

## **Guest Editorial**

We all know that museums and exhibitions were synonymous for many centuries with physical spaces in which artifacts were displayed at a safe distance to their visitors. After the introduction of information and communication technologies (ICT), these physical exhibitions have taken the shape of online or virtual exhibitions, which are much more economical and useful to both exhibitors and visitors. Day by day new tools, techniques and technologies are introduced and they are helping the designers to produce much more attractive, useful and educative online exhibitions that are able to give almost the same feeling or experience to the visitors.

An exhibition is a public showing of works of art, artifacts, objects of manufacture, or special skills for various purposes including education, pleasure, business, advertisement, marketing, etc. Online exhibition is an exhibition event which can be viewed right on personal computers/mobile phones using Internet/General Packet Radio Service (GPRS) any where, any place and any time. It is best way of disseminating information in digital form including exhibiting products, artifacts, and educating visitors on any topic.

Virtual Exhibition is the collection of digital replicas of real events or objects developed with the help of multimedia and virtual reality tools and produced a simulated environment in a PC environment and delivered through Web so that users will get the same satisfaction as if they are seeing or using the physical objects in a museum or exhibition. The difference between online and virtual exhibition is marginal. All virtual exhibitions are online exhibitions but not vice versa. Normally all virtual exhibitions will provide a simulated real environment using Virtual Reality tools which is a bit more difficult, expensive and time consuming to develop than a simple online exhibition. Unlike traditional exhibitions, these exhibitions could be viewed free of cost, at their own convenience and in their own time zone. Virtual Exhibition takes actual events and replicates them online prior to, during and after each event has finished. It extends the life of the event for both

sponsors and exhibitors. It helps the people who could not physically go and view the event and importantly makes key information available to them. The Virtual Exhibition will give exhibitors the opportunity to provide continuous access to their products and services on a fully interactive basis from all geographical locations across all time zones, 24 hours a day. The exhibition will provide access to visitors through a variety of mediums like text, graphics, audio, video, and presents all of them together in the form of virtual scenarios which visitors can access using a standard PC and Web browser over the Internet. These are true replica of traditional exhibitions that are re-created in virtual mode—the layout of the exhibition halls, stands, visitor reception and information points, meeting areas etc. Unlike traditional exhibitions, these exhibitions do not have time and location constraints, but will be accessible 7 days/24 hours free of cost, at their own convenience and in their own time zone.

Traditionally all exhibition visitors have had to physically go to an exhibition site which is far from his/her place to see the art, culture, heritage, workmanship, etc. The visitors need to travel long distance, spend lot of time and money to visit such an interesting exhibition. However, today's online exhibitions one can access directly from anywhere in the world through an Internet connection without spending much time and money to visit the exhibition site. Though the developers try to provide same quality of visuals the real museums providing to the visitors but they are as real as original artifacts displayed in the exhibitions. In some cases these exhibitions are much better than their physical counter parts in terms of their access, flexibility, supply of information, providing links with other similar exhibitions (for comparison or research purposes), protecting the original artifacts from wear and tear, integrating with schools and colleges curriculum, reusing the digital content as many times as one wants without any additional cost.

Many researchers found that the museum's viewers would less likely to make a special trip to a museum to see the original object when the facilities

were available to see the same at their home PC however, the demand for the original work is increasing. One of the examples in this category is Nizam's Jewellery exhibition organised in and outside Hyderabad city. During this digital era, the number of virtual visitors is steadily growing and in some cases, outstripping the number of visitors to the corresponding physical museums. They encourage a geographically distant digital visitor to become a physical visitor, and to encourage physical visitors to continue their visits to the museums after their first visit.

Online exhibitions provide unique opportunities for institutions to promote their collections, to identify donors, and education. The increasing popularity and number of online exhibitions, and the continually evolving technological possibilities require information professionals to cultivate a wide range of organizational, curatorial, educational, and technical skills. Today's online exhibitions are digital replicas of previous generation physical exhibitions to help more people to see and enjoy however, they never replace the real physical exhibitions in which people have much better experience and that experience will last longer than to their virtual counter parts. The use of new media tools in the production and delivery of online exhibitions made lot of impact on the visitors so differentiating between the physical and virtual forms become blur. The majority of these online exhibitions are trying to attract the audience of 16 to 25 year old people. So, the design of these exhibitions should be more graphical, colorful, playful and aesthetically attractive to meet the requirements of all types of visitors particularly the youth. To give the real feeling to the visitors, the designers are using 3-D modeling tools to create real scenes in virtual mode and adding multimedia content to provide value added experience. The designers are trying to provide the actual collection objects in the exhibit areas. Finally they also use light and shadow effects that bridge the gap between physical and virtual scenarios.

Several well known techniques are being used by museums to attract visitors—not only new visitors, but also to persuade regular visitors to return to the museum—and some are very successful in many systems. These include the organisation of exhibitions, entertainment and cultural events, educational programs addressed to well identify audiences, with a special focus on young people, and on professional training on themes where the museum or its associates have some expertise.

A museum website needs to use special techniques to make it a place worth visiting: the site

must have interesting and useful information and be well organised so that its access by visitors is simple and enjoyable. The major trend in the design and the presentation is the use of virtual reality environments with the help of VRML tools and QTVR to create panoramic views of 3-D objects and this gives the feeling of real environment to the visitors.

The various types of adaptive presentation techniques are used in the development of online exhibitions including adapting the content of a page accessed by a particular user to current knowledge, goals and other characteristics of the user. Existing adaptive presentation techniques deal with text adaptation but image, audio and video adaptation is not yet introduced in the online exhibitions. The common type of dynamic information adoption including summarising information, Highlighting issues, Compare different items, and Highlighting differences.

Though Virtual exhibitions are born digitally they are often based on physical exhibitions, virtual exhibits demonstrate a great variability in content, structure, navigation, design and complexity. They vary from a simple selection of images arranged in a given way to highly sophisticated multimedia architectures and narratives. The main difference between a virtual exhibition and other forms of online presentation is a stronger dependency established between context, form and content, and between the whole and its parts. Obviously, all these combine with the specific attributes of the medium, those including procedural, spatial, interactive, encyclopedic, multimedia support and cyber culture.

The major institutions those are dealing with cultural heritage information including archives, museums, libraries, archeological sites and monuments, cultural and heritage centres, and academic institutions. Online exhibitions are being used as a flexible and modern tool for delivering heritage information to the children and public. Online exhibition offer children access to a variety of information sources and give an opportunity for them to contribute additional information from their personal experience. Out of so many Indian cultural heritage institutions, only Indira Gandhi National Centre for the Arts, New Delhi is doing some thing worthwhile towards the cultural awareness about India's rich culture and heritage. Unfortunately the national bodies like National Archives of India, Archeological Society of India, national and state museums, art galleries, etc. are not contributing the way other countries are doing to their citizens. These institutions still follow age old methods, techniques, technologies to collect, organize, preserve and

disseminate information to people in and outside the country. Computers, telecommunications, networks and other IT tools should be effectively used for all activities of these institutions so that information that they have in different forms (books, manuscripts, artifacts, drawings, paintings, etc.) could be made available to global audience. The countries like UK, USA, Australia, and Canada are making use of online exhibitions as tools to disseminate their cultural heritage information to educate their citizens particularly the youth and also attract tourists and contributing to their economy to a large extent.

As learning networks, web-based online exhibitions can be linked through their parent organisations to encourage international collaboration in learning or research projects. Such online communities can be facilitated via real meetings, chat rooms or listservs, within which the process of developing a joint product is negotiated. In fact, once the exhibition is put online, it becomes immediately available to every student, not only in India, but also all over the world. This helps to share our culture, heritage and history with the international community, as part of a global cultural exchange. Teachers will also find it easy to download the digital materials for integrating into their teaching syllabi. Students can also use the online information for their school projects. This kind of learning experience leads to critical thinking, as students gather information, organize it, create meaning, reach insight, and present their findings online to global audience.

The issue covers many articles by the experts those are involved in various areas either directly or indirectly related to online exhibitions. Some of the major areas those are fundamental for the development of online exhibitions including:

- ✕ General issues related to online/virtual exhibitions
- ✕ Design and development of online/virtual exhibitions;
- ✕ Online/virtual exhibition development tools;
- ✕ User interfaces, authoring tools & techniques
- ✕ Use and user studies of online/virtual exhibitions
- ✕ Online/virtual exhibitions applications in education;
- ✕ Impact of online/virtual exhibitions on various types of users and on society;
- ✕ Online/virtual learning environments;
- ✕ Customisation and adaptability of online/virtual exhibitions;

- ✕ Multimedia and virtual environments;
- ✕ Cost-effectiveness and outreaching programmes;
- ✕ Real world vs virtual experience of visitors;
- ✕ Specific online exhibition projects and applications;
- ✕ Ongoing and future developments and trends in online/virtual exhibitions;
- ✕ Online/virtual exhibition standards.

The purpose of this issue is to present an overview of the research and development work being done related to online or virtual exhibitions so that the professionals who are interested all over the world in general and particularly India where this journal is predominantly circulated would get benefited by the experts papers in this area. Unfortunately not much work done in India from museums, libraries, universities, art, cultural and heritage institutions who are supposed to be major players in producing online exhibitions however, some people related to art and industrial sectors are showing some interest and recently started producing online exhibitions for various applications.

Although India provides IT related services to entire world, Indian institutions are not utilizing their local techies to produce online exhibitions to disseminate their information to the outside world. One of the reasons could be that the senior management personnel who manage these institutions are not exposed to these technologies thus lagging behind. Similarly, it is also noticed that there was not much response from the author to submit papers to this issue from Indian professionals but from other countries the response was really encouraging. In total 16 people submitted their papers but finally 10 papers were accepted for publishing after reviewing by the experts and being published in this issue.

This issue covers papers providing an overview of online exhibitions, authoring tools, conceptual system design issues, evaluation methods, metadata, applications and marketing issues. The first paper by Chee Khoo and Ramaiah gives an overview of the online exhibitions, their advantages, applications in various fields, and major producers of these exhibitions. Also provides a review of major online exhibitions in broad areas so that readers will get an idea of their use for different purposes.

The quality and use of an online exhibition depends upon its conceptual system design considerations. Prof. Foo of NTU, Singapore provides several best conceptual system designs proposed by various

experts in the world to produce and successfully implementing online exhibitions. It is difficult to develop a system that is suitable to all types of users so multiple versions of an exhibition are suggested by the experts. For that purpose various types of authoring systems, their systems architectures, metadata requirements and advantages of such systems in the present context discussed by the author in this paper.

Layering concept first was introduced in image processing which has many advantages so immediately commercial software likes Adobe Photoshop adapted into their design tools. Prof. Chen, Dr Hum and Dr Shih introduced the layering concept in content and style document of online exhibition so that one can easily implement the same to satisfy different types of users of digital museums.

User interface is one of the most important components of any system where users directly interacts with the system while using so its success and acceptance is depend upon its design. So, selecting an appropriate interface is more crucial for any system development. Viralingam and Ramaiah's paper provides a review of various types of user interfaces for online exhibitions and also provides suggestions to choose an appropriate interface for the general users. Basically this paper compared two most important user interfaces, i.e. HTML and Flash that are being used by many people in the real world scenario for the design and development of an online exhibition and also listed their strengths and weaknesses.

Evaluation is one of the important steps of any systems development. Sylaiou, *et al.* discussed the advantages of Presence Centered Assessment and also provided the evaluation results of seven virtual museum exhibitions in their paper. Another paper by Rose Roberto examined the effectiveness of online exhibition's websites as educational resource for various types of people.

Metadata is most important for the preservation and retrieving of online exhibition's content when we want to reuse them. Vassilakis, *et al.* discussed the

issues related to cataloguing of online presentations of museum exhibitions.

Search engines are not only useful for searching the content of online exhibition but also for marketing and improving the visibility of an intuition. A short research communication by Arsenault and Feeny provides tips on the return on investment through search engines in online exhibitions.

There are two case studies in this issue related to online exhibitions and the first one is by Chang from Taipei presents an implementation of a virtual archival system. The advantage of VR tools and how to develop a virtual reality environment is also discussed in this paper. The second paper by Monfort, draws our attention to use virtual exhibition as an attractive model forum.

The field of online/virtual exhibitions is very specialized and narrow field but the tools required to design and develop, the methodology one has to follow in producing those systems, fulfilling the requirements of different types of users, deals with multidisciplinary in nature. Nowadays, many people are realizing the need and use of online exhibitions for various purposes including in education, research, tourism, entertainment, and cultural heritage awareness. The papers presented in this issue gives very small glimpse of the work being done in this area however, I try to cover as many issues as I can related to online exhibitions keeping the special issue standard size of this journal in the mind.

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