Engaging People with Cultural Heritage:
Users' Perspective

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Abstract. Although Culture is a very important asset of population and a driver for personal and economic development, the engagement of citizens with their cultural heritage environment remains low. The European project TAG CLOUD explores the use of cloud-based technologies that lead to adaptability and personalisation to promote lifelong engagement with Culture. Within the context of this project, early-stage evaluations with users have been carried out for designing the scenarios and use cases that will be developed, and will act as a general framework, for the project. This paper presents the results of two evaluations: the user-driven evaluation conducted in the Monumental Complex of Alhambra and Generalife, which assessed the main users` needs and expectations; and the Cultural Heritage managers' focus group, which assessed technologies and approaches for alignment with users' expectations.

Keywords: engagement, cultural heritage, UCD, ICT, TAG CLOUD.

1   Introduction

Despite cultural heritage is a very important asset of citizens, it is the fact that there is a huge part of the general public who does not include culture as part of their lifestyle. Currently, about the 50% of the population does not visit any museum, and only 38% of the population participates in other cultural activities regularly [1]. There is a need to involve people in Culture and make them to be in contact with their cultural heritage environment. With this purpose, the European Commission co-funded project TAG CLOUD [2] is investigating on how to enable cultural engagement by using cloud-based technologies that leverage adaptability and personalisation, in order to support deeper engagement and learning over time.

Having the challenge of building engaging technological solutions for the visitors of cultural places, requires a very good understanding of the likes, needs, preferences and trends of the users. For this purposes, TAG CLOUD has focused during its first

stage, in developing a framework of scenarios, supported by use cases, that captures the insights and expectations of visitors in three different sites through Europe: The Monumental Complex of Alhambra and Generalife (Spain), the Barber Institute of Fine Arts (United Kingdom) and the County of Sør Trøndelag (Norway). Avoiding gathering this information would probably lead into ICT systems that are based on the developers' team self-intuition and ideas and the result might not what the users expect at all.

Following a User-Centered Design (UCD) methodology [3], the TAG CLOUD project places the user at the centre of developments and follows an iterative design cycle which serves to feedback the design, development, improvement and optimisation of TAG CLOUD solutions. In particular, UCD links the ideation process and the action; consequently a set of user interaction scenarios and use cases put users at the heart of the design process ensuring that the systems or applications are easy to use; as they are designed upon an explicit understanding of users' needs [4]. In order to master a behavioural, cultural and emotional context, TAG CLOUD team has also gathered the needs and challenges of the different cultural sites involved in the project, aiming at creating "empathy" and sound user models that enable compelling approaches and diffusion of cultural digital content produced by cultural sites.

This paper presents the results of two empirical and qualitative evaluations performed during early stage of TAG CLOUD project in Spain, presented on the following sections, namely: "Getting on the Alhambra visitors shoes" and "Reviewing the needs and challenges of Spanish cultural and natural heritage sites." These evaluations aimed at capturing and collecting insights and needed information to support next steps of ideation, prototyping and testing of TAG CLOUD user-centered applications and developments.

The paper is organised as follows: section 2 presents the TAG CLOUD contextual framework for early stage evaluations; section 3-4 present the results of performed evaluations; section 5 presents the Conclusions.

2   Framework for Early-Stage TAG CLOUD Evaluations

Convergence of personalization, augmented reality, storytelling tools are opening new opportunities to Cultural Heritage sites for improving the exploration, adaptation and presentation of cultural-driven content, the adaptation of such content for specific users/groups, the collaboration and sharing of content among users having similar interests, as well as its adaptation to heterogeneous user contexts and devices.

Through evaluations and pilot sites scenarios developments, TAG CLOUD supports a realistic UCD approach taking in account users (as individuals and groups) in daily or sporadic interactions with cultural heritage. Thus TAG CLOUD places users/visitors' at the centre of the design and developments; from the inception of the project through all the ideation, prototyping, development and launching processes.

The iterative evaluation approach, ensures that users' perspectives feedbacks the all project lifecycle. Hence, the TAG CLOUD general framework gathers scenarios and use cases from: a) different contexts of use in three pilot sites in Europe with different multicultural environments, sizes and cultural natures; b) different interaction

locations (i.e., off-site or on-site) and visiting relationship cycles (i.e., before, during or after a visit); c) different cultural heritage management perspectives (e.g. user and group management, on-site vs virtual interaction, user profile management, cultural artefact management, itinerary management, etc.); and d) through different interactive technologies (i.e. augmented reality, storytelling and sharing through social networks, etc.).

In addition, this framework has four interaction perspectives that will support the personalization and adaptation of content to users in order to facilitate the exploration of content and an enjoyable cultural driven experience, which are: 1) interaction with curators, who as cultural experts can provide and adapt cultural driven content for different users' segments; 2) interaction with individual users, which comprise those that are interested in discovering and exploring cultural sites further than walls and main collections, and experts which look for grained and highly specialized information and content that relates with their professional profile, hobbies or expertise (e.g. architects, archaeologist, teachers, etc.); 3) interaction with small heterogeneous groups, such as families with elderly members and children families, and different skills, backgrounds or knowledge; and 4) interaction with homogeneous groups such as groups of school classmates or tourists, which in addition have a teacher, guide or facilitator which might have special requirements (i.e. teaching-learning driven content).

In order to align scenarios with potential technological solutions [5], and explore opportunities for the application contexts, the TAG CLOUD is performing an ideation process; in which the team is exploring the following dimensions to focus on the generation of UCD driven solutions:

- Environment settings and issues: indoor (problems with limited space, internet connection while extremely rich in content); outdoor (high connectivity, high availability of mobile guides, large areas – a city or part of it – with connection to integrated services and points of interest); remote from site itself (use of galleries, motivation, virtual travellers, long lasting interactions, etc.); and "on the go" (no defined itinerary; dynamic user models and adaptation based on interest, preferences, knowledge, context, higher interaction with spaces, etc.).
- Ways of adaptation of content for users: based on context-aware features (physical oriented: opening times, proximity, events, etc.); based on individuals (personal and socio-cultural interests and context); and based on groups (identity-related features like heterogeneity in age or similar interests or objectives).
- Interaction models: through domains (similar interests e.g. school, experts), content (images, audios, videos, 3D representations…), and technologies (augmented reality, storytelling, social media).
- Relation of the user with the cultural heritage place: first-time users, eventual users, loyal users (users that go frequently to the cultural place), etc.
- Scope of the visit: individual (as part of a trip, local individuals, summers holidays vs. weekend holidays, etc.), and group (as part of a guided tour, a school visit, group of experts, etc.).
- Devices: taking into account different devices for different types of interactions (tablets, smartphones, PC/laptops, etc.).

3   Getting on the Alhambra Visitors' Shoes

For this empirical and qualitative approach two people from the TAG CLOUD team spent two days with 35 randomly chosen visitors (as potential TAG CLOUD users) at the Monumental Complex of Alhambra and Generalife (Granada, Spain). The selected participants were of different ages, nationalities and gender. The Monumental Complex of Alhambra and Generalife is a major European cultural, declared as World Heritage site by the UNESCO in 1984 and that receives more than 3 Millions of visitors from all over the world.

For this purpose TAG CLOUD developed an interview guideline that comprised questions and points to discuss on the behavioural and motivational drivers for having an enjoyable visit; this process included letting participants to speak freely on their preferences, technology, interests, use of social media etc. In addition, some mock ups that use augmented reality and storytelling were shown, in order to perform observations on reactions and discuss on how these technologies could better support their visiting experience.

People visiting a cultural place, are people who often enjoy visiting cultural heritage places, such as the Monumental Complex of Alhambra and Generalife, museums, art galleries, cities or natural landscapes. 40% of the people that participated commented that they regularly visit cultural places, 34% stated that they do so frequently, while 25% of them said that they were just casual visitors and rarely visit cultural places (or would do it during a touristic trip). Hence, during the evaluation experience we found two types of potential users: those who are actually engaged by the culture and may be looking for improved and better experiences, and those who are not yet engaged and are just looking for random cultural experiences. Despite the different interests and likes of these two groups of people, the fact is that both of them were actually` visiting a cultural site. So both groups` segments could be potential users of app solutions that can support their cultural-driven experience. This is the starting point to address for TAG CLOUD services and products in development. Also, this evidence opens the opportunity for personalized support, based not only in socio-cultural profile information but also with cultural identity-related aspects.

Most notable is high number of visitors (72%) that did not plan their visit beforehand. Those who did, gathered the Alhambra's information across internet and other non-specific ways. Additionally, most of the visitors expected to find guiding routes and on-site information; but they were usually given a map and an audio-guide so they could follow the route on their own way. The most common behavioural response was to improvise the Monument Complex routes. The main problem was that there are no estimations on the overall time for visiting the Monument Complex; the Alhambra is a Palace City where the rhythm of the visit is your own rhythm, and the people can take different time spaces for nurturing themselves with this marvellous heritage jewel. But, not having a time perspective produces many cases in which the visit cannot be completed. In addition, the Alhambra has some spots that are scheduled to be opened during specific time windows due to the UNESCO requirements; thus some people was not able to estimate the time for the routes and missed a couple of site's visits.
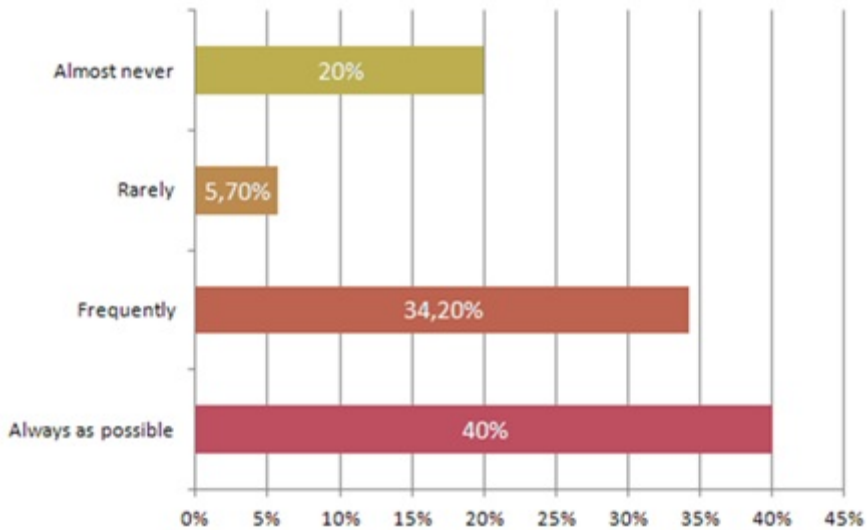
Fig. 1. Classification of visitors by frequency of cultural consumption

Also, some visitors expected to receive on-site, information related to their curiosities; while other visitors perceived that the given information was dense and provided in spoken or textual format, which often distracted from the experience. In any case, none of the participants used a mobile application for being guided inside the Monument Complex or getting additional information about it; even despite there was an official app for the cultural place.

When people were asked for the motives for not downloading the app, the answers were very different. Among main reasons commented we have that: people were not aware of the existence of the app; the app did not matched their devices operative system; they did not know the app's benefits; people didn't know how to download it as they were not familiar with QR codes; others did not differenced at all between different platforms such Symbian, WM, iOS, Android, etc. and some others just thought that the app would consume their bandwidth or would cost them an unknown amount of money.

Apart of the software engineering process, for the TAG CLOUD team is very clear that visitors shall benefit from individualized support services, that takes into account contextual and personal attributes; evidence shows that visitors` behaviour usually not remain consistent during the visits and their itinerary may require ongoing adaptation, as well as support. In addition, solutions and e-services to be provided need to respond to trendy devices with big market quota. Currently, the Alhambra is increasing efforts to raise awareness of the solutions in a more clear, concise, attractive and intense manner, especially on-site. The promoting campaign has been recommended to include accurate descriptions of the benefits of using the system and the downloading instructions.

Among the interviewed visitors, 70% had a smartphone and 30% used a traditional mobile phone. Amongst the 70% of the smartphone users, there was a complete tie: half were Android users and the other half were iPhone users. No other platforms appeared in the sample. Based in these results we infer that TAG CLOUD will surely target these main platforms when creating the mobile software solutions. However, this fact may arise other problems; the technologies in both platforms are different and the hardware of the devices on each platform is in fact different. While, for example, AR techniques can be implemented in both of them, other solutions such Location Based Services (LBS) based on Bluetooth LE beacons or Near Field Communication (NFC) tags are not universal for these platforms; meaning that different approaches will be needed to be evaluated for implementation, and we need to foresee that the users' experience may differ.

Following with the UCD methodology, we shall foresee to model some generic segments for different type of visitors. In general, three big different profiles segments can be targeted as a general framework. Below these segments are listed and ordered by the susceptibility of becoming real users of the potential end products and services of TAG CLOUD. This classification does not take into account the country, sex or age of the potential users. Although there are some correlations between different "persona" parameters, the most relevant for the cultural engagement purpose are the technological skills and the degree of interest in cultural places. Thus, the following are the user segments identified:

1. Familiar with the technology. Frequently visits cultural places.
2. Familiar with the technology. Rarely visits cultural places.
3. Not familiar with the technology. Frequently visits cultural places.

During the evaluation experience, there was also a chance to gather information regarding the preferences about Social Networks (SN) platforms and their usage; especially it was important to detect the type of content that is usually shared and the main social networks, more commonly used by participants. This gathered information will feedback the potential opportunity of integration of social networks' features in TAG CLOUD, as collected information comprises the kind of features that users demand, i.e. image sharing, microblogging, etc.

54% of people used SN platforms while and the remaining 46% didn't use any of them. Of those that use SN, 95% used Facebook, 25% used Google+ and 15% used Twitter. No SN with geo-localized points of Interest such Foursquare were mentioned.

The next step of the conversation went over the type of content that the SN users shared on the Internet. It was relevant that 53% of the participants shared images in their SN, and doing so, it was very meaningful for them. Although, 47% did not share any content, these users were "spectators" and watched the content generated and uploaded by others, as well as took in account the recommendations posted in the SN.
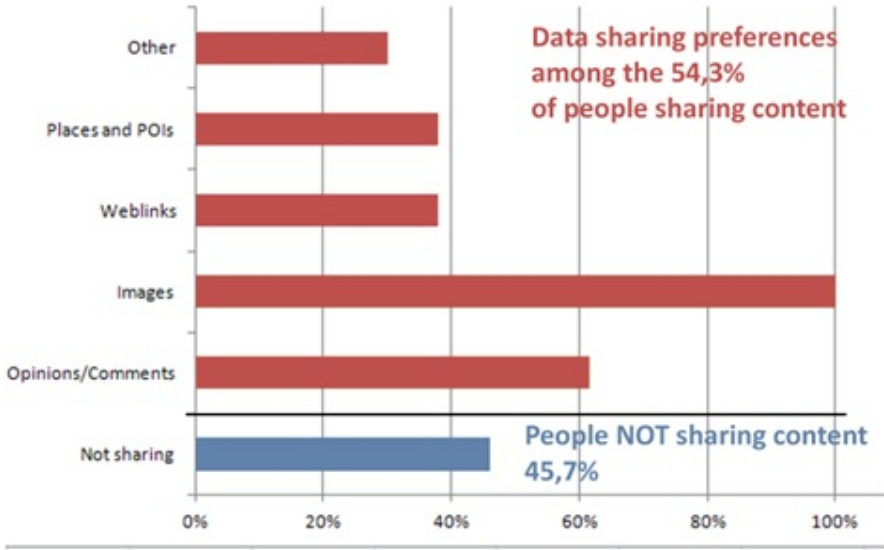
Fig. 2. Content shared by Social Network users in their preferred platforms

When talking about engaging users through relatively newer technologies there was a big correlation between the knowledge of the technology mentioned and this technology's maturity; as it is stated by Garter in the hyper-cycle maturity adoption methodology and charts [6]. Thus, the more mainstream and useful technologies are, the more likely to be used and comprehended by the users.

The evaluation identified that the knowledge of a technology for the general public seems to be independent from the "hype" that technology has raised. When we asked for some of the technologies TAG CLOUD might be considering to embed in the app, the results were: 63% of people know what the QR codes were. The Augmented reality is a familiar concept for just 14% of the interviewed people and 8,5% of the people ever heard about NFC. Only 5,7% of the people knew about gamification (one of the philosophies behind the engaging techniques), albeit the name of this technology is unveiling. However, when mock ups and examples where shared and explained to participants; in general people were receptive and commented that will be great to use them, as long as they will receive interesting content and services of interest. Hence, although people might not know the technology that underlies a use case, it does not mean that the users will not be willing to use/enjoy it. If fact, when pitching some of the ideal benefits and use cases of exposed technology to people under the idea of personalized services, all technologies received higher signals of interest by the participants.

The results show that the visitors expect valuable solutions, but usually they do not care about the underlying technologies. The level of awareness and benefits of offered solutions it is also important.

Alhambra's visitors were also asked whether they would use or not a mobile app for enhancing their cultural experience during a cultural visit. 60% of people agreed while a 20% of the interviewed declined. The remaining 20% were just sceptic and

would agree under different circumstances to use them. Among the ones that declined, 80% commented that currently they did not have a smartphone, but they were willing to rent one or either expected to soon have one soon.

Following, we tried to get an overview of why the users would decline using an app. The common answers were that visitors did not want to focus more on the app than on the environment, as they rather to enjoy the experience freely. Some other people were not too familiar with the technology and didn't know what kind of benefits it would bring to them. Finally, people also commented that there doubts regarding the fact that if they would need to pay for it or not, the app would drain their devices batteries or network bandwidth and having those doubts. Many of these people preferred to use audio or paper guides.

All gathered results have been extremely useful for starting to get in touch with the average user preferences and their expectations. These insights have provided feedback to the TAG CLOUD ideation, brain storming and prototyping phases; as well as valuable information for further potential exploitation and promoting plans.

In summary, we can say that users were looking for (ordered by importance) easy to use, useful, error free and economical applications. But the easiness and usefulness of the app were more important by far than the rest of the expected; meaning that the potentials users would even pay for the app and tolerate minor bugs if the overall experience provided is good enough. Users/visitors are looking for an app that works easily with almost no user intervention offering interesting and light information that complements the existing one but without distracting from it and engaging through technological benefits. The application should not disturb the experience and potentially could even substitute the audio and paper guides; but also without consuming a lot of network bandwidth.
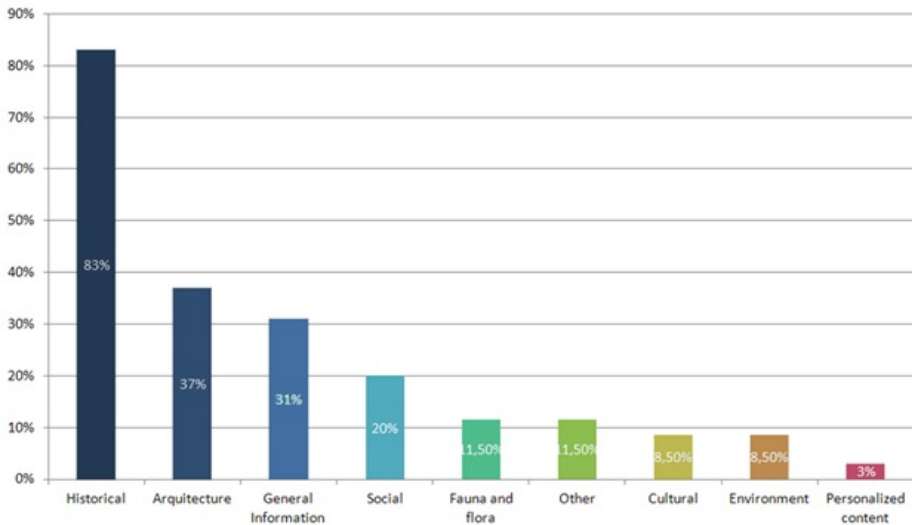

Fig. 3. Cultural heritage categories preferred by users

At this point, the only remaining question was to understand what the users consider useful information and which topics they needed to be covered in order to provide an attractive and interesting content. The following chart represents the different categories. The categories would change depending on the cultural place the users are in but it is relevant to have at least defined the top informative categories the users shall demand in order to fully enjoy a cultural experience.

4   Reviewing the Needs and Challenges from Spanish Cultural and Natural Heritage Managers

In parallel to users' evaluations, that allowed us to put ourselves in the "visitors' shoes" we have performed a focus group with 20 managers from different cultural and natural heritage sites with different sizes and needs (i.e. improving visiting experiences, increase visitation, new research, shrinking resources and new ways of sustainability). For this purpose an interview guideline and brainstorming session was developed in order to evaluate the different approaches they have to connect with visitors, as well as their future plans.

All participants agreed that there is a need towards a visitor and human-centered strategy in order to increase engagement with cultural sites. As commented by Gail Anderson in his book "Reinventing the museum: historical and contemporary perspectives on the paradigm shift", there is a need for a "paradigm shift from collection-driven institutions to visitor-centered museums has really taken hold" [7]. In this regard experts agreed that, even their institutions had a different nature, all their represented cultural sites have a story to tell: how it was made, how it originally appeared, how it has changed over time, etc., and engaging to a wide variety of individuals of all ages in a personalized way is needed. They feel that young people desires more information and contemporary presentations. Also, to engage with local people/visitors are important, as they can be linked to them in the full context of their rich heritage, rather than in cultural isolation. Thus, currently their mind-set is going towards providing experiences and services that increase active participants and not to visitors as passive spectators. Among main results, regarding needs and expectations, we have:

- Approaching different visitors with different preferences with a customized offering is recognized as very important need. It is expected that personalization could support an enjoyable cultural-driven experience that will empower visitors' motivation and engagement for culture, when incorporating personalization in the process of communicating the wealth of cultural heritage sites.
- There is an increasing importance of reaching and connecting with young people; they are the adults of tomorrow. Young people are seen as visitors, which are the most avid users of emerging technologies and social media. They need to be reached where they are and they want; and like to maintain their independence and power to engage the way they wish, not the way the mangers or city governors would do it.

- Technologies such storytelling and social media tools can be used for creation of a shared understanding, participatory dialogue as well as access, learn, share, experience and create your personalized views of an enjoyable cultural experience.
- There is a need for efficient solutions to manage all created digital content to be used in a user-centric and targeted manner; but the challenge is to guarantee high-quality information standards at low costs.
- TAG CLOUD scenarios could take effectively place and in a mainstream way, in 5-8 years. Thus there is a need to be fully prepared and integrate the understanding of the visitors' interests, likes and preferences.

5   Conclusions

TAG CLOUD puts users / visitors at the centre of the project, from its inception. All evaluations experiences insights feed not only the TAG CLOUD application and project but also Cultural Heritage pilot sites.

From visitors/users point of view we can say that the novelty of technology is not the main driver to get engaged in ICT-based participative experiences. Users' adoption of mobile technologies is increasing and foresees to increase. In this regard, the following opportunities for increasing engagement can take place as long as the users perceive their value, awareness will be channelled and visitors experiences will be untapped driving differentiated activities and participation.

Use of technologies as augmented reality and social media are envisaged as a driven for increasing engagement of people with cultural heritage sites. They can be used for providing personalised experiences and thus, have a great potential to improve the user experience and enjoyment of culture.

Moreover, institutions and cultural heritage sites are willing and ready to adopt emerging technologies related with personalisation and customized services. There is a need to build and converge into a set of integrated services to be used before, during and after the visit for lifelong engagement.

Insights and results from evaluations, coupled with above conclusions, are seen as very valuable information for the TAG CLOUD project. This information really provides useful feedback for working toward a platform that supports sustaining the users/visitors' interests, build new cultural sites' audiences, increase shared heritage, identity and citizenship, as well as provide new cultural-driven learning environments.

TAG CLOUD team believes that through personalisation and keeping users in the centre of all cultural-driven processes, the Cultural Heritage sites can make visitors' preferences, interests, prior cultural-driven knowledge and hobbies/skills, a valuable asset to enable cultural engagement.

References

1. Eurobarometer 67.1 (2007), `http://ec.europa.eu/culture/pdf/doc958` `_en.pdf` (accessed October 14, 2013)
2. TAG CLOUD project, CN. 600924, 7th Framework Programme, ICT for access to cultural resources (February 2013), `http://www.tagcloudproject.eu/`
3. Abras, C., Maloney-Krichmar, D., Preece, J.: User-Centered Design. In: Bainbridge, W. (ed.) Encyclopedia of Human-Computer Interaction. Sage Publications, Thousand Oaks (2004)
4. Carroll, J.M.: Five reasons for scenario-based design. In: Interacting with Computers, vol. 13. Elsevier (2000)
5. Isaac, A., Matthezing, H., van der Meij, L.: The value of usage scenarios for thesaurus alignment in Cultural Heritage context. In: Proceedings of the First International Workshop on Cultural Heritage on the Semantic Web, 6th International Semantic Web Conference (ISWC 2007), Busan, Corea (2007)
6. Gartner, Inc., Gartner's 2013 Hype Cycle for Emerging Technologies Maps Out Evolving Relationship Between Humans and Machines (2013); Online Published (August 19, 2013), `http://www.gartner.com/newsroom/id/2575515` (accessed December 11, 2014)
7. Anderson, G.: Reinventing the museum: historical and contemporary perspectives on the paradigm shift. AltaMira Press, Walnut Creek (2004)