to consolidating the museum community through regional coordination, thematic commissions and working groups. It aims to encourage active participation, in addition to the exchange of experiences and research partnerships on cultural heritage-related issues. The work carried out by the Digital Cultural Heritage Group conforms with these aims, insofar as it acknowledges that one of the challenges that cultural organisations are facing is how to define, measure and evaluate their effectiveness on the Web. The Digital Cultural Heritage Group's research focuses on web strategy in museums, and creates tools for their promotion, self-evaluation and planning. A national survey to collect data for quantitative analysis was disseminated and, thanks to a research agreement signed in 2017 by ICOM Italy and MiBAC, we were able to reach museums of every type and size within the national territory.[2]

There is a growing interest in collecting data through surveys on digital communication strategies adopted by museums, even if few experiences are documented to date, and so we decided to define a set of parameters to enable more in-depth observation (Gobbi and D'Ambrosi 2017). The survey has a twofold objective: to provide museums and cultural institutions with a practical tool for the analysis and monitoring of their strategic online orientation, and to design a tool that precedes and supports the implementation of a web strategy.

The online survey consists of 17 questions, and covers five essential topics:
– Information architecture (e.g. menu, links)
– Content strategy (e.g. differentiated targets, internationalisation)
– User interface design (e.g. responsive design, visual identity)
– Community building (dialogue between the museum and the public, online catalogues, monitoring)
– Creative (re)use of contents (e.g. user content management, content re-use)

The survey's questionnaire comprises all the parameters required to obtain an effective result and the necessary systemic approach. Three sections are dedicated to the website, followed by sections on community building actions and, finally, to the creative (re)use of contents. Each parameter must be taken into consideration and developed.

Web standards

The implementation of the ICOM Italy and MiBAC monitoring project was developed within the context of standardisation of digital processes, which has a general reference both on the European Digital Agenda and on the Italian Digital Agenda directives.[3] The Italian Digital Agenda is under the supervision of the Agenzia per l'Italia Digitale (AGID), which is subjected to the Italian digital standards definition. AGID provides guidelines and national standards for the Digital Public Administration, together with a free self-training online kit, which focuses on the following aspects: ecosystem, web analytics, usability, user experience.

Our references on web accessibility issues were the W3C Web Content Accessibility (WCAG) international guidelines. For Digital Libraries and the methods for the publication of cultural content, we used the Europeana publishing guidelines and Cultura Italia. Furthermore, since 2015 the Istituto Centrale per il Catalogo e la Documentazione (ICCD), has released for the first time in Italy an Open Data catalogue card, thanks to the OpenICCDproject. The latter is an interesting model to share knowledge and promote the re-use of data.[4]

The research group, in addition to the work carried out to elaborate the above-mentioned guidelines, conducted a general screening of the web strategy of Italian museums, and reviewed academic literature on topics related to web strategy in museums generally.

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Methodology: 17 parameters to monitor museum web strategy

In order to evaluate the web strategy of Italian museums with quantitative data and indicators, we defined a set of parameters to be included in the online questionnaire. Insofar as many of the existing standards are not specifically designed for the museum context, the research group focused on indicators that are consistent with the mission of the museum, in particular its engagement with a new and diversified public, in the aim of creating an online community and ways of promoting audience participation in the interpretation of cultural heritage.

The online questionnaire consisted of two sections. The first section sought to determine, in terms of the institution and questionnaire respondent:
– the type of the institution and its geographical position
– the professional role of the compiler
– the platform used for the implementation of the museum website, specifying whether it is built internally or externally to the museum
– the number of staff resources dealing with digital activities, their professional skills and hours per week dedicated to the website's management

The second section of the questionnaire was designed as a self-assessment tool for museums on the level of the development of their web strategy. Seventeen parameters were defined to establish the primary web strategy priorities, dividing the questionnaire into five areas (i.e. 'levels'), which range from simple to complex strategic objectives for such aspects as information architecture, content strategy, user interface design, community building, and the creative (re-)use of content. The answer to each question in this second section is structured on a four-point scale (with increasing values), making them ordinal variables.

Fig. 1. The roundtable held in Milan. © ICOM Italy— Digital Cultural Heritage research group

Thematic structure

The questions related to 'information architecture', aim to establish how the data are structured, according to three specific parameters: the organisation of the menu and its positioning; the presence of internal and external effective links; and the correct hierarchisation of textual content.

The second level, 'content strategy', analyses the use of texts, images, and other multimedia content, which should be representative of the museum's institution and adapted for the Web in terms of quality and format, by using targeted texts and multimedia content.

The definition of content according to the audience targeted and to the website structure (e.g. adults, general public, families, schools, specialised operators); the usefulness of the information provided (e.g. timetables, map, activities programme, costs, contacts, museum mission, organisational chart, research activities); the availability of content in multilingual versions.

The third level, 'user interface design', explores the efficiency of the website's interface and visuals. Navigation should be as simple and efficient as possible for all users, thanks to a correct and balanced use of non-verbal communication tools devised for a user-centred design. The three questions concern usability (and specifically the effectiveness and responsiveness of the museum website), and how the website reflects museum brand identity.

The fourth level, 'community building' analyses user interactions, and interaction between users and the cultural institution. Four indicators help determine the use of social media and other national and international sharing platforms for content dissemination, as well as the use of web analytics tools.

Finally, the three questions related to the fifth level, 'creative (re)use of contents', focuses on the possibility of active engagement of the public through content re-use and editing on either external platforms (e.g. forums, blogs, social networks, and specific platforms), or a specific section of the website. Results confirm that long-term objectives of strategic importance are articulated here, regardless of their experimental nature as of yet.

The research parameters were defined based on considerations of the latest developments in online content communication strategy, of the web presence of Italian museums and of the national guidelines provided by AGID and international parameters of analysis. The typology and formulation of the questions were discussed extensively and created to be 'inclusive' and comprehensible, removing technical terms and using short sentences. A range of answers was also offered, allowing people to easily identify themselves with the respective records.

Questions and answers

In order to provide a sample of the online questionnaire, the tables below present two questionnaire parameters. The title of each parameter highlights the main objectives, and the range of tools is mentioned only within that specific parameter. A brief introduction was included in each parameter, and the set of answers was written in a conversational tone, also providing useful information and suggestions.

MUSEUM—PUBLIC DIALOGUE
The possibility for the public to dialogue with the museum in order to create or consolidate a virtual community

1. Absence of contact details (online form, email) which allow the user to contact the museum staff for a specific reason.

2. The public has the possibility to exchange with the museum. Contact forms and museum staff email addresses are available, but enquiries are not dealt with rapidly, causing user dissatisfaction.

3. The public can initiate a dialogue with the museum. A contact form and an email for the museum does exist; response time is quick.

4. Social activities are planned periodically or for specific projects, in which the public actively takes part. Remote interaction with the museum and/or between users also takes place (e.g. 'Ask a curator'), also related to specific projects (as illustrated here: www.brooklynmuseum.org/exhibitions/click).

Parameter 4.2 (Community building level)

CONTENT RE-USE
Licences and copyright information about the re-use of content included in the website under the section 'Terms of Use'.

1. There are no indications on how to use the content, not even in the 'Terms of Use' section.

2. There is no policy for content re-use, but there is the explicit possibility to use the proposed content (social media sharing buttons).

3. The indications on how to use and re-use the content are present but not clear. The users can save content available on the website.

4. Creative Commons licenses are present. It is possible to save content and re-use it.

Parameter 5.2. (Creative re-use of content level)

Participatory process and dissemination

In Italy, there are 4,158 museums, 472 of which are state-owned. The questionnaire was sent directly to institutional members of ICOM Italy. MiBAC invited museums to fill out the questionnaire by sending an internal document addressed to the state museums' territorial bodies (i.e. Poli Museali Regionali). Furthermore, the research group, through a series of events organised on the national territory, launched an engagement campaign by meeting directly with the various museum institutions, and encouraging their involvement through coalitions of museum professionals. The questionnaire was disseminated exclusively online, by using Google Form, and the estimated time for filling it out was one hour and a half (Fig. 1).

Museum representatives collaborated and shared their ideas throughout the research process, from brainstorming to survey design, to the analysis of the results and the final discussion, which culminated in the organising of two public roundtables held in Milan and Turin, and a conference in Rome. The representatives of the museums who completed the questionnaire participated at the meetings in Milan and Turin, where the preliminary findings were discussed. This led to an interesting debate about the interpretation of certain questions (such as re-use of content and open data), along with an expression of the doubts some answers provoked.

The conference held in Rome, on 9 February 2018, organised in collaboration with MiBAC, was attended by more than 170 skilled professionals and obtained press coverage. During this event, preliminary results and row data were presented and 15 experts were invited to address some of the main issues that emerged from the results of the survey: monitoring, targets and profiling, and licenses and copyright for digital content re-use (Fig. 2).

Results

The questionnaire produced a total of 185 valid responses, 129 of which are individual museums, 43 public or private organisations owning or managing networks of museums, while the remaining ones are cultural heritage institutions involved in museum activity with cultural web portals. To assess the representativeness of the sample relative to the whole population of Italian museums, we compared the characteristics of the museums in the sample with those provided by the Italian National Statistical Office's (ISTAT) 2015 Museum Census. Table 1 below presents the number of museums that belong to each organisation that responded to the questionnaire, and provides a comparison of the share of museums according to selected characteristics.

	Web Strategy Survey Sample	Museum Census Data
GEOGRAPHIC AREA	%	%
NORTH-WEST	15.55	22.85
NORTH-EAST	23.08	23.43
CENTRE	46.64	28.50
SOUTH	12.60	15.07
ISLANDS	2.13	10.15
Typology		
Pre-modern Art	20.95	13.30
Modern and Contemporary Art	6.55	8.48
Archaeology	16.20	12.32
Natural Science & History	7.04	6.99
Ethnography & Anthropology	6.87	13.91
Ownership type		
Public/State	36.71	8.82
Public/Municipal	31.59	42.99
Public/University	6.87	2.33
Private/Religious	3.60	9.99
Private/Foundation	5.89	4.66
Private/Association	4.75	9.65

Table 1. Comparison of characteristics of the sample of the museum web strategy survey with museum census data. © ICOM Italy—Digital Cultural Heritage research group

As for geographical distribution, 46 per cent of the sample—museum institutions located in the centre of Italy—were more responsive to the web strategy survey compared with other regions. Similarly, except for municipal museums, public museums tend to be overrepresented in the survey, in particular those managed by the MiBAC (36.7 per cent against 8.8 per cent). This is due to the high response rate to the questionnaire by the Poli Museali, the new administrative units that manage large public museum networks at a local level.

Figure 3 presents the mean values of the responses given on a four-point scale on the 17 components covering museums' web strategy. This indicator enabled us to identify the nature of the web strategy that, on average, has been declared more developed (on a four point scale). Interestingly, scores equal or higher than three can be found more frequently for information architecture (Level 1), content strategy (Level 2) and user interface design (Level 3), whereas the areas related to community building (Level 4) and creative (re)use of content (Level 5) tend to be less developed with mean values equal to or less than two (Fig. 3).

Overall analysis

An in-depth analysis shows that the first level, dedicated to information architecture, essentially collected three out of four scores for all the proposed questions: menu and contents (57.4 per cent), internal and external links (42.6 per cent), language used for the web (48.4 per cent). This means that users can identify the menu easily and that content related to the museum's actions are clearly presented. Moreover, internal links between the website pages are included, but few or none lead to external resources. Finally, titles and texts have semantic relationships with related content keywords.

As regards content strategy (Level 2), it is important to point out that the majority of respondents (43.2 per cent) mentioned the availability of high definition images, with complete captions and identification tags as part of a structured and comprehensive narrative. In addition, the website presents clear titles, readable and accessible texts, accompanied by images and multimedia.

As regards multilingual options, only 22.1 per cent of the sample translated the entire website in English; more than one third of websites (35.3 per cent) present the main contents in Italian and English, but the majority of the website is still available only in Italian; and Italian is the exclusive language for another third (35.3 per cent).
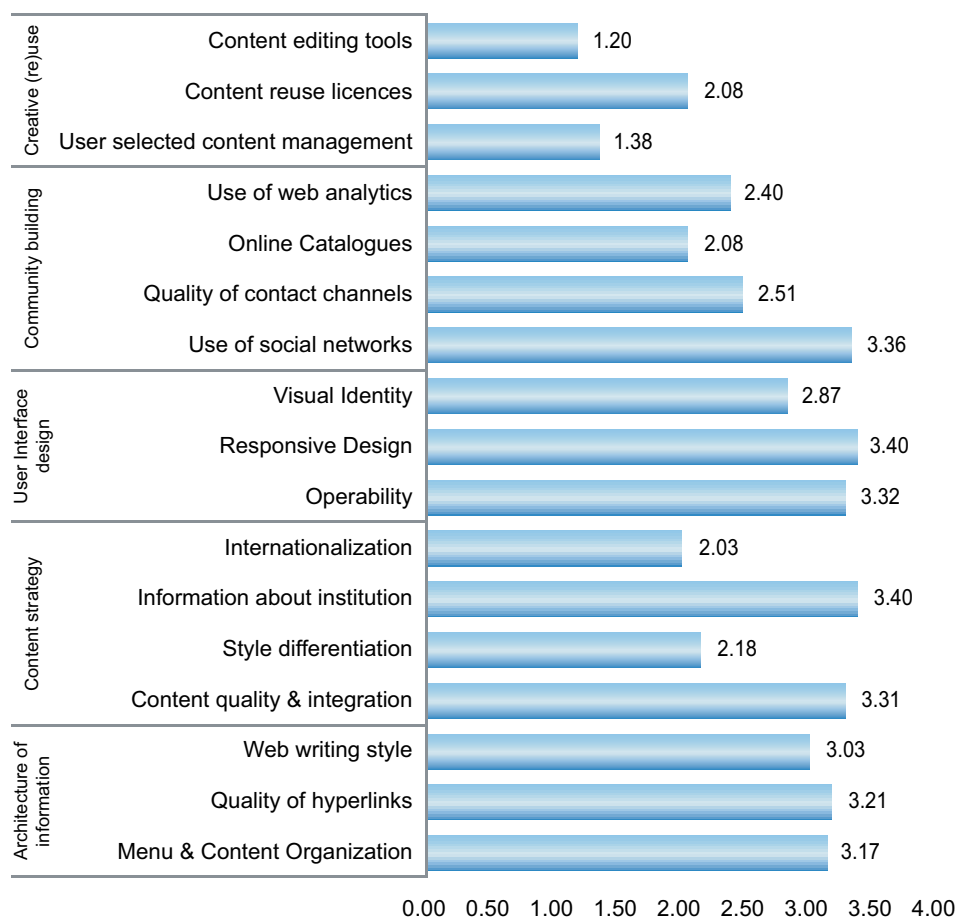
Mean Values (1-4 scale)

Category	Item	Value
Creative (re)use	Content editing tools	1.20
Creative (re)use	Content reuse licences	2.08
Creative (re)use	User selected content management	1.38
Community building	Use of web analytics	2.40
Community building	Online Catalogues	2.08
Community building	Quality of contact channels	2.51
Community building	Use of social networks	3.36
User Interface design	Visual Identity	2.87
User Interface design	Responsive Design	3.40
User Interface design	Operability	3.32
Content strategy	Internationalization	2.03
Content strategy	Information about institution	3.40
Content strategy	Style differentiation	2.18
Content strategy	Content quality & integration	3.31
Architecture of information	Web writing style	3.03
Architecture of information	Quality of hyperlinks	3.21
Architecture of information	Menu & Content Organization	3.17

0.00 0.50 1.00 1.50 2.00 2.50 3.00 3.50 4.00

Fig. 3. Self-reported opinions on the state of development of the web strategy in museums.
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The questionnaire section dedicated to the user interface design (Level 3) highlights a majority of responses with the maximum scores in the questions related to usability (52.6 per cent) and responsiveness (58.9 per cent), and the majority of responses with scores of three out of four in the question related to visual identity (44.2 per cent). It can therefore be concluded that the website navigation is simple and intuitive, and that the website is completely responsive and its interface adapted to different device types. Moreover, the layout is coherent with the museum's visual identity. However, it should be pointed out that in the subsequent samples studied an undoubtedly positive assessment of the graphic interface and the use of non-verbal communication tools suggests that the concepts of usability, responsive design, and visual identity should be better clarified.

As regards Level 4 (dedicated to community building), the results highlight that the sample (58.4 per cent) essentially shares the content on social media in a way that is consistent with the mission of the museum. Indeed, the language conforms to the stylistic criteria of online writing, and aims to stimulate curiosity and interest. In addition, users can also dialogue with the museum staff by using the dedicated contact sections of the website (51.1 per cent) (see Fig. 3). However, 44.7 per cent of the sample stated that museums do not propose any content that is accessible through external web platforms and that, if is present, it is not linked to the museum website (Fig. 4).

All in all, the last level, (creative (re) use of content) obtained low scores (1 out of 4). This reveals that users cannot manage, re-use, and edit any type of cultural content. In fact, most do not have any tool that allows the creation and management of personal content (73.2 per cent) and there is no dedicated space where users can make notes and comments (84.2 per cent). Moreover, 40.5 per cent have pointed out the absence of terms of use on the website as to content re-use.

Interestingly, content re-use licenses are more adopted (2.08 per cent) than other user engagement tools such as content management and editing. In fact, a deeper examination of the data shows that the adoption of licenses for content re-use is more often associated with higher scores reported for 'information architecture' and 'content strategy'. This signifies that the choice of licensing schemes is directly connected with content organisation and design rather than with an overall strategy for community building and audience engagement (Fig. 5).
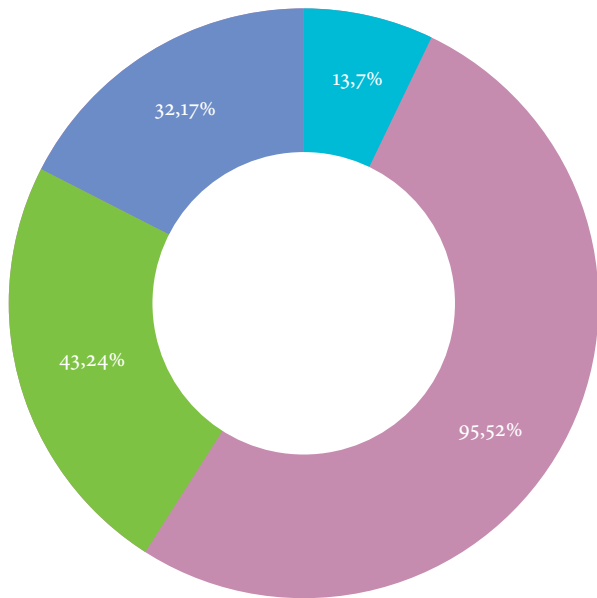
Museum—Public dialogue

■ 1. Absence of a contact form or of email references that allow the user to contact the museum staff for a specific reason

■ 2. The public can establish dialogue with the museum. Contact form and museum staff email are present, but the answer is not provided quickly and it does not satisfy the users

■ 3. The public can establish dialogue with the museum. A contact form and email reference for the museum does exist; the answer time is quick

■ 4. Social activities are planned periodically or una tantum for specific projects, in which the public actively takes part. There is also a remote interaction with the museum and/or between users thanks also to specific projects

Fig. 4. Results of Parameter 4.2, dedicated to the dialogue between the museum and the public. © ICOM Italy—Digital Cultural Heritage research group
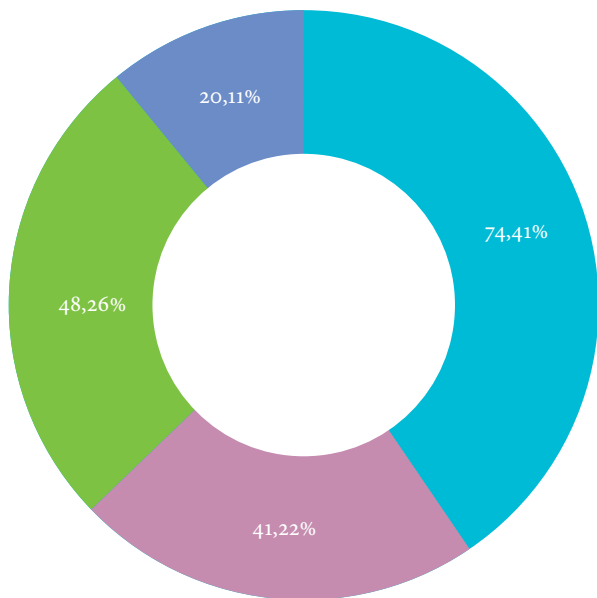
Re-use of contents

■ 1. There are no indications on how to use the content, not even in the section 'Terms of Use'

■ 2. There is no policy to re-use the content, but there is the explicit possibilty to use the offered contents (social media sharing buttons)

■ 3. The indications on how to use and re-use the content are present but are not clear. The users can save contents available on the website

■ 4. Creative Commons licences are present. It is possible to save contents and re-use them

Fig. 5. Results of Parameter 5.2, dedicated to content re-use. © ICOM Italy—Digital Cultural Heritage research group

Result variations

We investigated further to determine whether the variability in the responses to the 17 parameters stems from differences in the digital activities and organisation of the institution. As described in Table 2, we considered three main organisational levels of interest:
– The typology of the web platform adopted.
– The outsourcing of web design activities.
– Access to or managing of online tools by the museum's human resources teams.

Considering the type of platform adopted, the in-house/outsourcing of web design activities, or presence of staff with content management skills, there is no significant difference in the mean values in several of the 17 dimensions surveyed. As shown in Figure 5, the choice between Museo&Web,5 proprietary or free/open source Content Management System (CMS) does not lead to clear diverging patterns in the development of the different web strategy components. Museums that adopted free or open source CMS tend to have slightly higher scores in web interface design compared to museums that adopted other platforms. However, they obtained lower scores on Online Catalogues and Style differentiation (Fig. 6).

Variable	
Share of museums according to the type of Platform Adopted*	**%**
Museo&Web	10.81
Free/Open Source CMS	47.03
Proprietary CMS	20.00
Share of museums according to organisation of web design activity	
External (web agency)	49.73
Internal (museum team)	42.70
Internal and external	7.57
Mean	
Average number of people with credentials for content update	2.64
Average number of people working on social network activities	1.94
Average number of hours per week dedicated to website management	4.32

Table 2. Descriptive statistics for selected variables of museum digital activities and organisation according to the survey sample. © ICOM Italy—Digital Cultural Heritage research group
*Displayed only the most frequent typologies
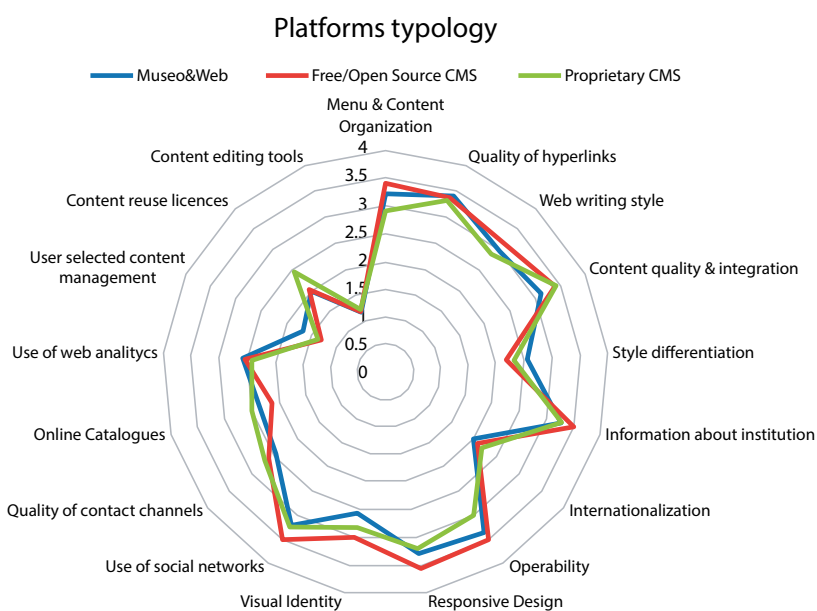
Fig. 6. Mean values for the 17 parameters, according to the museum platform typology elaborated by MiBAC.
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The museum has an interpretative role, which is shared with the public (Jalla 2010). The Internet has introduced a collaborative approach in many areas. It is fundamental to develop new skills and update existing ones to keep up with the digital transformation of our times, which was initiated a decade ago. The Web certainly is 'more than open source, social networking, crowdsourcing, or other ideas upon the subject' (Tapscoot and Williams 2006, p.3). Thus, it has become crucial to change the web strategy design, 'based on new competitive principles such as openness, peering, sharing, and act globally' (Tapscoot and Williams 2006, p.3).

In order to involve the public in a participatory way, the main challenge for museums is to collaborate with their audience in the search for new meanings for cultural heritage. In a world overloaded with ideas, technological innovation loses its relevance but the 'innovation of meaning' becomes a central preoccupation: 'The search <for> meaning has never been so relevant as today, when people live in a world awash of ideas, bursting with options. A world where everything is possible and the big question in life in not "how", but "why?"' (Verganti 2016, p.x).

Enhancing cultural accessibility through digital tools in museums is one of the most efficient ways to pledge a participatory sharing of knowledge, as well as update and disseminate a common system of beliefs about heritage.

The overall picture that emerged from the survey, which also served as an assessment tool, was unexpectedly positive. Above all, it was a major incentive to improve the online image of museums. Museums must take note of the global exposure of the Internet and translate their content to reach foreign audiences and stakeholders (70 per cent of the translations are insufficient). Writing for diversified audiences and targets is a clear priority for all museums but it is not implemented effectively; in 70 per cent of cases there are no differentiated narratives. The meetings and roundtables that were organised produced useful reflections to continue the project. However, the analysis of the public segments are insufficient because institutions tend to overlook the evaluation of this kind of data. They should invest in qualitative and quantitative public studies, and identify the specific digital skills required. A systematic collection of evidence would inform the overall strategy and action planning in the future. The Internet, together with data monitoring, provides useful feedback to the institutions, which allows the revision, adjustment and modification of the strategy on the basis of objective data. This survey has encouraged debate, and a new awareness on the necessary systematic vision of the Italian museums' digital strategy. We are preparing a new survey to continue monitoring the evolution of museum web strategy in Italy.

Notes

1 Decree of the President of the Council of Ministers about Italian Museums Reform DPCM 29 August 2014, n. 171.
2 The research agreement between ICOM Italy and Direzione Generale Musei is available here: http://www.icom-italia.org/wp-content/uploads/2018/11/ICOMItalia.ConvenzioneICOM_DGMU.26gennaio.2017.pdf [Accessed 6 December 2018].
3 The European Digital Agenda is available here: http://eige.europa.eu/resources/digital_agenda_en.pdf [Accessed 6 December 2018].
4 OpenICCD is responsible for all the regulations related to the descriptive and cataloguing standards, An interesting example of data re-use is Telegram BOT 'Archeoarte' http://www.archeoarte.it/hello-world/ created thanks to OpenICCD re-use policy.
5 Museo&Web is a prototype developed by the Minerva Project to create websites for small and medium sized museums. The website is available at: http://www.minervaeurope.org/structure/workinggroups/userneeds/prototipo/museoweb_e.html [Accessed 6 December 2018].

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