

Digital Art by teamLab

Noriko Taniguchi

**Catalyst at teamLab*

Summary

teamLab aims to explore a new relationship between humans and nature, and between oneself and the world through art. Digital technology has allowed art to liberate itself from the physical and transcend boundaries. teamLab sees no boundary between humans and nature, and between oneself and the world; one is in the other and the other in one. Everything exists in a long, fragile yet miraculous, borderless continuity of life.

Key Word: Digital Art, Technology, Interactive Art

The digital realm, free from physical constraints, allows for unlimited possibilities for expression and transformation. Before digital technology became widely used and accepted, artistic expression had to be presented in some physical form: paint on a canvas, carvings in stone, or images printed on photography paper. This bond to the material was a permanent one - once artistic expression was attached, it could never be removed or altered. With the advent of digital technology, however, human expression is now free of these physical constraints, allowing it to exist independently and evolve freely.

We believe that digitized spaces can change the relationships between people. In more traditional forms of art, from the viewer's point of view, the presence of others is a nuisance at best. But if that same presence triggers change in an interactive art space, those people become a part of artwork instead of an obstruction to it. And if that change is beautiful, the presence of those people must be beautiful as well. Through this combination of digital art and technology, we feel that we can make the presence of others into something to be appreciated rather than disdained.

The importance of this shift in thinking stretches beyond the art world. In modern cities, the presence of other people around us is often seen as an inconvenience to be endured. This is because the presence of individuals has no visible, positive effect on the city. But if cities were to be immersed in teamLab's digital art, whereby entire environments

evolve and change as its inhabitants move about, we believe that people would begin to see the presence of others in a more positive light.

It is worth noting that, historically, those whose names we remember most tend to be scientists or artists. Why? Because both art and science have changed humanity.

Science has helped to explain phenomena, and can allow humans to extrapolate from the limited data we can take in through our senses. For instance, if a small ball is thrown hard at a wall, we know it will bounce off because of the laws of physics. So even if the ball's movement is too fast for our eyes to follow, science allows us to form an educated guess as to where the ball is headed. In the same way that science can supplement our senses, so too can art supplement our perceptions and change our understanding of the world we live in.

Design of Digital Interactives for Science Museums :Lessons Learned from the Planning of National Digital Heritage Museum

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Summary

KAIST is planning on establishing the KAIST Science Culture Museum (provisional) in Gongju city of Chungnam. The experience acquired from the process of setting up the basic framework for the National Digital Heritage Museum in 2013 and 2016 provides lessons for the establishment of the basic framework for the ongoing construction of the KAIST Science Culture Center. In this paper, these processes will be discussed along with the points for consideration in designing the interactives for science museums. Therefore, the direction to provide the audience with the optimal experience through the interaction design, information design, and technology design based on the context, narratives, and the mission of the institution will be provided.

Key Word: Science and Culture Museum, Digital Exhibition Media of National Digital Heritage Museum, Hands-on, Interactives

1. Introduction

KAIST is planning on the construction of the Science Culture Museum (provisional) in Gongju city of Chungnam (Yonhap News). It is in the process of establishing the basic framework for the construction of the KAIST Science Culture Museum. In planning the exhibition, it takes into account the nature and the operational direction of the museum, with research and investigation concentrated on exhibition based on the interactive digital technology. Along with this, it is focusing on the points that need to be considered prior to the selection of the technologies and the materials in planning the interactive digital exhibition media. In this process, the experience gathered from setting up the basic framework of the ¹Digital Heritage Museum in 2013 and 2016 is providing lessons.

Based on the digital cultural heritage, the National Digital Heritage Museum serves the role of a museum by providing digital cultural heritage resources and exhibition media rather than real heritage. The concept of digital heritage came into being with the development and the expansion of the digital technologies. The awareness of the importance and the value of digital heritage in various forms is increasing including the preservation of cultural heritage using digital

technologies, the establishment of cultural heritage in digital forms, etc. (Jaehong Ahn, 2016). The National Digital Heritage Museum may be a new form of a museum called into being in the digital era reflecting precisely such a trend. In light of the direction of the operation of the museum, the Museum has something in common with the Science Culture Museum, in which the exhibitions based on the digital technologies are the linchpin of the museum. Therefore, the possibilities, limitations, risk factors, etc. which were produced in the process of planning the Digital Heritage Museum have important implications in planning the KAIST Science Culture Museum.

With the recent development of sensor technologies, diversification of development tools, and increased attention to exhibition based on digital technologies, museums or science museums are active in introducing digital exhibition media. In particular, large or mid-sized museums that can cover the cost of installing and developing digital systems have newly introduced the interactive digital exhibition media, with the expectation that it could function as a new element to advance the existing exhibition and attract the audience. The problems or the direction considered in the planning of the KAIST Science Museum will be able to apply to that of the interactive digital exhibition media of the existing museums. In this paper, the researcher proposes discussions on designs of digital interactives for

¹ In accordance with Article 1 (2) (museum material) of the Enforcement Decrees of the Museum and Art Gallery Support Act, intangible exhibits including information/data expressed in sounds or video clips are recognized as museum materials.

However, experts have a differing view of whether to acknowledge an institution with only digital archives as a museum or not.

exhibition media with lessons from the establishment of the basic framework of the National Digital Heritage Museum as the center.

2. Project on establishment of basic framework for museums

2.1 KAIST Science Culture Museum

Though in fledgling stage, the establishment of the framework for constructing the KAIST Science Culture Museum is taking the active utilization of the digital technologies as a basic direction, considering the technological trends, the nature of the institution, and the conditions of the museum. In particular, the interactive digital exhibition media will play a pivotal role in maximizing user participation. Thus, this research of establishing a basic framework is paying attention to the direction of designing the interactive digital exhibition media in museums and science museums and the related case studies.

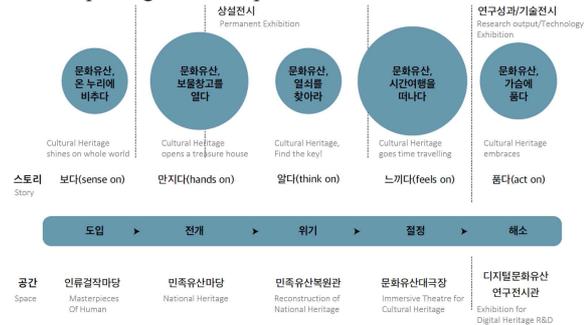
The National Digital Heritage Museum which is slated to be founded in Sejong city places the utmost importance on the interactive digital exhibition media. In this vein, research on designs of interactive digital exhibition media was carried out in the project on establishing a basic framework for digital cultural heritage in 2013 and 2016.

2.2. Background of establishment of the National Digital Heritage Museum

The National Museum Complex is slated for construction in Sejong Metropolitan Autonomous City by 2023 (National Agency for Administrative City Construction). Various national museums and integrated facilities are planned for construction in the complex. During the first phase, the Children’s Museum, the City Construction Museum, the National Record Museum, the Design museum, and the National Digital Heritage Museum will be established. The National Digital Heritage Museum will be operated by the Cultural Heritage Administration. By retaining only partial or no actual artifacts at all, the Museum provides the audience the experience of cultural heritage through the digital heritage resources and digital exhibition media. By doing so, it raises people’s understanding of cultural heritage and digital heritage. The need to establish this museum has been brought to the fore in line with the global trend to preserve cultural heritage utilizing the digital technologies and the efforts to increase public access to digital resources of cultural heritage. (Cultural Heritage Administration, 2016).

A number of projects were carried out to set up the plans for constructing the National Digital Heritage Museum. In 2013, the project ‘Research in plans to operate the National Digital Heritage Museum’ was initiated by the KAIST Graduate School of Culture Technology. The purpose of the project was to build the system that ensures a successful beginning and a sustainable operation of the Museum, establish contents and archives, perform the analysis of the

spatial design and propose an effective direction of the operation. In 2016, the project ‘Research in basic framework for exhibition in the National Digital Heritage Museum and spatial structure’ was carried out by a consortium of the KAIST Culture Graduate School of Culture Technology and Korea University. The purpose of the project in 2016 was to build plans for contents and systems needed for program planning and opening and for operation.



<Fig 1> Diagram of story and space of the National Digital Heritage Museum proposed in the 2013 project

2.3 Implications from the projects

In the 2013 project, researchers conducted literature review and case studies to analyze the characteristics of Korea’s cultural heritage and the trends in technologies used in exhibition in museums, thereby proposing the exhibition themes and materials as well as digital technologies that can be utilized. They also divided the spaces by theme and proposed the direction of construction (Fig 1). In this research, the vision of the museum was designated as a “Leader of establishment, preservation, and experience of digital heritage”. The research also defined the museum’s identity as an institution in which 1) cultural heritage is experienced through digital technologies; 2) it leads in construction, preservation, and utilization of digital heritage; and 3) digital heritage is studied and educated.

In the 2016 project, the need to expand the research results of the 2013 project arose by means of analyzing the environment and the requirements that changed since 2013. In a bid to get a grasp of the current conditions surrounding the National Digital Heritage Museum, the PEST (political, economic, socio-cultural and technological) analysis and the SWOT (strengths, weaknesses, opportunities, and threats) analysis were conducted. The PEST analysis showed that the institutional basis for the integration and the utilization of cultural heritage resources is only at a beginning stage in Korea, and that despite the continued increase in the society’s calls for the opening of the public data and information sharing, it remains largely around simple access and search of such information. It concluded that there is a need for establishing the Museum by analyzing the sustainability of cultural heritage information, industrial utility, digital experience, and successful revenue model. The strengths and the opportunities in the SWOT analysis were identified to be the credibility in the authority and the expertise of the Cultural Heritage Administration, increased social attention to the

institutions with the theme of digital heritage and the exhibition based on digital experiences, and technological expertise of the research and industrial field of the country. On the contrary, the absence of cultural heritage contents and staff with technological expertise and the lack of utilization and management infrastructure for digital resources were identified as weaknesses. The threats were analyzed to be the need to secure differentiation from the digital exhibits of other conventional museums and pull factors different from other museums in the same complex, and the rapid change of digital technologies. Along with this, literature review and visits to institutions were conducted for case studies. The Cleveland Museum of Art, Cooper-Hewitt Design Museum, Metropolitan Museum of Art, Local Projects, teamLab, and DNP were designated as institutions for visits in a bid to analyze and study digital policies, operation of related agencies, planning of exhibition and spaces for interactive digital media, media research, etc.

Through the analysis, case studies, advisory consultation, etc., the problems and requirements that were not dealt with in the previous research were brought to the fore. In particular, the rapidly-changing technologies and the expansion of digital technology in exhibition were identified through the environmental analysis and case studies. It was concluded that the expansion of digitalized contents of cultural heritage was making it more difficult for the museum to secure differentiation and competitiveness. Aggregating the requirements that resulted mostly from the changing environments, the following four first priorities were produced.

1) How can it be differentiated? It relates to an external factor, which is a task of securing differentiation from other similar institutions which include the museums utilizing digital media as an auxiliary tool in exhibitions of cultural heritage and other museums that exhibit based on digital technologies. It means the challenge is to overcome the similarity of utilizing the digital technologies in exhibition.

2) What is the value to deliver? It is an external factor that relates to what kind of value should be delivered by the museum.

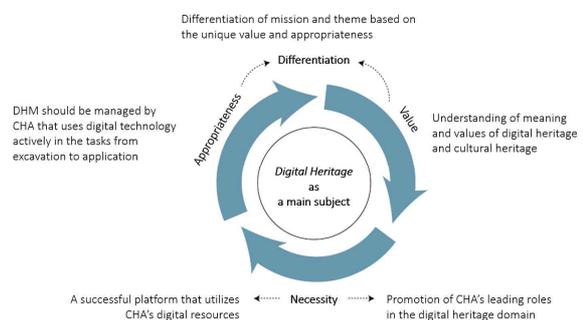
3) Is it needed by the Cultural Heritage Administration? It is an internal factor, which relates to the questions of why construction of the museum is needed for the Cultural Heritage Administration and further for the people and the nation.

4) Why should it be run by the Cultural Heritage Administration? It is an internal factor that deals with the reason why the Cultural Heritage Administration should be the principal agent in its operation.

Without addressing the above priority tasks, as it was concluded, it may be more difficult to deliver the identity of the institution to the audience and further to compete with the similar museums, thereby failing to convince the establishment of the museum. As it is hardly a task that can be resolved with individual technologies or contents, it was concluded that the *raison d'etre* of the museum should be reconsidered with its mission and identity reset. First, the task began from the unique strengths of the

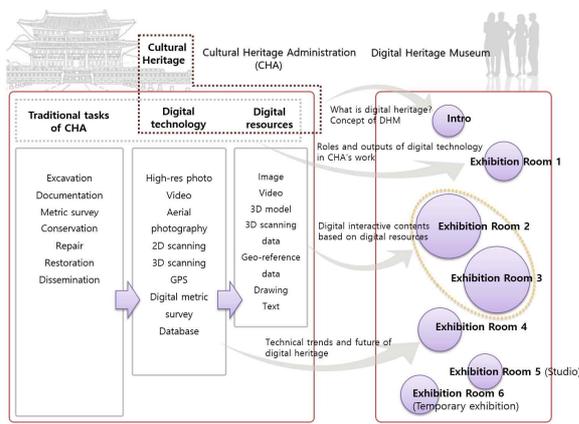
Cultural Heritage Administration and the significance of the digital cultural heritage in the contemporary age. The Cultural Heritage Administration is a national institution that works to preserve and manage cultural heritage, which is currently active in utilizing digital technologies, having established and disseminating the digital resources. In addition, the concept and the field of digital heritage that has newly come into being in this age are being more appreciated and utilized in recent years. Still, the efforts of the institution in leveraging its digital technologies to preserve cultural heritage or the significance of the digital heritage itself are not well known to the public. In this vein, the core theme of the museum has been proposed as being the digital heritage itself, moving beyond simply displaying cultural contents by means of digital technologies. By doing so, the Museum can be differentiated from other museums or exhibitions and the Cultural Heritage Administration can be justified in being the main agent of operation of the museum and can leverage its strengths in doing so. On top of them, the Museum can serve as a platform utilizing digital resources the Administration acquires. (Fig 2)

<Fig 2> Solution to priority tasks



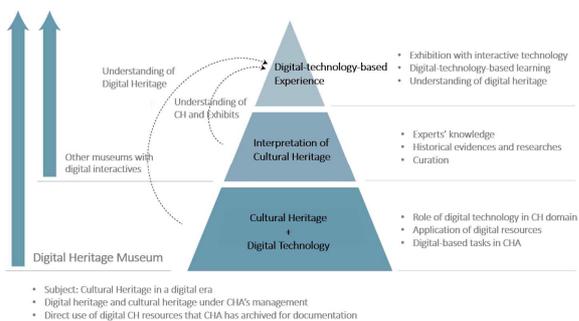
In other words, the Museum is an institution that collects, operates, researches, exhibits and educates based on digital heritage resources, which is not one that 'uses digital technologies to display cultural heritage', but one that has 'digital cultural heritage as main theme'. With this as a background, the direction and the theme of the exhibition were reestablished in the research and the theme and the space of each exhibit hall were proposed. (Fig3)

<Fig 3> Diagram of exhibition themes of the National Digital Heritage Museum proposed in the 2016 project



In particular, they were arranged in a way that such intention and theme can be understood by the audience as they go through the interactive digital media. This is intended to give the audience a perspective through the contexts and narratives in experiencing individual exhibitions on various themes. Also, the audience's experience was designed in a way that the contexts are divided by exhibit hall based on a consistent theme. With the reestablishment of the institution's identity and theme, the Museum has been designed to have a differentiated strength in the value delivered to the audience and in the operating agent. (Fig 4)

<Fig 4> Differentiation from other museums



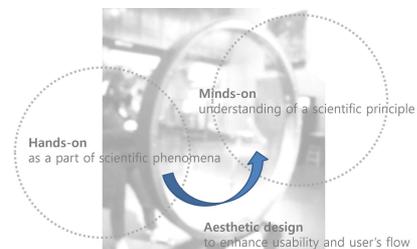
The change in the environment and the technology identified in the 2013 and the 2016 projects, the reestablishment of the institutional identity that followed and the change in the direction of the exhibition have important implications in the planning of the interactive exhibition based on digital technologies. While the interactive digital media expands the scope of the use of exhibition technology and the freedom of planning, differentiation has been made difficult due to the versatility of the technology. Moreover, it has become important to design the audience's experience in a direction that the Museum wants. In this context, not only the selection and development of individual technologies and contents, but also the questions of in which context and narratives they should be delivered and how they should be made to correspond to the institution's mission must be taken into consideration as well.

3. Hands-on and interactives for the museum

The Exploratorium based in San Francisco is known as a

science museum where the hands-on exhibits have been effectively materialized. For this research establishing the basic framework for the Science Culture Museum of KAIST, the researcher has made a visit to the Exploratorium and analyzed the facility and the exhibits. Almost all exhibits in the Exploratorium are hands-on, providing interactive control experiences rather than simple on/off functions. The movements and the process of the audience controlling the exhibits are in and of themselves the act of creating scientific phenomena where the audience's movements become part of the phenomena as well. In this process, exhibits that have been well designed in terms of artistic and utility value reinforce the experience and the immersion of the audience and at the same time enable all of the audience, young and old, to enjoy the exhibition. (Fig 5)

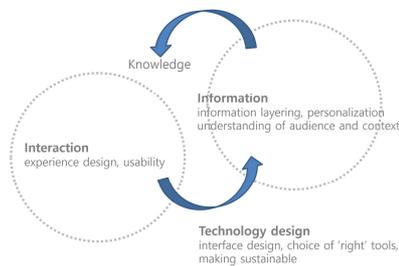
<Fig 5> Hands-on in the Exploratorium



Interactive digital media can bring about similar implications from the purpose and the effect of the hands-on exhibits. The purpose of the interactive digital media is the same as that of the hands-on, and it can entail the decision-making of the audience just as the hands-on elicits minds-on (Miles et al, 1982). Shedroff, N. proposed the three elements of interaction design, information design, and sensorial design as points to consider when designing contents for interactive digital media. (Shedroff, N., 1999). Information design should enable information in the contents to be the knowledge of the audience. Each spectator internalizes information into knowledge through experience. As such, the questions of which information to deliver, how to satisfy the needs of the audience from various backgrounds, and which experience is helpful to be delivered as knowledge should all be taken account. Along with this, the establishment and the utilization of the digital resources which constitute the basis of information should be a significant element. A prime example was identified from the case studies in the project to establish the basic framework for the National Digital Heritage Museum. In the Gallery One of the Cleveland Museum of Art and the Cooper-Hewitt Design Museum, the digital assets are archived and utilized directly in exhibit contents, thereby increasing the efficiency of the establishment and the utilization of digital collection. Interaction should be designed to provide meaningful experience to the users. In the case of the Science Museum, the information will center mainly around the principles of science and scientific contents. Here, the interaction experience should not be designed in a way the scientific principles or phenomena are simply 'explained' to the audience but structured to

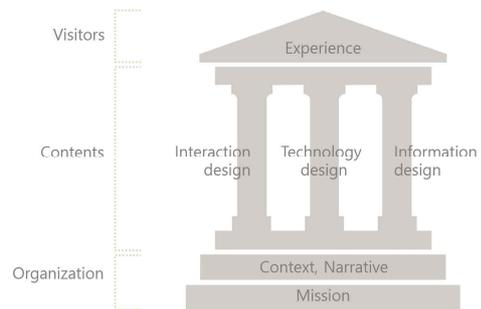
enable the audience to engage in minds-on experience. The sensory design includes everything from the development and the expression of the media, and technological design to a large extent. In this process, which interface to choose to increase the utility and provide adequate affordance, which technology will be the 'adequate' tool for targeted contents, and how to make technologies sustainable will need to be considered. The fact that the audience knows the visual contents from the graphics are structured by 'algorithms' unlike the physical hands-on equipment directly delivering the scientific phenomena makes it difficult to design the interaction experience and information. M Csikszentmihaly defined the state of having an optimal experience by naturally immersing oneself in an interesting activity as a flow, for which, he said, it was important to make harmony out of the users' skills and challenges. (Csikszentmihalyi, M., 1992). In a bid to provide the audience the best experience where information is effectively delivered as knowledge, the digital literacy levels of various spectators must be taken into consideration to select the interaction and technologies as well as design the exhibits accordingly.

<Fig 6> Interaction, information, technology design



As was previously stated, much should be preceded before considering such elements of content design. In other words, the context or narrative should be provided on how to enable the audience to understand the content, elicit the audience's understanding of the institution's identity, and design contents in a consistent manner. This forms the foundation of the audience to better understand and experience the institution and contents. A leading example of museums with good interface designs based on the mission of the institution is the interactive Pen interface developed by the Cooper-Hewitt Museum for the purpose of input and storage. In sum, the digital interactive design to provide effective experience to the audience can be schematized as in Fig 7 below.

<Fig 7> Structural diagram of digital interactive design



4. Conclusion

The rapid development of the interactive digital technologies and the increased public attention to the topic are an important factor pushing many exhibitions to introduce interactive digital media. This paper described how the implications from the 2013 and 2016 products on establishing the basic framework for the construction of the National Digital Heritage Museum are being considered in the process of beginning to set up the basic framework for the KAIST Science Culture Museum and provided the structural analysis. The points considered here can be referred to when designing the interactive digital media in museums and science museums. Behind the possibilities of the interactive digital media, however, the questions still remain on the possible problems of the nature of the digital technology itself. Making technology invisible needs to be taken into further consideration to enable the audience not to pay attention to the technology itself but understand the significance delivered by the content itself. Moreover, it must be considered that the difficult challenges still remain, which include ensuring sustainability amidst the fast-changing technologies, enhancing digital literacy, and establishing long-term digital policies.

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Virtual Reality as an interpretive tool

Dave Patten
Science Museum, London

Summary

The Science Museum has recently started to explore the use of virtual reality as an interpretive tool. Virtual reality has the ability to bring objects to life and tell their stories in an immersive and compelling way. The hardware to deliver VR has become relatively affordable and the producing VR content has become easier making experimentation in this area possible.

Key Word: VR, Virtual Reality, Digital, Interpretation, Technology

1. Introduction

The Science Museum has a long history of experimenting with and developing exhibits based on emerging technologies. Projects such as Network 95, a video conferencing exhibit for children between the ages of 7-14 developed in 1995. InTouch, a system that automatically created personal website for visitors populated with digital assets produced at over 30 exhibits in the Wellcome Wing that used fingerprint recognition to identify visitors and allow them to save those assets at each of the connected exhibits, which was developed as part of the Wellcome Wing project and launch in 2000. Web Lab an exhibition developed in partnership with Google that consisted of a series of physical interactive installations located in the Science Museum that visitors in the museum and online could both interact with. The exhibition provided a shared space where online and in museum visitor could interact together whilst the museum was open and then was turned over wholly to online visitor when the museum was closed. Web Lab was open twenty four hours a day to visitors from anywhere in the world.

2. Handley Page VR

In 2016 we produced a new Digital Strategy and part of that strategy was a new initiative called Digital Lab. The Digital Lab is not a physical space but a strand of work that seeks to explore how museums can fulfil their role in the digital age. Operating at the intersection of design, technology and content, the Digital Lab explores the new forms of audience experience that are enabled through emerging digital technologies. With funding provided by

founding partner Samsung the Digital Lab has undertaken experiments in a number of areas. You can find out more about the Digital Lab here <https://lab.sciencemuseum.org.uk/>

In this paper I will be looking at using virtual reality as an interpretive tool. The museum has recently started to renew the permanent collection galleries and this has given us an opportunity to explore some new ways of interpreting our collections. In 2016 as part of the new Mathematics: The Winton Gallery we decided to explore how we might use virtual reality to interpret a single object and also to help visitors to understand the way that object inspired the design of the whole gallery. At the centre of the gallery is a Handley Page HP29 Gugnunc aircraft.



The Handley Page HP29 in Mathematics: The Winton Gallery

This aircraft was developed in the 1920's in response to a competition to make an aircraft that could fly safely, even at slow speeds and during steep takeoffs and landings when there was the greatest risk of stalling and crashing. The exhibition designer's Zaha Hadid Architects used the way air flows around an aircraft as inspiration for the gallery design. The curved overhead

structure and layout of the gallery represents airflow around the Handley Page HP29 aircraft suspended at its centre. The design was driven by equations of airflow used in the aviation industry, which are still an important area of mathematical research. We wanted to make an experience that would allow the visitors to fly in the aircraft, see the unique design features of that aircraft and how they affected the airflow and how those airflows are reflected in the design of the gallery.



The Handley Page VR

We decided to build a VR experience that would immerse visitors in what we hoped would be an enjoyable and educational way. The museum commissioned the London based digital agency Preloaded to partner on the production of this experience.



Airflow around the Handley Page

The idea was to make a workable VR experience and test it with visitors in the gallery (right next to the Handley Page HP29) to see if this would help visitor understand the way these unique features affected the way the aircraft flies and how the airflow around the aircraft is represented in the design of the exhibition. We were also interested to see if having done the VR experience visitors were more of less likely to look at the actual aircraft in more detail.



The final scene in the HP VR experience – the Hadley Page HP39

back in the gallery

The experience is not a permanent fixture in the gallery but was tested over an 8-month period at Museum Lates and for a couple of hours a week during normal opening times. We have run the Handley Page VR experience with over 1,000 visitors and the results have been very promising.



Visitors using the HP VR experience in Mathematics: The Winton Gallery

Almost all visitor once they have completed the experience go and look at the aircraft again, looking for the features highlighted in the VR experience. Visitors remember and can talk about the key features of the aircraft and how the aircraft inspired the design of the gallery.

3. Space Decent VR

Just before we finished the Handley page VR experience the museum acquired TMA19, the Soyuz capsule took British astronaut Tim Peake to the International Space Station and back again. This was a significant acquisition of the museum and we were keen to do something special to sit alongside it. We decided we would develop a VR experience that would allow our visitors to make the 400km return journey from the International Space Station to Earth. The museum partnered with Alchemy VR to produce a twelve and a half minute VR experience with narration by Tim Peake.

The experience is a CGI 360' video VR experience. The experience was created without access to TMA19 which was still in Russia being prepared for shipping to the UK. The team visited the Space Expo museum in Noordwijk in the Netherlands that has TMA03 which is very similar Soyuz capsule, to measure, scan and photograph it so that an accurate computer model could be created.



Inside TMA19

Working closely with the museum's curatorial team and a range of subject experts the experience was storyboarded and test animatics produced to ensure the experience was visually stunning, exciting and accurate. The final version took more than 100 computers over a month to render.

The experience is carefully crafted to explain the inside of the capsule – including explaining the major elements of the control panel, deliver important information about the journey as well as deliver stunning visuals including the way the ISS rotates before releasing the capsule, stunning shots of the Earth from space and the moment the sunrises from behind the Earth.



The International Space Station over the Earth

Whilst developing the VR experience the museum built a 20 seat VR lounge in London and a 10 seat lounge at the Science and Industry Museum in Manchester (another museum in the Science Museum group).. The lounge in London has 40 VR headsets, 20 can be in use at any one time whilst the other 20 are on charge.



The VR Lounge at the Science and Industry Museum in Manchester

Space Descent VR was developed as a paid for experience. Visitors are welcomed into the lounge and watch an on boarding video which introduces the experience and shows visitors how to put on and focus the VR headset. Visitors then put on their headsets (staff are on hand to help anyone who experiences problems doing this) and the experience begins.

The Soyuz TMA19 capsule is currently on a national tour of the UK and the VR experience tours with it, giving the public a chance to both this unique object and to take the amazing journey in it.

We have also licensed a version to the National Museum of Australia Museum.

The Space descent experience has been incredibly successful, it has allowed over 70,000 people to take that amazing journey from the International Space Station to the Steppes of Kazakhstan and we expect reach over 120,000 visitors over 2 years. When we took the Soyuz capsule to Locomotion in Shildon (part of the Science Museum Group) over 10% of all the visitors to the museum (over the 7-week period that the Soyuz was there) did the Space Descent VR experience. The occupancy of the VR experience during the tour has been over 70% which is an amazing uptake for a paid-for experience. The reaction from the public has been incredible and gives them a much better appreciation of this incredible object.

4. Conclusions

The Science Museum forays into virtual reality have been successful although there remain some serious challenges to overcome. VR experiences need some level of facilitation. The hardware will continue to increase in power (enabling higher frame rates) and screen resolutions will get better enabling crisper image quality. There are age restrictions on using the VR headsets which prevent children (a key part of our audience) from using the technology. We experimented with running the experience in a projection dome over the summer to cater for this audience. Virtual reality is certainly an area we will be exploring more in the future.

