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Use of the web and social media by Greek museums

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Abstract

Websites and social media sites offer museums new opportunities to expand their reach, to increase participant engagement and the likelihood of a visit. The paper aims at investigating quantity and type of information provided by Greek museum websites and use of social media. The recorded information features on websites were divided in six dimensions according to their thematic similarity: Contact-Communication, Visit the museum, The museum, Education, Website features and Use of social media. Next in order to examine how Greek museums use their Facebook profiles to advance their mission and programs, the profiles were evaluated for the presence of features representing 'organizational disclosure', 'information dissemination', and 'involvement'. Museums 'thematics' is taken into consideration. Greek museums make limited use of the web and do not take advantage of the possibilities offered. The majority of Greek museums use their websites like brochures. Moreover, they make limited use of social media applications. Museum 'thematics' have impact only on the information provided on 'Content-Communication' and 'The museum' dimensions and on 'involvement' on Facebook profiles. Impact of other managerial characteristics of the museums on provision of information features and on use of social media should be further investigated.

Keywords: Greek museums; website content; social media use; information features; museum 'thematics'

JEL Classification: M15 – IT Management

1.Introduction

Museums are the most socially valued cultural institutions in the world, the major repositories of a country's stock of objects and specimens of educational and cultural value (Pallud & Straub, 2014; Poulot, 2005; Tohmo, 2004), important heritage destinations and a primary tourist attraction for both local and foreign tourists (Chan, 2009). The number of museums in a country reflects the level of its cultural achievements and the level of scientific research that takes place in this specific field in the country (Popescu & Corboş, 2011). In Greece, according to Ministry of Culture and Sports 239 museums are established. Greek culture, from deep prehistory to the miracle of classical Greek culture and from the glory of Byzantium to the country's modern history, is one of the most emblematic in the world. Thus, Greek museums foster exhibits which cover several millennia of culture, deeds and accomplishment.

Since the end of 80s there is an increasing interest in museums' attendance (Pallud & Straub, 2014). Museums' attendance generates the highest participation rates, just after cinema, reading, and going to sports (Schuster, 2007). The many socioeconomic benefits that museums can offer, such their high potential for raising local incomes, providing new community/social space, improving quality of life for residents, providing learning resources and support and developing local urban economies, may explain the increased interest in them (Bryan et al., 2014; Pallud & Straub, 2014; Popescu & Corboş, 2011). Deffner et al. (2009) claimed that museums act as "the instruments" for cities in the development process and may become city symbols (Hamnett & Shoval, 2003).

The rapid evolution of internet and world wide web (www) technologies have influenced museums, galleries and other cultural institutions offering them more challenges and opportunities and the potential for digitization initiatives and connection of tangible and intangible cultural collections (Hennessy et al., 2013; Nuo, 2013). Museums use www and web 2.0 for "webifying" their operations (Sigala, 2005). Internet is used as a mode of communication and marketing (Pavlou, 2012; Sigala, 2005) an additional medium to offer wide access of heritage objects and disseminate information about their collections to a worldwide audience (Harms & Schweibenz, 2001) to provide more enhanced visitors' experiences and services (Sigala, 2005) a new way to interact with schools and provide distant learning, usually referred as learning-for-enjoyment (Lin, Gregor & Huang, 2008), through cultural resources (Leftwich & Bazley, 2009). Education is becoming a key factor for museum web content development. Online learning resources aim at providing rich contextual information, with different layers of interpretation and entry points, and encouraging visitor's active involvement in learning (Loran, 2005). In this vein, Moritz (1996) summarized three reasons for the movement of museums to the web: marketing, awareness/ promotion, enhancing their educational and research mission.

Museums' physical spaces are limited thus they are not able to exhibit more than a small portion of their collections (McKeown, 2003). In fact, "the museum objects on exhibit at any time may actually constitute less than half of the total collections" or "the well-known 40-40-20 proportion" where 40 percent are for the collections, 40 for exhibits and 20 percent for everything else. Some museums with larger archives have only 10% on display (Burcaw, 1997). Thus www and web 2.0 offer museums new ways of drawing out museum objects from the archives (Ch'ng, 2011) as cyberspace is limitless. Transposing the museum into the web offers a way to overcome the problem of limitations on physical space and offers an alternative view (McKeown, 2003). Initially there was a fear that museum websites would discourage people from visiting the museum however, today, it has been admitted by most museum experts that websites offer unique opportunities for attracting people to the museum (Marty, 2004). Indeed, Loomis & Elias (2003) found that using a museum website would increase the likelihood of a visit.

Nowadays, many museums have already established websites and tend to invest increasingly more money in their websites in order to improve their quality (Pallud & Straub, 2014). While the impact of websites in business organizations has been widely studied, the role they play in organizations such as museums, is not a common research subject and little work exists on evaluating museums' websites (Ke'fi & Pallud, 2011; Fotakis & Economides, 2008). Museums' websites are playing an increasingly important role in terms of access and audience development goals (Loran, 2005) however simple web presence and provision of "more information to more people" cannot achieve all of its potential. A website must keep up with technological advances, visitors' expectations, deliver several essential features to foster a better online experience and take advantage of the interactive capacities of ICTs (Fotakis & Economides, 2008; Loran, 2005; Zafiroopoulos &

Vrana, 2005). Donovan (1997) proposed that museums have to provide context, storytelling, and stimulate curiosity, exploration and serendipity, in order to create strong, exciting online experiences for the website users.

Greece is among the countries with the lowest internet usage in the EU (European Commission, 2013) and the same happens with museum use of the Internet. From the 239 museums established in Greece, only 53 of them have web presence.

The purpose of the paper is twofold. It aims at:

- Investigating to which extend Greek museum websites provide information features through a web search and the construction of an information features record, which distinguishes six dimensions of offered information features. The paper also studies differences of offered information features depending on the museum 'thematics'.
- Examining the use of social media and especially how Greek museums use their Facebook profiles to advance their mission and programs, by evaluating the presence of features representing 'organizational disclosure', 'information dissemination', and 'involvement'.

2. Literature Review

Content of websites

Nowadays, corporations and organizations worldwide have realized that information technology can provide a distinct organization advantage; especially websites are important information technology tools with different purposes, designs and implementations that indicate their focus or priority and can be used to achieve many purposes (Auger, 2005; Osunade & Ogundele, 2012). However, only the website presence is not a guarantee of success (Liang & Law, 2003). The website has to offer attractive and content-rich web experience (Haas, 2002). The value an organization attaches to a website is reflected in the operations and content of the website (Osunade & Ogundele, 2012). Thus, content 'is the king' and the comprehensiveness and usefulness of a museum's website content is important for a virtual visitor. Fotakis & Economides (2008) claimed that existence of content appropriate for kids or special categories of people is a big advantage for the website.

The term 'content' refers to the information features or services that are offered in the website (Huizingh, 2000) and is not limited to the subject, product or services provided. Content is more; it includes the solutions and strategies employed to make it easy for the user to accomplish important tasks, such as information retrieval, search and navigation and obtaining feedback (Calogne, 2001; Spremić & Strugar, 2008; Zafiropoulos et al., 2006). While the term 'richness' refers to the ability of media to improve human understanding by reducing uncertainty and ambiguity (Lodhia, 2004; Sigala 2003) and can be used to describe the nature of information and the depth of collected customer information (Spremić & Strugar, 2008). Museums are an information intensive industry thus rich media need to be used.

Museums Websites

The times have passed that museums had to produce brochures to reach their communities. Today, even the smallest museum is able to generate and distribute information in a simple way by using digital media (Weber, 2009). A museum's website is a window to reach more groups of audiences (Nuo, 2013). According to Silverstone (1994, p.164) museums are

"in many respects like other contemporary media. They entertain and inform; they tell stories and construct arguments; they aim to please and to educate; they define, consciously or unconsciously; effectively or ineffectively, an agenda; they translate the otherwise unfamiliar and inaccessible into the familiar and accessible"

Thus, the www enhanced by three-dimensional visualization tools can provide valuable help to museums to accomplish these aims (Sylaiou et al., 2009).

Piancente (1996), in one of the early studies on museum websites, provided a concise framework for beginning to define museum purposes. She classified museum websites in three classes depending on their

stage of development and Internet exploitation: the 'electronic brochure' a website similar to a paper format brochure used for museum promotion; the 'museum in the Virtual World' that recreates the physical museum online through the online projection of the museum objects by means of maps, floor-plans, images, online collections etc; and the 'true interactives' : where the webpages may have some relation to the real museum, but they also add or reinvent the museum and even invite the audience to do so. These websites are seen as distinct from the real museum, and are often distinguished by the assignment of a new name for the Web presence.

Later on, Schweibenz (2004) described four categories into which most museum websites fall: The 'brochure museum': The website contains the basic information about the museum, such as types of collection, contact details, etc. The goal of the website is to lure visitors to its brick-and-mortar presence (Litman & Sturm, 2012). The 'content museum': The website gives detailed information museum's collection and invites the virtual visitor to explore them online. The goal of the website is to provide a detailed portrayal of the collections of the museum. The 'learning museum': the website offers different points of access to its virtual visitors, according to their age, background and knowledge. The goal of the website is to make the virtual visitor come back and establish a personal relationship with the online-collection. The 'virtual museum': The website provides not only information about the institution's collection but to link to digital collections of other. The goal of the website is to preserve museums content for future generations and support its use and management over time. Virtual museums break the concept of the traditional museum and link together people, places and things which otherwise could not be easily reach (Litman & Sturm, 2012).

Pallas & Economides (2008) evaluated 210 art museums' websites worldwide found that North American and European art museums' websites provided a satisfactory content while many sites from the rest World had incomplete content and failed to provide the visitors with all the information that they might need. Glenn (2004) examined the websites of one hundred randomly selected local history repositories in the United States. According to her findings 59% of the repositories surveyed provide a complete, useful, and high-quality web presence, including information beyond that of a simple brochure. Futers (1997) found that 52% of virtual visitors expect to be able to download images from online exhibitions. Saiki (2010) investigated the degree of viewer interaction capabilities of features found on the education portion of museum websites. From the 153 websites analyzed 45.1% had narrative, 33.3% had interactivity functionality, 35.9% websites had communicative, 24.8% had adaptive, and 22.2% had productive features. Features found at the adaptive and productive levels tended to incorporate offline activity.

Lazarinis, Kanellopoulos, & Lalos (2008) estimated the dynamicity or static nature of ten websites of Greek museums. They analyzed the offered services of websites and identified and recorded features such as multilingualism and the technologies utilized. The evaluation revealed a lot of inefficiencies. The majority of the websites were developed using standard HTML, e-mail communication was not properly utilized and a small percentage of the websites maintained a full search mechanism. Moreover, the content analysis of the websites revealed that content changes are rare and there was a small number of broken links. This tactic does not absolutely harmonize with the demands of cultural promotion and shows that cultural institutions do not utilize the full power of Internet.

Danish museums were investigated by Holdgaard & Simonsen (2011). Significant differences were recorded depending on size and purpose of the website. Many websites are simply brochures holding an address and information about opening hours, while others consist of several thousand pages and include many web 2.0 applications like blogs, Facebook, YouTube on their websites. Information about organizations and employees are not available to all on their websites.

Capriotti & Pardo-Kuklinski (2012) investigated the level of dialogic communication developed by museums on the Internet, by analyzing the use of web platforms and social web applications as tools for dialogic communication by 120 museums in Spain. According to their findings websites of the museums are highly one-way instruments of communication. The vast majority of the museums is simply using the Internet and the web 2.0 as new means to create and present old media (electronic bulletins, electronic leaflets, etc.) and is therefore reproducing the one-way passive forms and processes of traditional offline communication.

Mason & McCarthy (2008) studied the websites of New Zealand museums and heritage organizations. The main attributes of the websites were divided into seven categories. Technical competence: Efficiently load of the site, Navigability, Acceptable layout by current norms of Internet presentation. Visitor information: Provision of essential information such as opening hours, floor plans, directions etc. Collections,

attractions and exhibits: Display information on collections, exhibits, programmes, assistance in planning visits. Mission, education: Inclusion of information such as goals, collections, education, conservation, research etc. Visitor relationships: guest books, email forms, newsletters etc. Marketing: Personalization the experience for visitors, foreign language versions, junior clubs, etc. Income generation: Offer of a cheap and simple way to generate direct income through e-commerce applications, include booking forms, souvenir sales, etc. They found that in most cases the design that the website was not the result of careful planning and development rather; the designs were the result of serendipity, chance and opportunistic resources.

Bearman & Trant (2007) noted that museums' websites are disappearing and the Web as a two-way, multi-sensory communications environment takes their place. Brochures, catalogues, or databases serve specific, static needs rather than support dynamic social interaction. And they wrote characteristically

'The task of bringing the museum to the Web is liberating not limiting. There are no objectives of museums – be they building understanding, strengthening local communities, encouraging engagement with culture and ideas, or promoting individual creativity – that cannot be enhanced in conjunction with active Web programming. When we realize the "Web" is not a collection of pages but a fusion of networked functions, social actors, and multi-dimensional content, we glimpse its potential.' (p. 10).

Use of social media

In recent years, many museums have started using different forms of social media, like social networking sites, blogs, wikis, photo and video sharing, podcasts, vodcasts, virtual environments and tagging, in order to engage people with museum content, to broadcast cultural propaganda, to communicate and marketing their campaigns, to influence target audiences, to provide interactive cultural experience and to create new relationships between museums and the public (Pett, 2012 ; Russo & Peacock 2009). The flexibility and speed that social media offer for content customization and user-generated content has resulted in promoting active participation from both museums and their public and increasing museums' use of multi-way communication (Agichtein et al., 2012; Fletcher & Lee, 2012). Museum visitors may express their opinions and experiences, and post their own photos and videos taken during their visit. In this vein, use of social media transforms them from passive observers into active participators and creators (Holdgaard & Klastrup, 2014; Villaespesa, 2013). Moreover, social media have changed word-of-mouth. Traditional recommendations, have limited reach, 10 persons on average, while recommendations within social media can spread epidemically, among hundreds or even thousands of "friends" or "followers" (Kotler & Armstrong, 2009; Miller & Lammas, 2010). The majority of museums have limited resources, thus use of social media becomes particularly interesting as they can achieve great impact with few resources (Hausmann, 2012).

Research on social media use by museums is in its infancy. Fletcher & Lee (2012) investigated social media uses and evaluations in American museums. According to their findings, museums mostly use one-way communication strategies at Facebook and Twitter focusing on event listing, reminders, and reaching larger or newer audiences by increasing the number of fans and promotional messaging. Some evidence exist that museums are trying to increase their use of social media for multi-way communication strategies. Pett (2012) demonstrated how social media can be used and implemented within the museum sector for marketing for a participatory multi-vocal dialogue, for creating a strong online brand and for creating a research presence. When social media are used correctly, the results are extremely beneficial to a museum engagement with a wider audience. Brooklyn Museum, the Tate and Indianapolis Museum of Art are innovators in the adoption of social media and may provide inspiration to other museums. However, not every museum can follow the same approach. Kidd (2011) highlighted the use of social media in the museums sector in the UK and beyond and explored the challenges of utilizing social media for institutions steeped in discourses of authority, authenticity and materiality. Using frame analysis she proved that a gap exist between the possibilities presented by social media, and their use by many museums and concluded that it is crucial for museums to increase their understanding of the frames within which such activity is being encouraged and experienced. Recently, Villaespesa (2013) investigated the significant role that Twitter played during the festival 'Art in Action' at 'The Tanks', Tate Modern's new space dedicated to live art. She analyzed the tweets that mentioned 'The Tanks' during that period and covered the process of collecting, coding and

analyzing the data following three different lines: Twitter as a communication tool, as a conversation tool to engage with the visitors and as an audience research tool.

3. Methodology

The article aims at measuring the quantity of information offered through the museum websites, and investigating differences of offered information features depending on the museum 'thematics'. Ministry of Culture and Sports' website (<http://odysseus.culture.gr/h/1/eh110.jsp>) was used to identify Greek museums that have a website. A total of 53 museum websites were recorded and visited. At the first step information features offered on the museum websites were recorded through an extensive web search. An effort was made to include as many information features offered as possible. The survey resulted to the creation of a set of 74 information features. The limitation of the abovementioned procedure is that the list of 74 information features was not validated in order to distinguish the most significant information features within it. Instead a 'complete' list of features was formed in order to capture every information feature offered on the websites. Following a methodology similar to that of Zafiropoulos & Vrana (2005) the information features were divided in six dimensions according to their thematic similarity: Contact - communication, Visit the museum, The museum, Education, Website features and Use of social media. The dimensions were composed from separate features with thematic similarity, and are described as follows:

- Contact- Communication': Telephone, Fax, e-mail, contact form, members/newsletter, news/press releases, press images, press wrote, publications.
- Visit the museum: Hours and ticketing, getting here, gallery talks, The Site/ Surroundings, eat and treats, museum gifts, reading lounge, museum floor plan.
- The museum: The museum/museum history, key individuals/supporters/donors, Be a donor, departments, collections, permanent exhibitions, contemporary exhibitions, host events, library/audio library, screenings, museum events, awards and distinctions, important visitors, e-museum, object of the month, association of friends.
- Education: Educational program, Learning resources, Lectures, Digital storytelling, Games, School visits.
- Website Features: Guest book, Photos/Photo gallery, Video, Interactive Map, Shop on line, Navigation in the museum exhibits, F.A.Q. Sitemap, For People with disabilities, Multilingual, Search, Privacy Policy, Term & Conditions, Powered By, Connected.
- Social media: RSS, Facebook, Like, Twitter, Pinterest, Instagram, Flickr, Google +, Linkedin, Vimeo, Blog, Youtube, iTunes, Tipadvisor, Links to other sites, Forum, Tell a Friend, Tell us Your Opinion, Mobile Apps, Share it.

The next step involved the identification of information features, which are offered through the recorded websites.

Finally, in order to determine how museums are using Facebook, a content analysis of museums' profiles was conducted. Fifteen museums have a Facebook profile. Three of them have their profile private, thus they were excluded from the research. According to Waters et al. (2009) 21 information features are expected to be present. After reviewing the profiles the research team identified at the profiles only 12 of them while 28 more information features were identified and included to the codebook to evaluate how museums use Facebook. Next, the methodology proposed by Waters et al. (2009) was followed and the profiles were evaluated for the presence of items representing 'organizational disclosure', 'information dissemination', and 'involvement'.

These dimensions were composed from separate features, and are described as follows:

- Organizational disclosure: Description, History, Mission statement, URL, Logo, The museum, Temporary Exhibitions Permanent collections, A Day at the Museum, Major past exhibition, Museum for kids, Events, Notes, Education, Buildings.
- Information dissemination: News links, Photo posted, Video files, Timeline, Discussion wall, Newsletter, Instagram feed, Tripadvisor, Pinterest, Explore virtually the museum

- Involvement: Reviews, E-mail to organization , Phone number, Support Campaign, Store, Liked by this page, Users like, Post to page, Poll, Statistics, How to visit, Map, Address, Opening Hours, Floor map

Additionally, information about number of likes, visits and day of joining Facebook, were collected on August 26, 2014.

4. Results

Following the search methodology 53 museum websites were recorded. These consisted of: 11 Archaeological Museums and Collections, 2 Byzantine Museums and Collections, 12 Historical and Folklore Museums, 8 Art Museums, 6 Zoological and Natural History museums, 3 Nautical and war Museums, 4 Technology museums and 7 Special theme museums (Table 1).

Table 1: Descriptive Statistics of museums and their websites

Thematics	Museums	Museums having website	Distribution of the web sites regarding to the relative museums 'thematics'
Archaeological Museums and Collections	118	11	20.75%
Byzantine Museums and Collections,	24	2	3.77%
Historical and Folklore Museums	45	12	22.64%
Art Museums	18	8	15.09%
Nautical and war Museums	8	3	5.66%
Zoological and Natural History museums	6	6	11.32%
Technology museums	8	4	7.55%
Special theme museums	12	7	13.21%

Table 2 presents the 74 information features with their occurrence percentages for Greek museum websites.

Table 2: Information features of Greek museum websites

Contact and communication	Percentage	Website features	Percentage
Telephone	94.30%	Guest Book	34.00%
Fax	88.70%	Photos/ Photo Gallery	92.50%
e-mail	77.40%	Video	43.40%
Contact Form	26.40%	Interactive map	30.20%
Members/Newletter	43.40%	Shop on line	9.40%
News/Press Releases	83.00%	Navigation in the Exhibits	75.50%
Press Images	1.90%	FAQ	7.50%
Press Wrote	7.50%	Site map	32.10%
Publications	52.80%	For people with disabilities	13.20%
Visit the museum		Multilingual	50.90%
Hours and Ticketing	88.70%	Search	30.20%
Getting Here	52.80%	Privacy Policy	1.90%
Gallery Talks	34.00%	Terms & Conditions	9.40%
The Site/ Surroundings	37.70%	Powered By	28.30%
Eat and treats	20.80%	Connected	7.50%
Museum Gifts	41.50%	Use of social media	
Reading Lounge	3.80%	Rss	11.30%
Museum Floor Plan	35.80%	Facebook	28.30%
The museum		Like	9.40%
The Museum/museum history	83.00%	Twitter	28.30%
Key Individuals/ supporters/ donors	41.50%	Pinterest	3.80%
Be a donor	11.30%	Instagram	3.80%
Departments	41.50%	Flickr	7.50%
Collections	54.70%	Google+	5.70%
Permanent Exhibitions	71.70%	Linkedin	5.70%
Contemporary Exhibitions	50.90%	Vimeo	5.70%
Host Events	41.50%	Blog	3.80%
Library / Audio Library	41.50%	Youtube	20.80%
Sreenings	5.70%	ITunes	3.80%
Museum Events	13.20%	Tripadvisor	13.20%
Awards and Distinctions	5.70%	Link to other sites	32.10%
Important Visitors	3.80%	Forum	1.90%
e-museum	3.80%	Tell a friend	3.80%
Object of the month	1.90%	Tell us your opinion	1.90%
Association of Friends	32.10%	Mobile Apps	5.70%
Education		Share it	9.40%
Educational Programs	79.20%		
Learning Resources	37.70%		
Lectures	30.20%		
Digital Story telling	3.80%		
Games	11.30%		
School visits	66.00%		

The next step was to measure the information richness of the website in each dimension. This was done by calculating how many features each website offered in the specific dimension.

Contact - Communication

Dimension ‘Contact- Communication’ is the information richest dimension. More than half of the information features of this particular dimension are offered in Greek museum websites. In this

dimension alternative ways of communication like telephone, fax and e-mail are those with the higher occurrences 94.3%, 88.7% and 77.4% respectively. A significant percentage of 83% offer news/press release to keep their visitors informed about current, upcoming, contemporary and virtual exhibitions and events. More than half the total number of museums offered information about their publications (52.8%).

Visit to the museum

Dimension 'Visit to the museum' follows with an average of 40% of the information features of the dimension are provided through Greek museum websites'. The majority of the museum websites offer hours and ticketing information. Information about the ways of getting here, museum gifts and the Site/Surroundings are presented in lower percentages for all the museums. One out of the three museums offers Museum Floor Plan at the website.

Education

Very close to 'Visit to the museum' dimension comes the 'Education' dimension with a percentage of 38%. Museums have always been regarded as gatekeepers of cultural heritage and as educational institutions (Pavlou, 2012). Nearly 80% of Greek museum offer information about educational programs and 66% information about school visits. New media technologies offer museums the prospect for a significant expansion of distant learning provision and in the promotion of local and world culture in more effective ways (Pavlou, 2012). However, Greek museums do not offer at their websites learning resources, games or digital story telling. The Acropolis Museum and the Museum of Byzantine Culture are the only that inform about the use of digital tools to tell personal or group stories at their websites.

The Museum

Information features in 'The Museum' dimension are provided to a moderate degree. 'Digital collections and online exhibits offer new ways to draw people into museums and build stronger relationships between museums and their visitors' claimed Marty (2007). Information about the museum/museum history is offered in more than 80 per cent (83 per cent) of all the museums. Followed by, permanent exhibitions at 71.70%. The following features are offered of about half of the museums: collections (54.7 per cent) and contemporary exhibitions (50.9 per cent). Information about screenings, awards and distinctions, important visitors, and object of the month are offered to very low percentages. Learning and discovery on-site via participation and interaction plays an important role in motivating website visitors to actually visit the museum (Ch'ng, 2011) thus a growing number of museums, allow visitors to create personal digital collections of their favorite artifacts (Bowen & Filippini-Fantoni 2004). Despite this fact, only 3.80% of Greek museums under investigation offer this possibility (e-museum).

Website Features

Information features in the 'Website Features' dimension, are also provided to a moderate degree. In this dimension, nearly all websites (92.5 per cent) offer pictures for the visitors. Three quarters of the websites offer navigation to the museum exhibits. Museums can take advantage of this by tracking virtual users, for example what they looked at, the location and orientation of their gaze, and store the data for analysis. By understanding visitors' behavior museums may plan better tours for the visitors (Ch'ng, 2011). In order to have international reach, museums have to provide multilingual information and resources on their websites. Only half of the Greek museums websites are multilingual. Multilingual accessibility is significantly important in meeting the needs of diverse museum clients by making information available in as many languages as possible and to overcome language barriers (Chhatwani et al., 2013). Thus, multilingual websites play a strategic role in the quality and effectiveness of the information and services provided by museums and may engage visitors more deeply with the museum content. Museum shops are traditional sources of income. The implementation of an online shop offers museums possibilities of generating extra direct income along with promoting their collections. One out of ten Greek museums offers possibilities to shop on line.

Social networks

Information features in ‘Social networks’ dimension is provided to the smaller degree. Only 10.09% of the information features in the specific dimension are offered in Greek museum websites. Despite the fact the people nowadays are increasingly using social media; Greek museums step behind and make limited use of social media. Facebook and Twitter are the most popular with a 28.3% of occurrence followed by YouTube by a percentage 20.80%. An RSS feed is the most frequently used tool for to personalize information. However, a very low percentage 11.30% of museum websites is featuring it. Blogs are present in 3.80% of the museums websites reviewed, while forums are uncommon tools in museum websites, featuring in only 1.90% of the museum websites in the study. These findings are in accordance with those of López et al. (2010) who investigated the incorporation of social media to the websites of two hundred and forty museum in five countries (Italy, France, Spain, England, and the USA) belonging to four categories (arts, natural sciences, social sciences, and specialized). The results showed a low overall presence of Web 2.0 tools on museum websites.

Cycladic Art Museum was the first Greek museum that created a Facebook profile on June 20, 2008, followed by the Acropolis Museum that created its profile on December 16, 2009. On August 26, 2014 Acropolis Museum has the best performance with 420975 likes and 102106 visitors. At that day Benaki Museum has 76742 likes. However, Benaki Museum is the most active in Twitter. It was the first Greek museum that has established a Twitter account on September 20, 2009. Since then it has made 2564 Tweets, has posted 535 photos/videos and has 11192 followers. Cycladic Art Museum’s Twitter account has also high performance. Created on March 29, 2009 has made 954 tweets and has 5588 followers. Generally, Greek museums’ have low active Twitter accounts.

Table 3 presents the 30 information features with their occurrence percentages for Greek museums’ Facebook profiles.

Table 3: Information features of Greek museums’ Facebook profiles

Organizational disclosure	Percentage	Information dissemination	Percentage
Description	66.67%	News links	16.67%
History	16.67%	Photo posted	100%
Mission statement	33.33%	Video files	58.33%
URL	75%	Timeline	66.67%
Logo	75%	Discussion wall	75%
The museum	16.67%	Newsletter	8.33%
Temporary Exhibitions	8.33%	Instagram feed	16.67%
Permanent collections	25%	Tripadvisor	8.33%
A Day at the Museum	8.33%	Pinterest	8.33%
Major past exhibitions	8.33%	Explore virtually the museum	8.33%
Museum for kids	8.33%		
Events	75%	Involvement	Percentage
Notes	8.33%	Reviews	50%
Education	8.33%	E-mail to organization	66.67%
Buildings	8.33%	Phone number	91.67%
		Support Campaign	8.33%
		Store	8.33%
		Liked by this page	75%
		Users like	58.33%
		Post to page	66.67%
		Poll	8.33%
		Statistics	75%
		How to visit	16.67%
		Map	58.33%
		Address	83.33%
		Opening Hours	83.33%
		Floor map	8.33%

From the results it is evident that Greek museums do not fully understand the importance of disclosure in their profiles. Description and events are provided at high percentages, 66.67% and 75% respectively. Three

out of four museums offer a URL back to museum’s website and the same percentage use museum’s logo on Facebook. Only one out of three organizations listed mission statement on their Facebook profiles.

Regarding information dissemination, all of the museums post photos and more than half (58.33%) take advantage of the multimedia capabilities and post video files. However a small percentage of 8.33% offer the opportunity to the visitors to explore virtually the museum. Discussion wall on Facebook is used by 75% of the museums’ for message dissemination. Museums do not communicate their public relations efforts effectively as only 8.33% of them post their newsletter on Facebook profiles.

Nearly all museums provide phone number and e-mail addresses in order to involve visitors. Half of the museums offer reviews. Support campaigns are provided at a small percentage of 8.33%. The same percentage provides a store and a poll. Thus Greek museums do not provide many methods and opportunities to their visitors to become more involved.

Effect of museum ‘thematics’

Then the effect of museum ‘thematics’ on the volume of information features offered through the web was explored. Museums were distinguished in eight ‘thematics’ according to Ministry of Culture and Sports. Archaeological Museums and Collections, Byzantine Museums and Collections, Historical and Folklore Museums, Art museums, Nautical and war Museums, Zoological and Natural History museums, Technology museums and Special theme museums.

Table 4: Information features according to ‘thematics’

Dimensions	Contact and communication	Visit the museum	The museum	Education	Website features	Use of social media
Thematics						
Archaeological Museums and Collections	46.00%	45.00%	26.00%	35.00%	30.00%	14.00%
Byzantine Museums and Collections,	67.00%	63.00%	38.00%	75.00%	23.00%	10.00%
Historical and Folklore Museums	60.00%	43.00%	38.00%	39.00%	32.00%	8.00%
Art Museums	64.00%	48.00%	43.00%	40.00%	35.00%	9.00%
Nautical and war Museums	44.00%	25.00%	27.00%	17.00%	31.00%	10.00%
Zoological and Natural History museums	50.00%	29.00%	32.00%	36.00%	30.00%	12.00%
Technology museums	38.00%	27.00%	16.00%	43.00%	33.00%	9.00%
Special theme museums	56.00%	41.00%	33.00%	33.00%	23.00%	8.00%

Table 4 presents the dimensions of information features with their occurrence percentages for Greek museum websites according to museum’s ‘thematics’ in the six dimensions. Percentages have been formed in the following manner: For every museum the amount of offered features was added for each dimension and then it was divided by the total of features of every dimension. This ratio is expressed as a percentage of the features rendered by the museum for this specific dimension. If for example, this percentage is 50%, the museum offers half of the features that constitute a specific dimension. Then percentages were calculated for each dimension.

In the analysis ‘thematics’ serves as independent variable, which may have an impact on the volume of information provided. The six information dimensions were regarded as the dependent variables. One-way ANOVA was applied. ANOVA tables showed that the influence of ‘thematics’ is statistically significant only

for the dimensions of 'Content-Communication' (p-value=0.02 < 0.05) and 'The museum' (p-value=0.04 < 0.05), therefore the null hypothesis that the mean values of all groups are equal is rejected.

Then, one-way ANOVA was applied in order to investigate influence of 'thematics' on the volume of information provided on Facebook profiles. 'Organizational disclosure', 'Information Dissemination' and 'Involvement' were regarded as the dependent variables. ANOVA tables showed that the influence of 'thematics' is statistically significant only for 'Involvement' (p-value=0.03 < 0.05), therefore the null hypothesis that the mean values of all groups are equal is also rejected.

5. Conclusions and Implications

This research aims at measuring information features offered by Greek museums on the grounds of a framework which categorizes the offered information features into six dimensions according to their thematic similarity. This was done in such a way that the dimensions include, to the possible extent, all information features. During the elaboration of the study it was made clear that the majority of Greek museums still do not have a website. Only a small percentage of the museums use websites for contacting, informing and attracting visitors and an even smaller for making business with potential customers. Perhaps this happens due to the fact that the majorities of Greek museums are small and are facing with insufficient funding.

Greek museums that have a website have developed quite informative websites. Some information features are offer at high percentage levels but they do not make extensive use of the potential offered through websites. Some information dimensions are poorly represented in comparison with some others that are more developed. Even among information features within the same dimension, some separate features are more developed than others. Dimensions 'Contact- Communication' and 'Visit to the museum' are the information richest dimensions. Both this dimensions offer important information for the visitor of the museum. However Greek museums remain behind in using social media complementary to their website for the promotion of the museum.

National Museum of Contemporary Art, Benaki Museum, Macedonian Museum of Contemporary Art are the museums that perform better than the others followed by National Archeological Museum, Archeological Museum of Thessaloniki, The museum of Acropolis, Museum of Byzantine Culture , Byzantine and Christian Museum, and the Jewish Museum of Greece. Their websites may act as a benchmarking tool for the other museums in order to improve their websites. Museum 'thematics' have impact only on the information provided on 'Content-Communication' and 'The museum' dimensions.

Despite the fact that every day more and more people rush into social media, Greek museums step behind and make limited use of them. Facebook and Twitter are the most popular. In order to determine how museums are using Facebook, a content analysis of museums' profiles was conducted and the profiles were evaluated for the presence of features representing 'organizational disclosure', 'information dissemination', and 'involvement'. Usefulness of social networking focuses on the information that is being distributed (Waters, 2009). In this vein, Greek museums offer useful Facebook profiles as they perform rather well at 'information dissemination'. The most common forms of message dissemination used by Greek museums are posting photos and video files, use of discussion wall and Timeline. In this day and age of crisis, public has called for increased openness and transparency from for-profit, nonprofit, and government organizations (Waters et al., 2009). Websites and social networking sites may be used for advocating organizations and their causes (Kelleher, 2006). However, Greek museums do not fully understand the importance of 'disclosure' in their profiles. Finally, interactivity plays an important role in developing beneficial relationships with online visitors. The steady flow of inputs and outputs, and the joint and simultaneous creation of content, through the use of social media, may increase interactions with publics online (Sundar, 2007; Smith, 2010) and provide opportunities to involve them offline as well (Waters et al., 2009). Greek museums do not provide many methods and opportunities to their visitors to become more involved. Museum 'thematics' have impact only on 'involvement'.

Other managerial characteristics of the museums such as funders ranging from government agencies to corporations, foundations, and individuals-collection size, or attendance numbers should be investigated whether they have impact on the amount of information offered through museums websites.

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