ICAMT | International Committee for Architecture & Museum Techniques

Online Conference - 2020

October 7th - 8th

Architecture & Exhibit Design

New Challenges for Museums

ICAMT | ICOM

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Sponsors	Imagemakers An Award Winning Design Agency

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The Organization

ICAMT

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ICAMT

ICAMT is one of the first International Committees of ICOM, listed in ICOM News on October, 1st, 1948. Since its official date of creation (1949), ICAMT is the Committee in which information, best practices and ideas come together with aspects from the architecture, the techniques of the museum buildings and the techniques of exhibitions. Nowadays ICAMT provides a forum for communication between its members and other interested persons by organizing conferences and workshops, by the website and newsletters, and by other means of communication. We are always happy with and proud of our Committee members. For 2020, we count 615 individual and 21 institutional members all over the world.

In addition to the Annual Conference we are just launching, one of our plans for 2020 is to present ICOM and ICAMT on "Regeneration 20|30", a global platform which groups together businesses, institutions, and individuals involved in a collaborative effort. Built around three strictly interdependent pillars: Regenerative Economy, Climate Action and World Happiness, it is an economic, social, and environmental endeavor with a time span from 2020 to 2030. On October 15-16, 2020 there will be two days of digital and physical (in Parma, Italy) meetings to present the coalition to the world, globally involving stakeholders in the project. ICAMT will be represented in the section World Happiness, with the topic "Museums and Happiness".

ICAMT often collaborates with ICOM other committees. In November this year, ICAMT will take part in the 2020 Forum for ICOM International Committees, organized by ICEE and ICOM LAC. The Forum aims to create a space for exchanging ideas, networking, and collaboration among ICOM members in Latin America. During the Forum, ICOM International Committees will introduce themselves and promote their most relevant activities or projects with the purpose of engaging and attracting new members from National Committees in Latin America and the Caribbean.

We are happy with our partners. ICAMT and Politecnico di Milano, within their competences, intend to establish an ongoing collaboration aiming to work on joint projects focused on strengthening of museum institutions. ICAMT is glad to cooperate with ICOM Italy's working groups on "accessibility" and "exhibition fittings recycling", two important themes for our Committee.

These are, in short, our current activities, but ICAMT has many plans for the near future. We very much hope that the pandemic situation will be controlled next year, allowing us to fulfill our projects.

Nana Meparishvili
Chair of ICAMT

Board Members Involved

Alessandra Labate Rosso

ICAMT Secretary

Graduated in Visual Communications (1986) and Industrial Design (1987) at FAAP - Armando Alvares Penteado Foundation, São Paulo, Brazil, with Specialization in Museology at the Università Internazionale dell'Arte in Florence, Italy (1989).
Alessandra worked at the Museum of Contemporary Art of the University of São Paulo (1984–1987).
She works for EXPOMUS - Exhibitions, Museums, Cultural Projects - since 1988. During the last 30 years, she has been dedicated to the technical control of collections in many national and international exhibitions, management of collections, complementary projects for the implementation of new or revitalization of existing museums, and projects for storage areas of museums and collections.
She is a Board member of the International Committee for Architecture and Museum Techniques (ICAMT) of the International Council of Museums (ICOM) (2013/2016 and 2016/2019), Secretary of ICAMT Board (2019/2022), and was a Board member of the International Council of Museums (ICOM - Brazil) (2012/2018 and 2019/2021).

Alessandra frequently embarks on training courses, specializing in safety and risk management of heritage collections and in environmental certification processes (Green Building Council for LEED Leadership in Energy and Environmental Design).
Since its inception in September 2014, she has also held the position of Technical Director of CLÉ – Reserva Contemporânea (museum and collections storage solutions), taking an effective part in technical operations and interface with different kind of clients (in museum and private collection sector).

Eeva Kyllönen

ICAMT Treasurer

Eeva Kyllönen is a museum professional with over 20 years of experience in exhibition and project management. She has managed various kinds of projects from local and international exhibitions to new museums. She has worked several years as an Exhibition Manager at Espoo City Museum in Finland, and as a Project Manager in planning and carrying out a new museum, Pentala Archipelago Museum, opened in June 2018. Now she works as a Project Manager in Inari Finland, where the permanent exhibitions of the Sámi Museum and Northern Lapland Nature Centre Siida will be renewed and opened in April 2022.

Danusa Castro

ICAMT Board Member

Conference Moderator

After her graduation in Communication Sciences and postgraduation in Marketing in Brazil, in 1993, Danusa moved to Italy where, in 1998, she concluded *cum laude* her Specialization in Art History and Museology & Museography with a thesis on the origins and architecture of the Brazilian art museum MASP.

Since 2000, she has worked as Catalogue Manager and Registrar for an important Italian private art collection.

In 2019, she was elected Board Member of ICAMT and currently takes part at the ICOM Lombardy working group "Recycling of museum exhibition fittings".

Danusa also works as a Museology Consultant for FTG-Arte and as a Project Manager for Hoxby.

Maddalena d'Alfonso
ICAMT Board Member
Conference Moderator

Maddalena d'Alfonso is an architect. In 2019, she founded the Md'A Design Agency, a Milan based cultural consultancy and architectural design studio, offering sustainable solutions for architecture, design and cultural projects, emphasizing on accessibility to visual culture.
The ICAMT Board Member is qualified Associate Professor, following the *cum laude* doctorate in Interior Architecture, Museography and Set-up.
The architect has received the 2016 Red Dot Award and the Representation Medal of the Presidency of the Italian Republic for her previous projects.

Keynote Speakers

Nana Meparishvili
Chair of ICAMT
Introducer

Nana Meparishvili is the chair of ICAMT since January 2020.
She works with several Georgian museums as a consultant, mainly in context of museums development.
As an architect, working in the field of cultural heritage, Nana Meparishvili leads the company "Georgian House", in Tbilisi, Georgia. She studies traditional architecture. The title of her PhD work is "Cultural Heritage Management in Open-Air Museums". She has been working as a researcher with Smithsonian Center for Folklife and Cultural Heritage (Washington, DC) and Yokohama National University (Japan), conducting research about American and Japanese open-air museums.
Nana Meparishvili developed the first educational course about architecture of Georgian traditional dwelling, first implemented in the Faculty of Architecture of Georgian Technical University in 2004. Nowadays, she continues to lead the same course for undergraduate students at two Georgian universities (Ilia State University and Caucasus University) and prepares a new educational course, "Museum planning, architecture and museum techniques", for Tbilisi Academy of Fine Arts.
Nana Meparishvili is a fellow of the Association of European Open-Air Museums (AEOM), since 2015.
Other functions within ICOM: Board member of ICAMT (2013-2016), Secretary of ICAMT (2016-2019).

Alberto Garlandini
President of ICOM
Keynote Speaker

Alberto Garlandini is the President of ICOM since June 2020.
Since 2005, he has held several functions within ICOM, including Vice-President of ICOM, Chair of ICOM Italy and Chair of the Organizing Committee of ICOM Milan 2016, which is a particularly relevant experience in relation to the organization of the ICOM General Conference 2022, in Prague. He has also been an Ordinary Member of the ICOM Executive Board, the Museum Definition Prospects and Potentials Standing Committee (MDPP), the Strategic Allocation Review Committee (SAREC), the ICOM International Committee for Regional Museums (ICOM ICR), the Sustainability Working Group (SWG) and the Strategic Plan Committee (2013-2017).
He is a museologist, expert on heritage management and lecturer. The other positions during his career are:

- Member of the Board of Directors, State Museum of Palazzo Ducale, Mantua
- Member of the Scientific Committee, Brescia Musei Foundation
- Speaker, UNESCO High Level Forum on Museums, Shenzen (2017)
- Member of Committees, Italian Ministries for Cultural Heritage and of Foreign Affairs: Reform of State Museums, Museum's Management Standards, Promotion Abroad of Italian Culture (2006-2018)
- Director-General, Deputy Director-General for Culture, Director of Cinema, Museums, Libraries and Archives, Lombardy Regional Government (1997-2013)
- President of Lombardy Film Commission Foundation (2011-2012)

Annamaria Ravagnan
ICOM Museum Accessibility Group
Keynote Speaker

Annamaria Ravagnan is a member of ICOM CIPEG, International Committee for Egyptology, as well as a member of ICOM Italy's Committee of Arbitrators and a referent of the Board of Directors of the Accessibility Commission. She is a Gruppo Archeologico Milanese (GAM) councilor in the Executive Board and Vice-President of House-Museum Tre Tetti in Sirtori-Lombardy.
She was responsible for the Local Museum Systems of the Lombardy Region from 2005 to 2017. Author and editor of the book Culture and Health, published by Springer in 2012.
Annamaria Ravagnan currently manages projects concerning the inclusion and accessibility of cultural institutes and places. She is a project coordinator for the inclusion of people with cognitive disabilities in some museums in Lombardy.

Stefano Della Torre
Politecnico di Milano
Keynote Speaker

Full professor of Restoration in Politecnico di Milano since 2001, he served as the Director of the ABC department 2013-2019 and is currently the President of Società Italiana per il Restauro dell'Architettura.
Consultant of Regione Lombardia and Cariplo Foundation for policies on preventive and planned conservation and the Distretti culturali project, he is the principal investigator of several scientific projects and author of more than 360 publications.

2020 Online Conference

Opening Speech

Final Program

Speakers

Opening Speech

Dear friends,

Thanks for inviting me to your annual ICAMT conference, this year online. It is a great pleasure for me to be with you and share some observations on the challenges that museums and ICOM are facing.

For over seven months now, our lives have been turned upside down. The Covid emergency has been an unforeseen threat! The global surveys launched by ICOM show a devastating picture. For the first time in their history, museums have been closed worldwide. Thousands of museum professionals are facing redundancy and furloughs, with independent consultants, often young and motivated professionals, facing a disastrous situation without a job or a salary. We are risking to lose their knowledge and commitment, which would be a catastrophe for both museums and communities.

A figure in our survey has set off the alarm globally: 13% of museum directors declared that their institution might not survive the lockdown and close permanently. The loss of income due to the lockdown has been traumatic. Many museums will have to reconsider their business models and reinvent their social role.

When the Covid emergency is over, the world won't be the same. Museums will have to adapt to a new scenario, with fewer resources, the crisis of mobility and tourism, and persistent restrictions to access and participation. Many museums have already reopened, others are planning to reopen very soon. But how will they manage? Museums must guarantee the hygiene, well-being and safety of both staff and visitors, they must enforce distancing and limit the number of visitors. To face anti-Covid requirements, museums have to revolutionize their organization, technologically innovate their monitoring systems and implement sophisticated booking platforms in order to redistribute visitors in time and space, possibly in network with neighbouring museums. The return of visitors to museums is slow and museum professionals are working hard to reassure citizens that visiting museums is a safe and rewarding experience now as it always was in the past. ICOM Secretariat has now launched a second survey to evaluate the situation.

The museums of tomorrow will not be the same as the museums of yesterday. Even before the pandemic, the cultural heritage sector was undergoing a deep transformation.

Museums are facing unprecedented challenges: from new expectations coming from our audiences to digitization and new communication systems, from climate change and sustainability to diversity, decolonization and inclusion. The "new normal" we are now facing after pandemic adds another layer to this complex landscape.

The effect of the pandemic has also been felt in ICOM. Every year, our Committees organize hundreds of conferences and workshops worldwide that understandably have been cancelled or postponed. The situation has pushed ICOM to innovate and explore new solutions for a new reality. Our Committees, including of course ICAMT, have been more active than ever and a great number of virtual conferences have been organized since lockdown began. I feel humbled to have had the chance to witness the outstanding capacity of ICOM, via each member and Committee, to cope with this situation.

ICOM has launched several initiatives to help museum professionals. Aside from the surveys, aimed at highlighting the hardships faced by museums around the world, ICOM has advocated for emergency funds and coordinated advocacy actions with the objective of keeping museums in the agendas of policymakers worldwide. We have issued technical, scientific and social recommendations on reopening, security, conservation, community resilience and digital outreach. In the next days, SAREC will launch the Call for ICOM Solidarity Projects to support museum resilience, with an endowment of 280,000 Euros.

After the resignation of President Suay and other respected colleagues during lockdown, ICOM has started a transition. We are engaged in a process to improve governance, internal communication, decision-making processes, working methods. The four key words of our commitment are: innovation, participation, communication and transparency.

First, ICOM has successfully gone digital. Last July, our Annual Meetings were held online for the first time in the history of ICOM. Organizing the new digital format required incredible efforts of the Secretariat, the Director General and our governing bodies. The results were excellent. One thousand four hundred members from all over the world could join the meetings: the largest number of participants a General Assembly (GA) has ever had. We decided that the GA's recording and minutes will be available in the Member Space of ICOM website. During the meetings, we answered many questions forwarded by members and committees and we are now publishing the remaining answers in the Member Space.

Second, there is a larger need for transparency and good communication. The minutes of the five Executive Board (EB) meetings held since June and the key documents are now published

in the Member Space, which has become a significant internal communication hub. I suggest you consult it regularly to be updated on ICOM's governance and activities.

Third, in July the EB approved an Internal Review focused on the structural and organizational changes needed to improve governance and avoid past mistakes and misunderstandings: from new EB meeting procedures and more transparent decision-making processes to the revision of our communication policy and the need of a EB Code of Conduct.

As regards Standing Committees, the EB decided that: (1) the need for their creation shall be clearly demonstrated, the criteria for their creation and their mandate clearly defined; (2) the criteria for the appointments of their members shall be defined and democratized; (3) the ICOM Internal Rules regarding Standing Committees shall be amended and changes recommended to the Extraordinary General Assembly in Prague.

The EB has paid particular attention to restarting the process of updating the museum definition in an atmosphere of respect and cooperation. The members of the Committee for Museum Definition, Prospects and Potentials (MDPP2) expressed their commitment to continue their work – in August the EB organized a successful meeting with them and MDPP2 is now working on an update of the methodology to involve both National and International Committees. All the MDPP2 documents will be published in the Member Space.

To conclude, I would like to say that in the future, however uncertain it may be, our organization will continue to develop this spirit of innovation and participation. ICOM and the museum community are going through unprecedented circumstances. Now it's time to take new responsibilities, it's time for unity, and for remembering the reasons why ICOM was created. Let's continue to work together, hand in hand, to nurture the outstanding cultural diversity of our organization for the museums of today and tomorrow. Thanks for your attention and my best wishes for a successful conference.

Alberto Garlandini
President of ICOM

Final Program

Day 1

7 October, 2020

Session 1: Architecture & Exhibit Design

ZOOM Platform (previous registration)

Time (GMT+1)	The People	Topic
13:00	Nana Meparishvili	Welcome Words
	Alberto Garlandini	
13:10-13:20	Aleid Hemeryck	The New Gruuthusemuseum: Heritage & Innovation
13:20-13:30	Craig Brandt	Outside the Gallery: New Approaches to Museum Visitor Access and Connection
13:30-13:40	David Masters	Back to the Future: Reinterpreting Wardown House Museum and Gallery
13:40-13:50	Elena Montanari	Exhibiting Exhibitions. Re-Staging, Re-Viewing & Re-Considering the Role of Seminal Displays
13:50-14:00	Fernanda Carvalho	Light, Shadows and Screens: Possible Harmonious Coexistences
14:00-14:10	Gustavo Penna Arquiteto & Arquitetos Associados	SesiLab Descriptive Memorial – Preliminary Draft
14:10-14:20	Jessica Boffa	Architecture on a Human Scale
14:20-14:30	Kiem-Lian The	Renovation Museum Het Valkhof Nijmegen: Making an Existing Museum Building Futureproof: Sustainable and Accessible
14:30-14:40	Manuel C. Furtado Mendes	Sustainability Indicators in Museum
14:40-14:50		Q&A

Day 2

8 October, 2020

Session 2: New Challenges for Museums

ZOOM Platform (previous registration)

Time (GMT+1)	The People	Topic
13:00-13:10	Nana Meparishvili	Introduction (ICAMT)
13:10-13:25	Stefano Della Torre & Ingrid Paoletti - Politecnico University of Milan	
13:25-13:40	ICOM Museum Accessibility Group	
13:40-13:50	Ali S. Kiran & Celal Kaplan	Visiting Safely: A Simulation Modelling Approach to Optimizing Museum Spaces for a v-19 World
13:50-14:00	Gaia Turchetti	Museum as a Cultural Hub: The Challenge of Sustainability in a Post-Pandemic Scenario
14:00-14:10	Eleanna Avouri, Harriet Cliffen, Nenad Jončić, Giulia Osti, Douglas Pritchard, Francesco Ripanti, Marina Toumpouri	VR in the Time of Social Distancing: New Multidisciplinary-Inspired Directions for Virtual Exhibitions
14:10-14:20	Kali Tzortzi	Museum Architectures for Digital Experiences: Towards a New Spatial Typology?
14:20-14:30	Maria Maystrovskaya & Alexander Kuprin	The New Architecture and Exhibitions in the Museum Building in Russia
14:30-14:40	Nara Ohk	The Answers for the Issues of the Korea's New National History Museum of Saemangeum Reclamation

Time (GMT+1)	The People	Topic
14:40-14:50	Patrícia Martins	Physical and the Virtual Experiences on Contemporary Museums: The Case of MIS Rio de Janeiro, Brazil
14:50-15:00	Yulia Petrova	From Revolution to Lyrical Paysage. The Experience of Reuse of the Exhibition Architecture in the Museum of Russian Impressionism
15:00-15:20		Q&A
15:20-15:40		Conclusion

Speakers

Day 1 - October 7th
13:10 GMT+1

Aleid Hemeryck
Musea Brugge

Aleid Hemeryck obtained her master's degree in Modern History at KULeuven in 2000 and has been working for Musea Brugge since 2007. As a curator, she was responsible for several locations of Musea Brugge with a historical approach. She leaded the Gruuthusemuseum, a museum with a collection of applied arts that reopened after a thorough renovation with a completely new museum concept. The renewed Gruuthusemuseum takes the visitor through 500 years of Bruges' history through an art and culture-historical collection: from the rich medieval metropolis to the world heritage city today. She was responsible for coordinating the entire redesign process and redevelopment of the museum site. As the project manager, she now is the lead of several major projects for Musea Brugge.

Day 2 - October 8th
14:20 GMT+1

Alexander Kuprin
Moscow State Stroganov Academy of Design & Applied Arts

Alexander Kuprin, Bachelor of Arts with Honours in Architecture and in Journalism. Born in Moscow, he emigrated to the United Kingdom in 1996. He graduated from John Moores University, Liverpool, UK, and from Kingston University, London, UK. Worked as an architect in architectural and construction bureaus both in the UK and in Russia. Carried out architectural and interior design projects in Norwich, UK, in Moscow city centre and suburbs, Siberia, as well as overseas, namely Egypt. He is currently working as a freelance architectural consultant and journalist, and as an interpreter.

Day 2 - October 8th
13:40 GMT+1

Ali S. Kiran
Kiran Consulting Group

Dr. Kiran is an internationally recognized authority in operations research, forecasting, scheduling, and systems simulation, with more than 20 years of entrepreneurial and consulting experience.
His consulting experience encompasses successful projects with recognized companies in over 20 countries and include visitor flow projects with Disney, Universal Studios, Mogao Grottoes, Sydney Opera House, The Getty, The Met, and other cultural and historical sites. He is UNESCO and United Nations World Tourism Organization expert in visitor management and simulation analysis. He has received numerous awards, including the Ernst & Young "Entrepreneur of the Year" award in San Diego for his leadership of Exametric Software, which was one of the first SaaS applications to be used by Fortune 500 companies. Prior to his track record as an entrepreneur, he taught industrial engineering at the University of Southern California (USC). He holds an MS degree in Mechanical Engineering and a PhD in Industrial Engineering.

Day 2 - October 8th
13:40 GMT+1

Celal Kaplan
Kiran Consulting Group

Dr. Kaplan is the principal consultant of Kiran Consulting Group. He is specialized in visitor flow modeling and optimization and has worked with world-renowned organizations in this field all over the world, including Disneyland, Universal Studios, The Met, Getty Museum, Empire State Building Observatory, One World Trade Center Observatory and Sydney Opera House.
Dr. Kaplan has also worked with UNESCO and UN World Tourism Organization as a visitor flow expert. He also led research teams and has routinely preformed analytical techniques, such as neural networks, simulation analysis, optimization and statistical analysis. He received his PhD in Industrial and Systems Engineering with a minor in Business Administration from the University of Southern California.

Day 1 - October 7th
13:20 GMT+1

Craig Brandt
HBRA Architects, Chicago,
IL American Institute of Architects, Society of Fellows – American Academy in Rome,
US Green Building Council,
DOCOMOMO US

Craig Brandt AIA, AFAAR, LEED AP is a principal architect with HBRA Architects, Chicago, IL. His body of achievements are the result of over twenty years of critical design thinking in the process of leading, conceptualizing and developing award winning public projects with visionary ideas for interactive public space.
Craig and his firm have completed complex projects in multiple locations for various public buildings, including museums and theaters. Craig has presented at the AIA National Conference on Architecture, the Chicago Architectural Biennial, the American Academy in Rome, and has lectured on the nature of public spaces at various academic institutions around the country, including his role as an Adjunct Professor at the University of Wisconsin-Milwaukee.

Day 1 - October 7th
13:30 GMT+1

David Masters
Lead Consultant,
Imagemakers Design & Consulting

David Masters is Lead Consultant with Imagemakers and a highly experienced heritage interpreter. He is a Fellow of the Association for Heritage Interpretation, and authored the UK's Heritage Lottery Fund guidelines on heritage interpretation. He was editor of the Interpretation Journal for 9 years, is a mentor for Public Engagement with Heritage, and a national panel judge for the national Engaging People Awards.
David has worked on museum interpretation and exhibition design projects across the UK and more recently in China. He has particular interests in narrative and message design, and the links between architecture, collection display and interpretation.

Day 2 - October 8th
14:00 GMT+1

Douglas Pritchard

Digital Heritage Research Laboratory,
Department of Electrical Engineering,
Computer Engineering and Informatics.
Cyprus University of Technology

Douglas Pritchard is a Senior Research Fellow in the area of 3D visualisation. He is a Canadian graduate architect with over 15 years' experience in the direction of advanced digital projects for the architecture, engineering, and urban planning sectors. The work typically utilizes specialized 3D 'reality capture' systems in the creation of interactive virtual environments, immersive 3D experiences and customized software development.
He has initiated a series of innovative projects that have significantly changed the working methods of the organizations such as the Glasgow City Council, Historic Environment Scotland, and the Scottish Government. Notable projects include the documentation of Cologne Cathedral UNESCO World Heritage Site, development of the Urban Model for Glasgow, and the Scottish Ten Project.

Day 2 - October 8th
14:00 GMT+1

Eleanna Avouri

Digital Heritage Research Laboratory,
Department of Electrical Engineering,
Computer Engineering & Informatics.
Cyprus University of Technology

Eleanna Avouri is an Archaeologist and a cultural heritage management specialist, holding the position of Early Stage Researcher at the Era Chair in Digital Cultural Heritage Mnemosyne. Her research interests focus on new media and digital applications in the field of cultural heritage, and she was actively involved in several archaeology outreach initiatives and museum-education programs.

Day 1 - October 7th
13:40 GMT+1

Elena Montanari
Politecnico di Milano,
Architecture & Urban Studies Department

Elena Montanari is an architect, PhD in Interior Architecture and Exhibition Design, and Lecturer at the Department of Architecture and Urban Studies of Politecnico di Milano. Since 2008 she has been involved in international research projects concerning heritage and museums, and currently is responsible for the development of various didactic and research activities within the program UNESCO Chair in Preservation and Planning in World Heritage Cities, held at POLIMI Mantova Campus. Her research interests are focusing on the ongoing transformation of exhibition theories and practices in museums, heritage sites and places of memory, and on the museographic culture, including its historical evolution and its relationships with the contemporary evolution of the museum institution.

Day 1 - October 7th
13:50 GMT+1

Fernanda Carvalho
Architect & Lighting Designer

Fernanda Carvalho is an architect & lighting designer graduated from São Paulo University in 2000, where she concluded a master's degree in Design and Architecture in 2011. She has been creating lighting design projects for architecture, mainly for museums and exhibitions, at her own practice. Has been collaborating as a lighting design professional for the most important museums in Brazil, such as São Paulo Museum of Art (MASP), Itaú Cultural, and many others.
She is a member of the International Committee of Encuentro Iberoamericano de Lighting Design (EILD) and has been awarded the first prize, in the 2nd Bienal de Diseño de Iluminacción in Mexico in 2016, for the lighting project for Casa Triangulo Gallery, in São Paulo, as well as an honorable mention for the lighting project for Brasiliana Collection at Itaú Cultural, project which also received the 2nd Prize at the Darc Award, an international competition for lighting design.

Day 2 - October 8th
14:00 GMT+1

Francesco Ripanti

Digital Heritage Research Laboratory, Department of Electrical Engineering, Computer Engineering and Informatics. Cyprus University of Technology

Francesco Ripanti is Experienced Researcher at the Digital Heritage Research Lab at CUT within the EU-funded project ERA Mnemosyne, focusing his research on the Preservation and Use and Reuse. Thanks to a PhD in Public Archaeology obtained from the University of Pisa, he has a very interdisciplinary profile that covers several topics related to the interaction with the public in the archaeological and museum sectors. Among them: public participation, communication, outreach, user experience, evaluation based on qualitative analysis, citizen science and storytelling.

Day 2 - October 8th
13:50 GMT+1

Gaia Turchetti

PhD Environmental Technological Design Specialist in Architectural & Landscape Heritage Fondazione Scuola dei Beni e delle Attività Culturali, Scuola del Patrimonio

Graduated in quinquennial Architecture at the Sapienza Università di Roma, Gaia Turchetti obtained the II level master's degree in Architectural Design for the Recovery of Historic Buildings and Public Spaces, and the Specialization Diploma in Architectural and Landscape Heritage at the School of Rome. Since 2018 she is a PhD in Environmental Technological Design (Department of Planning, Design, and Architecture Technology, Sapienza Università di Roma), with a research focused on the microclimatic aspect of the historic city seen as a form of protection. Thanks to experiences at research centres, teaching and collaborations with different professional figures, she has worked in an inter-scalar and interdisciplinary way on the issues of restoration, environmental risk assessment, architectural and urban regeneration, and museography in an interdisciplinary perspective, articulating the scientific experience into areas useful for the definition of tools and procedures to programme, plan, implement, management, and monitor the interventions.

Day 2 - October 8th
14:00 GMT+1

Giulia Osti
Digital Heritage Research Laboratory, Department of Electrical Engineering, Computer Engineering and Informatics. Cyprus University of Technology

Giulia Osti is a Digital and Community Archaeologist, holding the position of Early Stage Researcher at the Era Chair in Digital Cultural Heritage Mnemosyne. Giulia researches on DCH data modelling, having a broad set of skills from the humanities to computer science, other than a strong background in data visualization.

Day 1 - October 7th
14:00 GMT+1

Gustavo de Araújo Penna
Architect & Urban Planner
Director of the Office Gustavo Penna Arquiteto & Associados

Gustavo de Araújo Penna graduated from the School of Architecture of the Federal University of Minas Gerais (UFMG), where he taught for three decades. He founded the architecture office GPA&A and won international awards, among others The International Architecture Award in Chicago, the World Architecture Festival (WAF) in Singapore and the Architizer A+Awards in London. His works have already been exhibited in Brazil and worldwide, highlighting the Biennial of Architecture, in São Paulo, the Biennial of Venice and the Institut Français d'Architecture, in Paris. Gustavo is the author of projects such as Expominas, the Monument to the Freedom of the Press, the Japanese Immigration Memorial, the Congonhas Museum, the Guignard School (considered one of the 30 most relevant works of architecture in Brazil). He published four books and his works have been exhibited in Brazil and abroad, by the main websites, magazines and books on architecture and design.

[Represented by Ricardo Gomes Lopes]

Day 2 - October 8th
14:00 GMT+1

Harriet Cliffen

Digital Heritage Research Laboratory, Department of Electrical Engineering, Computer Engineering and Informatics. Cyprus University of Technology

Harriet Cliffen is an Early Stage Researcher with the Mnemosyne project in the area of Data Processing. She has a background in Archaeology, with a BA from the University of Manchester, and an MSc from the University of Liverpool. Her previous work has focused on materials analysis, with recent research projects on the use of X-Radiography to image the interior structures of Bronze Age Cypriot ceramic vessels, to identify production techniques.

Day 1 - October 7th
14:10 GMT+1

Jessica Boffa

International Art Curator, Childhood Museum Ireland

Specialized in the historical-artistic field of cultural heritage, Jessica Boffa's experience was born in the field of Museum Education and Accessibility, and then expanded to the Museum Exibition.
After an initial experience in the management of a museum, as well as the coordination and training of resources, she turned to museum education, expanding her knowledge through various training courses throughout the country. Having conceived and coordinated specific programmes for schools, she has dedicated herself to the field of Accessibility; her programmes have been included in a series of informative events in collaboration with various partners and museums. Now, as the International Art Curator for Childhood Museum Ireland Project, she is curating the exhibition related to Project 2020, coordinating the museum's historical and artistic activities in Europe and in the United States.

Day 2 - October 8th
14:10 GMT+1

Kali Tzortzi
PhD The Bartlett, University College London Assistant Professor in Museology, University of Patras
Department of Cultural Heritage Management & New Technologies

Assistant Professor in Museology in the University of Patras, Kali Tzortzi also lectures in the MA Museum Studies in the University of Athens, where she is module leader in 'Architectural Design of Museum Space and Museography'. She has worked as an exhibition consultant for the Hellenic Ministry of Culture and for architectural practices, in national and international design competitions. She has published extensively across languages and disciplines. Her book *Museum Space: Where Architecture Meets Museology* (Routledge, 2015) sets out a methodology for the study of real museums and a theoretical framework for their interpretation.
Her educational background anticipates her interdisciplinary research, with a first degree in History and Archaeology, two master's degrees in Classical Archaeology and in Museology, and a PhD from The Bartlett Faculty of the Built Environment, University College London, on the interaction between the building and the exhibition layout in museums.

Day 1 - October 7th
14:20 GMT+1

Kiem-Lian The
ToornendPartners

Kiem-Lian The MSc LL M, is Managing Partner and Senior Consultant/Project Manager at ToornendPartners in Haarlem, The Netherlands.
Having obtained a master's degree in Architecture, Urbanism and Building Sciences at the Delft University of Technology, she joined this project management and building consultancy company in 1998, where she has been working on a wide variety of building and consultancy projects, with an increased focus on buildings for the arts, including projects for museums and for the performing arts. Her fields of expertise include theatre and museum techniques, project planning, feasibility studies, long term maintenance planning as well as legal and contracting strategies. She was the Project Leader and Lead Consultant for the development of the CollectieCentrum Nederland (NL), the new centralized art storage building for the Dutch State Collection, and is currently working on the renovation of Museum Het Valkhof, the development of an Art Pavilion in Almere and the restoration of the Teylers Museum complex in Haarlem.

Day 1 - October 7th
14:30 GMT+1

Manuel C. Furtado Mendes
Professor at Lusophone University of Humanities & Technologies (ULHT)

Manuel C. Furtado Mendes, PhD in Museology at Lusophone University of Humanities and Technologies (ULHT) since 2011, his main area of research is museums and sustainability and the use of renewable energy in museum buildings. He is an Integrated Researcher at Center for Interdisciplinary Studies in Education and Development (CeiED). Professor at ULHT in Lisbon and recognized at the same University as a Specialist in the field of Civil Construction and Civil Engineering (CNAEF 582), he was recognized by the Order of Engineers as a Specialist in Construction Management. He published articles in specialized magazines, co-authored scientific works and has 13 items of technical production. He received four awards in the field of Rehabilitation of Historical Heritage, area in which he has an extensive experience, as well as in Technical and Economic Evaluation of Urban and Rustic heritage. He works in the areas of Engineering and Technology with an emphasis on Civil Engineering and Social Sciences.

Day 2 - October 8th
14:20 GMT+1

Maria Maystrovskaya
Moscow State Stroganov Academy of Design & Applied Arts

Maria Maystrovskaya, doctor in Art History, professor of the Moscow State Stroganov Academy of Design and Applied Arts, research associate of the Department of Design of the Research Institute of Theory and History of Fine Arts of the Russian Academy of Arts. Graduated Moscow Higher Art and Industrial Design School, specializing as a decorative artist in interior and furniture design. The master's and doctoral dissertations were dedicated to the problems of museum exhibitions design and construction. Worked as a research associate of Russian Institute of Culturology and as a teacher at Stroganov Academy. She prepared over 300 research articles and 6 monographs on museums problems, museum architecture and design, such as "Museum as a cultural object. The Art of exposition ensemble", Moscow, 2015, and "Museum as a cultural object in the 20th century", Moscow, 2017. She is a member of the Russian Union of Designers and the Moscow Union of Artists.

Day 2 - October 8th
14:00 GMT+1

Marina Toumpouri

Digital Heritage Research Laboratory, Department of Electrical Engineering, Computer Engineering and Informatics. Cyprus University of Technology

Marina Toumpouri is an Art historian, holding the position of Experienced Researcher at the ERA Chair in Digital Cultural Heritage Mnemosyne. She specializes in Byzantine and Crusader manuscript cultures, the cross-cultural interactions in the Medieval Mediterranean and the methods of work of craftsmen and painters in the Eastern Mediterranean during the Byzantine and the Crusader periods. Her involvement in Mnemosyne project concentrates on the holistic documentation of movable and immovable heritage, as well as of intangible heritage using an array of data acquired by digital and more traditional methods.

Day 2 - October 8th
14:30 GMT+1

Nara Ohk

Republic of Korea's Government, Saemangeum Development & Investment Agency

Nara Ohk has a BA from the Yonsei Univ. Korea (2003), J.D Handong International Lawschool (2007) and is now a PhD candidate to Handong Univ. Korea.
His professional experience includes: Mongolia International Univ. Faculty (2009-2011); Gyeongbuk Province Office, Korea, international campaign officer for Dokdo island (2011- 2013); and Saemangeum Development and Investment Agency [SDIA], Assistant Director and Deputy Director for Investment promotion, Chief Secretary to the Administrator (Vice-Minister Level) of SDIA (2013-Present).

Day 2 - October 8th
14:00 GMT+1

Nenad Jončić

Digital Heritage Research Laboratory, Department of Electrical Engineering, Computer Engineering and Informatics. Cyprus University of Technology

Nenad Jončić is an Archaeologist (MA, University of Belgrade), holding the position of Early Stage Researcher at the Era Chair in Digital Cultural Heritage Mnemosyne. He specializes in 3D spatial technologies and has a deep understanding of photogrammetry and GIS.

Day 2 - October 8th
14:40 GMT+1

Patrícia Martins

Architect and PhD Teacher at Faculty of Architecture & Urbanism of the Mackenzie Presbyterian Institute, São Paulo, Brazil

Architect and urbanist graduated from FAU-PUC (1992, Campinas), Master in History and Theory of Architecture from AA-Architectural Association School of Architecture (1995, London), PhD in Contemporary Architecture from FECAU UNICAMP (2011, Campinas) and post-Doctor from FAU-USP (2014, São Paulo). Patrícia Martins teaches History and Theory of Architecture at FAU Mackenzie São Paulo, working mainly on the following themes: Contemporary Architecture, History and Theory of Architecture and Architectural Design. As a researcher, she is an associate member of the Brasiliana Institut, focusing on contemporary museum architecture and exhibition design.

Day 2 - October 8th
14:50 GMT+1

Yulia Petrova

Museum of Russian Impressionism

PhD in Art History, Yulia Petrova is the author of several art management courses and Director of the Private Institution of Culture "Museum of Russian Impressionism", in Moscow. In 2012, with Boris Mints, the founder of the Museum, she created the mission statement, the building reconstruction and museum development plan of the future Museum. In 2016 Museum won the first prize as "The Best Mobile Application" in the Festival of Audiovisual International Multimedia Patrimony by ICOM. In 2018, under her administration, the Museum has become one of the 40 European museums nominated for the European Museum of the Year Award. Since the Museum's first public opening in 2016, the attendance has grown threefold by 2019. Among the Museum partners are the State Tretyakov Gallery, the State Hermitage Museum and the Centre Pompidou. She frequently speaks at local and international museum conferences.

The Sessions

3.I Architecture & Exhibit Design

3.II New Challenges for Museums

3.1

Architecture & Exhibit Design

Introduction by Nana Meparishvili

Needless to say, 2020 has turned out to be very unusual and difficult not only for the museums but for the whole world. Because of Covid-19 pandemic, museums have been closed for a long time and some are not sure when they will resume work in the usual way. This makes museum financial horizon very uncertain, but along with all difficulties, this is also an interesting and challenging time.

As museums are socially responsible institutions, we had to adapt to the new reality, and to face all the new challenges. Though many museums are closed, we still communicate with our audience, be it through the internet or via social media. We try to support and help each other, because we strongly believe that it is the only way to survive.

ICAMT had many plans for 2020, but now we have to deal with these special conditions, as well as the rest of ICOM International Committees. One of our plans was to hold an annual conference in Porto, Portugal, but due to Covid-19, it was not possible.
Anyway:

As we feel a responsibility to our Committee members and audience,
As one of ICAMT's main traditions is to regularly hold an annual conference,
As we strongly desire to stay close to our audience in this unusual and hard time,

we decided not to postpone our Annual Conference and to do it online.

I would love to thank Imagemakers, an award-winning design agency, which is the main sponsor of ICAMT 2020 Annual Conference.

Although it is a new format for us, the speakers and their topics in our conference program give us the hope that ICAMT Annual Conference 2020 will be as interesting and successful as it has always been.

Nana Meparishvili
Chair of ICAMT

Introduction by Danusa Castro

Usually, ICAMT's annual meetings last 3 to 5 days and include presentation sessions, a post-conference tour and visits to museums. It is also an excellent opportunity for our members to visit different countries, and to create or enlarge the professional networks.

No need to say, the year 2020 was a tough one, and we soon understood that nothing like our traditional conference could take place. However, the new reality that led us to rethink our museums, also guided the committee to consider it essential to guarantee its members and friends a moment to share their research and studies. So, for the first time, we went digital.

ICAMT first online conference took place on October 7-8, 2020 and welcomed a total of 18 panellists from 11 different countries. Most of them were "new entries" to our committee, as we have chosen to give space to as many voices and approaches as possible.

Main conference themes were Architecture and Exhibit Design and New Challenges for Museums. I had the honour to support our Committee's President, Nana Meparishvili, during the first day. Mr. Alberto Garlandini – ICOM's President – joined us as an invited speaker, and we counted around 90 to 100 attendees each day: professionals, students, young people and new members from 8 different countries.

This e-book reunites all conference presentations and represents a coronation of an effort not to remain silent and static during one of the most challenging times we have ever lived.
So, thank you for your interest in it and have a good reading.

Danusa Castro
ICAMT Board Member

1

The new Gruuthusemuseum: Heritage and Innovation

Aleid Hemeryck
Musea Brugge, Bruges, Belgium

After five years of intense restoration and renovation work, the Gruuthusemuseum reopened on May 25th 2019. The 19th century neo-Gothic "musée d'antiquités et de dentelles" is now a contemporary museum, which tells the story of 500 years of Bruges' history: from a medieval trading metropolis to the World Heritage city it is today.

Abstract

The city palace of the lords of Gruuthuse is an absolute highlight after a thorough restoration of five years. The entire heritage site around the Gruuthuse Palace underwent a complete metamorphosis. Heritage and innovation, being the two key concepts of this ambitious project that will appeal to visitors seeking a more in-depth cultural experience. In the museum, the highlight is the authentic late 15th century oratory which connects the palace and the Church of our Lady with a view of the Gothic chancel of the church. The first hall displays the portrait of Louis of Gruuthuse, the man who gave this city palace its grandeur in the 15th century.
In this paper, we want to present two characteristic aspects of this project: the choice of a new concept linked with the new circuit and the accent on accessibility for visitors with a sensory impairment. The former museum of applied arts is now a contemporary museum, which tells the story of 500 years of Bruges' history. This content is accessible for every visitor, thanks to facilities as tactile stations and audio description.

Keywords

Concept
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Circuit
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Sensory
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Accessibility
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Heritage
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Innovation

History of the Gruuthuse Palace

The origin of Gruuthuse Palace dates from 1425 when Jan IV van der Aa, Louis de Gruuthuse's father built a house near the Dijver in Bruges. It was then Louis' turn to make his mark on the building and to lend it a cachet worthy of an aristocrat. He gave the palace the typical L shape. The most vivid space that Louis had constructed is, however, the private chapel or oratory that connects the Gruuthuse Palace with the Church of Our Lady. Much of the oratory's interior decoration, dating from 1472, is lost, but the traces that remain suggest it was a luxuriously appointed space. Louis de Gruuthuse was a prominent figure at the court of the Dukes of Burgundy. He was a diplomat, an aristocrat and above all, one of the most important patrons of the arts of his time. The family name (and the family capital) refers to gruut or gruit, a herbal mixture that was added to beer to flavour it and make it keep for longer.

The Gruuthusemuseum's Hall of Honour with the new floor inspired by the 19th century tiled floors of Delacenserie, along with the refurbishment of the renewed museum. The 15th century portrait of Louis de Gruuthuse occupies a place of honour.
© Musea Brugge/Jan D'hondt, 2019

The Gruuthusemuseum is located in the heart of medieval Bruges. The museum and the Church of Our Lady are specific landmarks in the city as the essence of the Burgundian identity. The unique prayer chapel of Louis de Gruuthuse connects the two buildings. The Church of our Lady has also been comprehensively restored and is known for the paintings of Flemish masters, the tombs of the Dukes of Burgundy and Michelangelo's Madonna and Child.

The prestigious palace was sold in the 16th century and for over two centuries it functioned as a 'mount of piety'. In 1874, the municipality of Bruges bought the seriously dilapidated building. The city architect Louis Delacenserie embarked on a major restoration project to convert Gruuthuse Palace into a museum.

The archaeological society of Bruges, established in 1865, wanted to set up a museum in Gruuthuse Palace to exhibit its collection.

The first rooms were put into use as a museum around 1900. Since that moment, the former city palace of the lords of Gruuthuse was known as the Gruuthusemuseum. The Gruuthuse collection is a representative collection of applied art. The art-historical value of certain pieces catches the eye, especially within the sub-collections of medieval sculpture, Bruges tapestries, lace, artisan silver and furniture. The objects can be

dated from the 15th to the early 20th century and are testimony to the lifestyle of a European elite.
No structural restoration or renovation works were carried out in Gruuthusemuseum for decades. Consequently, the restoration requirements of Gruuthuse Palace were extensive. The building had to contend with water infiltration, leaking roofs, rotten joinery, heavily damaged brick and natural stone. Also in the 15th century prayer chapel woodworm had caused large-scale damage. Technical elements, such as electrical connections, lighting, security and fire safety no longer complied with modern standards.

Heritage & Innovation: An Integral Vision

This project concerns the redevelopment of the heritage site of the Gruuthusemuseum, with several components: restoration, refurbishment and development of the site. The comprehensive restoration including the entire external shell of the monument. The façade facing the Reie was treated to a gentle clean, retaining all traces of the historical building process. The wooden roof structure was restored and the slates renewed. The belvedere tower was completely renovated. All 150 joinery sections and the stained-glass windows were meticulously restored. The interior restoration included the polychromy and restoration of the oratory. Besides of the restauration, the museum was in need of extensive revitalisation and a new museum vision and concept. But what was innovative about this project is the master plan encompassing the site as a whole. The annexes have been converted to provide museum facilities. The redevelopment of the square was based on the vision of integral accessibility. A modern pavilion was constructed at the site to house the reception and ticket sales.
The City of Bruges considered an integral vision for this project to be essential. The necessary restoration of the Gruuthusemuseum and the Church of Our Lady is paramount for preserving the heritage. Since the 15th century, Gruuthuse Palace has literally been connected to the Church of Our Lady by the Gruuthuse family's prayer chapel, which overlooks the church choir. However, at the same time the aim was to open up both these monuments as a strong heritage site. This enhances the experiential aspect of this first-class piece of heritage. Furthermore, there were various needs for museum operations, such as educational spaces and sanitary facilities. Due to the monumental value, ticket sales had to be moved from the church and the museum. The new pavilion is consistent with the scale of a building that has sealed off the inner

square for centuries. The design is realized by noAarchitecten (Belgium, Brussels). With its contemporary architecture, the pavilion is an 'echo' of the surrounding historical monuments, rather than a literal imitation. By keeping sufficient distance and simultaneously referring implicitly to its environment, the new building does not contrast with, but is sympathetic to the heritage. It has already claimed its place at the site and elevates visitor reception to a higher level. It is a new architectural beacon in the historic centre of the city, which reinforces Bruges' identity as a vibrant city of culture.

The museum square was relaid, eliminating the height differences as much as possible and a 'wheelchair-accessible strip' was incorporated for wheelchair users. The neo-Gothic buildings on the street side underwent comprehensive renovation to accommodate facilities for museum operations: educational workshops, plenty of spacious sanitary facilities and space for museum staff.

A Renewed Gruuthusemuseum

After the restoration of the Gruuthuse Palace, the collection did not simply return to its familiar place. For more than a hundred years, the Gruuthusemuseum was known as a museum of applied arts, focussing on materials, stylistic features and aesthetics. The Gruuthusemuseum was a kind of 'Wunderkammer' where an extremely rich and diverse collection of applied arts was exhibited in a beautiful palace.

The Gruuthusemuseum's new concept interweaves three elements as three equal pillars: building, collection and context.

Gruuthuseplein, with a view of the restored museum and the new Gruuthuse pavilion. The pavilion's origami roof structure is a reflection of the roofs on the side chapels of the church.
© noAa/Karin Borghouts, 2019

As visitor, you have the monumental experience of the Gruuthuse Palace, with the authentic prayer chapel overlooking the choir of the Church of Our Lady, the many rooms, spiral staircases and rich interior finishes and polychromy that evoke the Middle Ages and 19th-century neo-Gothic. So in the new set-up, the palace does not just serve as the breathtaking décor. The second pillar is the rich and fascinating collection of applied arts: impressive tapestries, refined statues and sculpture, colourful stained glass windows, stately furniture or richly decorated porcelain, enhanced with paintings from the Groeningemuseum, manuscripts from the city library and historical documents from Bruges City Archives. What is new, is the context we gave to the objects. That context is the rich story of Bruges. A storyline that takes visitors on a journey through Bruges' 500 years of history. Each floor highlights a certain period in Bruges history - the Middle Ages, the 17th-18th century and the important 19th-early 20th century. The objects are not just there to illustrate this history, they are carriers of stories, that reflect the ambitions of the Bruges' elite, policymakers and craftsmen, who shaped the city as it is today.

The visitor trail is divided into three types of rooms. In the architectural rooms the space 'speaks' for itself. The monumental entrance hall and the iconic prayer chapel, for example, are spaces that need little or no decoration. They make an impression on the visitor all on their own. On each of the three floors of the palace there is a context room. This provides the visitor with insights for the subsequent rooms, or rather the next period. Each floor highlights a certain period in Bruges history (the Middle Ages, the 17th-18th century and the 19th-early 20th century). Each visitor can absorb the content in his/her own way through objects, short films, touchscreens and games. They can simply admire and enjoy the subsequent rooms. In these museum rooms the objects take centre stage. It is not the information or the historical context that take precedence here, but the object's splendour, the ingenuity, and emotion it evokes. Visitors can take a moment to catch their breath, fully focus on the objects without the pressure or distraction of all kinds of media. By introducing a rhythm to the trail, we want to offer the visitor a pleasurable museum experience with a variety of experiential moments, enjoyment and information. Visitors can pick up many stories about our beautiful collection without being overwhelmed. The Gruuthusemuseum guarantees it visitors a total experience: the visit not only offers the opportunity to view the objects in the collection, but also to discover the context surrounding those objects. Participative projects make it possible for the Gruuthusemuseum to interact with its public, thereby building a bridge with the society of today. The Gruuthusemuseum tells relevant stories.

The permanent display, the temporary exhibitions and all other public-related activities are based on the desire to provide formal or informal education. The aim is that the public should learn something and experience that historical objects are still meaningful for our present-day world.

The importance of preserving, displaying and researching these objects offers a platform that not only allows us to better understand contemporary society, but also makes it possible to provide a framework for the past and a context for certain historical evolutions.

Public guidance in the Gruuthusemuseum is as varied as the visitors themselves. The (free) audio guide in six languages invites visitors as non-specialists to discover and acquire greater understanding of the objects and the history of Bruges in a surprising manner. There are interactive multimedia and activity elements for young people and visitors who enjoy learning through an activity. In the atmospheric rest areas, which are provided along the trail, visitors can talk about what they have seen and experienced. And there is a tailor-made option for our youngest visitors. A family trail has been developed for families with children (aged 5-10 years), guided tours with workshops for children visiting the museum with their school and a Do-it-yourself booklet for teachers who want to take their class on a guided tour.

View of one of the renewed museum rooms, the 'lace room'. The furniture displays the same level of refinement as the building's detailing, the walls in each of the museum rooms were painted a different colour and the LED lighting is perfectly balanced.
© noAa/Karin Borghouts, 2019

Vision on Integral Accessibility

The Gruuthusemuseum is broadly accessible for every type of visitor, as far as its infrastructure allows. The museum is less suited for visitors with a physical/mobility limitation, as result of the many different levels and flights of stairs in this historic building. During the renewal of the Gruuthusemuseum, special attention was devoted to accessibility for visitors with a sensory impairment, in terms of the content and facilities. When arriving at the site, blind and visually impaired visitors can find their way around using a tactile plan and independently make their way to the ticket desk and the museum entrance. A number of 'tactile stations' have been integrated in the museum. Real materials or replicas that you can touch clarify the story behind the artwork or the room. A descriptive audio guide leads blind and visually impaired visitors through the building and along the tactile stations. All 80 museum assistants - guards and reception attendants - were also trained in extending a hospitable welcome to visitors with a visual impairment. For visitors with a hearing impairment there is a tablet with explanations about the objects in Flemish Sign Language and International Sign Language.

A Game Changer

The scenography by the Madoc design team and noAarchitecten respects the uniqueness of the Gruuthuse Palace. The use of colour is inspired by the neo-Gothic, which determines the palace's identity. In the furniture you will recognise a similar refinement and standard of finish as in the building itself. The entire museum trail has been completed to a very high specification and provides an awe-inspiring experience. The most advanced techniques have been discreetly incorporated and daylight floods in once more. The design team created a 'gesamtkunstwerk' with a highly refined finish, expanding on the history of the building.

Visitors with a visual impairment receive a customised guided tour via the tactile stations installed throughout the museum. They can also visit the museum independently using the descriptive audio guide.
© Musea Brugge, 2019

Visitor figures and ratings during the first months after the opening look good. It is striking that almost 35% of visitors actually come from Bruges. At other Bruges museums this number is much lower.

The museum has clearly won the hearts of Bruges locals, but also of the many international visitors, as the uppermost positive reviews in the visitor surveys, Tripadvisor and international newspapers and magazines show.

The Gruuthusemuseum wants to gauge the satisfaction of its visitors and learn lessons from it. Together with volunteers and Visit Flanders, regular surveys are organised. A short questionnaire is used to collect data that is followed up and compared with the other leverage projects implemented by Visit Flanders. Musea Brugge wanted to create a 'game changer' with the new museum.

The renewed museum is part of an integral vision for the site but also for the Bruges museum quarter and tourism policy in Bruges. With its modern approach, its preserved authentic look as well as the focus on a truly stunning collection, it appeals to a great many visitors.

Moreover, it will inspire the other Musea Brugge locations to invest in the permanent display and thereby to excel. The Gruuthuse site is an important hub on Bruges' museum axis. Future infrastructure projects, such as the renovation of St. John's Hospital and especially the development of a new museum site adjacent to the Groeningemuseum, will continue to highlight this ambition.

The entrance of Gruuthusemuseum, with its impressive ceiling. On the walls is the 19th century reapplied imitation brick. © Musea Brugge/Jan D'hondt, 2019

2

Outside the Gallery: New Approaches to Museum Visitor Access & Connection

Craig Brandt
HBRA Architects, Chicago, IL, USA

Abstract

This paper promotes the activation of spaces outside of the gallery walls through varied design approaches which will expand visitor access, engagement, and connection through various levels of immersive interpretation and collection orientation. Specific enhancements to the museum experience which this approach may enable include:

- Creating a more inclusive experience by expanding the context to places not usually utilized for collection experiences, which may be used to
- Provide more wholistic orientation, whether it be about the community that the collection resides in, the history or importance of the collection itself, or simply collection highlights
- To provide a layered experience of the collection from inside to outside
- Most importantly, to ensure the museum's role as a specific place in the community that retains an identity of character both in its physical and virtual forms

Keywords

Place
***
Immersive
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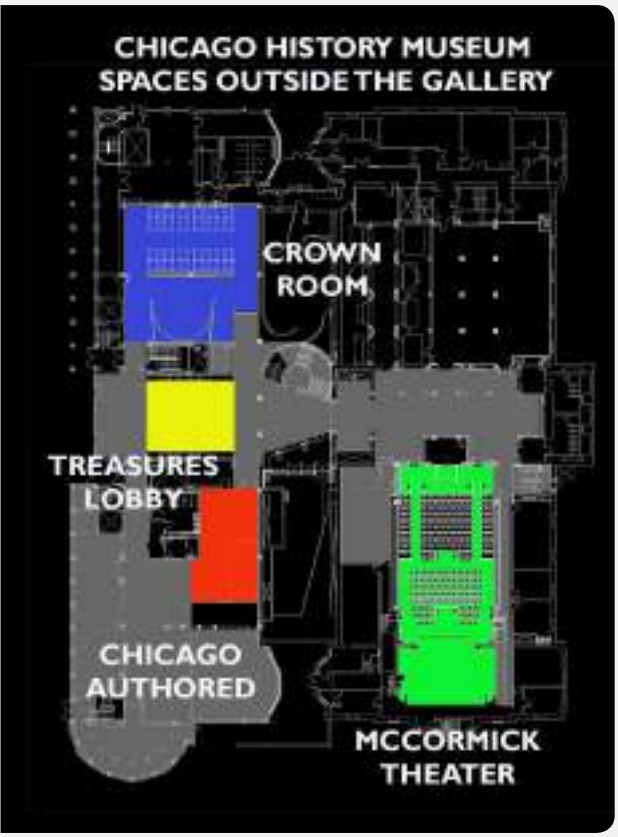
Inclusive
***
Collection
***
Orientation

Introduction

Four public spaces at Chicago History Museum, designed by HBRA Architects in collaboration with Chicago History Museum staff and other specialists, have expanded the context of the collection in previously underutilized public spaces to provide varied methods of orientation and a greater reinforcement of place. The four spaces were previously (a) a lobby stair vestibule within the entry lobby (b) a kid's lunch and activity room (c) an auditorium from 1932, and (d) an unused gallery space adjacent to the café. The interventions use differing complexities of media ranging from large-format projection and surround sound to simply

a virtual device application. All four spaces have various technical challenges based on "enhanced connectivity" such as acoustics, accessibility, cost feasibility, and the development of meaningful program content.

"Plan of new orientation spaces"



Entry Lobby as Spatially Immersive Display

The *Treasures Lobby* was the first public space intervention in our collaboration to transform a less-than-friendly entry experience into an immersive one. The original entrance to the museum, designed in 1986 stopped visitors 10' from the entrance at a barrier allowing small glimpses of the collection to be veiled behind a formal staircase. This approach is typical in many traditional museum buildings in order to create a legible security break for the user and to avoid revealing the collection. However, with such an array of information and virtual experience available today outside the museum, institutions must consider the entrance itself as a "shopping window" to encourage visitors not familiar with the institution or collection to desire the experience. The entrance also needs to sell itself as a wonderful place from the moment one enters. Moving the admission counter back and introducing creative, thematic, and immersive exhibits as one approaches results in a richer entry experience. This additional space also provides extra room for queuing, useful on busy days, and for distancing of people and groups. The Treasures Lobby, with ticketing pushed back, begins with a spatially immersive collection which fills the two-story entry lobby designed by the Museum. It is a three-dimensional collage of large, small, suspended, and illuminated objects which are symbolic relics of Chicago including street signs, antique signs from specific cultural places, and a historic automobile. The array of objects is not demanding of any kind of procession or order, nor does it offer specific orientation. Rather it gives a glimpse of the richness and character of the collection and the physical character of the community in an effort to establish a sense of place.

"Treasures Lobby." Photo by Kate Joyce

The redesigned ticketing counter and grand stair stand out as two splayed geometric masses of maple wood which frame the collections waiting beyond. The curvilinear wood stairs invite the users gradually upwards, returning them back to the objects on the second floor and creating opportunities for viewing the treasure installation from above. One of the most successful examples of placemaking in this project is the central position of the lobby and stair, which, located near a confluence of circulation paths, facilitates repetitive viewings.

"Grand Stair and Landing" Photos by Craig Brandt

Multi-Use Room as Immersive Orientation Gallery

The *Crown Rooms* comprise a renovation that synthesizes various types of orientation focused on children during school visits, and larger audiences during non-school times. The pair of rooms contain the necessary functions of a kids-gathering area and lunchroom, facilitating the processing of coats and lunches in colored bins, and clipboards for school visits. The experience culminates in a multi-screen theater for instruction and orientation. The two interconnected rooms accommodate various paths of processing and orientation, and for security and visibility reasons, need to have large openings without doors. Having large groups of children and multimedia located adjacent to a lobby required an extreme approach to surface acoustics. In order to counteract interference for the two spaces connected by two six-foot openings, required all walls of all surfaces to have 2" thick acoustic panels for 45% of the walls and additionally required acoustic treatment for ceilings. Our approach was to design a cohesively immersive space that uses imagery to unify and enrich the experience without having the acoustic panels detract from that experience. Typical walls of the rooms are clad with a protective wainscot on the bottom and large scale historical images of Chicago children printed on acoustic fabric at the top to both inspire, sooth, and connect the place to the historic fabric of the Chicago community.

The sloped form of the theater announces its presence as something unique in the mostly orthogonal perimeter experience and is clad with simple forms and colors of acoustic panels, not to detract from the photographic and electronic imagery. Inside the theater, a 5-monitor array with surround sound all integrated into a designed enclosure, immerses the user with Chicago History in the form of places, artifacts, and people. Many

"Lunchroom with photo-acoustic panels" Photo by John Cahill

institutions prefer to make theaters "black boxes" with the idea that the image alone must have no "distractions" Our design rejects that notion, as that it often negates the full range of human peripheral vision necessary for a sense of immersion, and instead, we established a distinct fully connected room that offers a full-view immersion of history, light, and form, ordered by shifting mirror-finish geometric forms that emulate Chicago's skyline, which projects and reflects all surfaces.

The rear theater wall completes the immersive theater's visual banding and creates lines of light and movement that reflect and animate patterns resulting from the changing images from the monitors. This is used in place of rear monitors which would be a fair increase in cost. Besides functional orientation, programs on the screen array can be displayed for all ages of enjoyment. For after-school content, images from the museum's panorama display collection was offered online as the museum was closed during Covid-19 lockdown. The choosing of the panoramas for a program is important as they are themselves, places in the museum being display boxes showing historic scenes with buildings and landscape settings that one sees through decorated windows. Again, reinforcement of "museum place" is reinforced by secondary viewing in the theater place, and thirdly by viewing in a virtual place.

"Theater rear wall with acoustic/reflective panels" Photo by Craig Brandt

"Monitor array with reflective panels" by John Cahill

Auditorium as Orientation Theater

The *McCormick Theater* was formerly not part of any museum experience.

The project's role was to expand its potential not only a multipurpose venue for non-gallery events, but to make it part of the history experience and a place for museum users on their visits by the introduction of a 10-minute orientation film presented in 4K 16:9 movie format and surround sound for a more immersive experience.

The Great Chicago Adventure Film projected in the newly renovated theater transports visitors through major events in Chicago's history such as the Great Chicago Fire and World's Columbian Exposition through the experiences of two children who meet up with historical figures, much like the 80's film Back to the Future. To convert a historic auditorium or any space into a 4K projected movie venue requires an extensive budget for sound and lighting. Fortunately, this expenditure can be leveraged for other uses besides orientation films such as performances or other film showings. The space was mostly unmodified from its original 1932 Graham Anderson Probst and White designed splendor. Unfortunately, that meant a significant effort to improve its accessibility.

This historic auditorium required 8 wheelchairs spaces with companion seats which modified the seating significantly. Fortunately, the solutions employed had unanticipated benefits. In lieu of having three tiers of seating across the entire plan, the front seating area moved those aisles to the ends creating less aisle interruptions, similar to a movie theater seating arrangement. A new accessible platform in the back when not used for wheelchaired viewing, allows for quick viewing in a standing position – ideal for a ten-minute orientation.

"Reconfigured seating accommodates wheelchairs in front and middle via lift and ramps, and rear from main doors, AV hidden behind beams." Photo by Mark Ballogg

The full description of challenges for renovating a historic theater for accessibility is beyond the scope of this paper, but what is most important for any project is to have mutually/multiple benefits to a variety of users for such modifications. Acoustics in older rooms are typically not suitable for amplified sound control.

To maintain the sense of place of this three-dimensional "decorated artifact", this renovation and its media intervention had to seamless. Throughout the development of this transformation, the most critical goal was to preserve the sense of place, integrating acoustic treatment, technology and egress lighting into the detailing keeping within the original vocabulary.

"Orientation film in 4K 16:9 format in renovated auditorium." Photo by Mark Ballogg.)

The Casual Café as Social Immersive Activity Center & Community Connector

Chicago Authored is a room with comfortable chairs, books, and displays about books and writing. It expands the idea of experiencing a collection from simply viewing it to experiencing it by means of an everyday activity one may encounter outside the museum – lounge reading. The space is centered around books and reading, but purposely themed around the legacy of Chicago-based authors. It resides in between the main stair and the Museum café and is designed with flow-through circulation that encourages you to casually engage walking by, or through siting and lounging.

The Museum's programming of the space transforms visitors from spectators

to participants with performances and readings, extending the reach of community connectivity. Before and during museum hours, the space is available for visitors to learn about authors and books from the community bookshelf, with hundreds of works by Chicago authors or they can simply lounge with their own books. Going beyond the reading object, the exhibit makes use of an excerpt-filled mobile application with audio and video tours, and the space hosts a book club. The idea of this intervention is transportable to many types of institutions and places due to the compact and low technical nature of the activities. One could use this idea as a "pop-up" lounge in outdoor spaces near the museum, somewhat like the "bookmobile" concept. Again, the place of the museum should be retained when possible using iconography, or other figural gestures to mark the special nature of the intervention within the context of the institution. Critical technical considerations include proper and safe stage design. The shallow stage has tables and chairs placed in front of it during off-performance hours to prevent tripping hazards. The east entrance has glass doors to control the sound to and from the main lobby while the opposing side is open to the café allowing for onlookers to be participants as well.

Chicago History Museum "Seating and books define casual orientation"

Chicago History Museum "Mobile application allows multiple place experiences"

Conclusion

As shown in the above four examples, the introduction of collection spaces outside of the gallery can present a collage of a collective identity, delivered to the visiting community in different forms of immersive media containing various aspects of orientation programming. The relationship of these interventions can be pop-up, overlaid, partially integrated, or permanent, and the decision of which approach to take depends on program, place, and feasibility.

Other points include:

- Content that is used to create ambient immersion is best placed in areas that receive repetitive visitation allowing users to acquire sufficient place-memories. Conversely, immersive sound environments can be better served slightly distanced and separated from the main circulation for acoustic and environmental isolation.
- Challenges with interventions and renovations can be overcome to achieve their desired functional result and a stronger identity for the institution. The challenges of accessibility and acoustics can be studied and developed through design options which yield additional benefits to the user. This paper cites examples such as content-laden acoustic wall finishes and media housed in engaging arrangements and enclosures.
- Black box theaters offer flexibility but often lack a sense of institutional identity and should be considered carefully. Current trends in LED technology allow for resolution, clarity, and brightness to the degree that less darkness and contrast is needed for the environment – if an existing environment is rich and visually important to the place, these electronic layers can be added with minor changes in acoustics and lighting and to provide an engaging enclosure.
- Activities can be part of an intervention's identity to bridge the gap of museum and non-museum formality and increase visitation time.

The goal of this paper is to help collecting institutions preserve and enhance the identity of their museum environments, making this identity clear with the a minimum of ideas, and through immersion of meaningful imagery and studied expression, in order to preserve the museum as a legible and memorable physical place.

"Video Collage integration sketch by Craig Brandt"

3

Back to The Future: Reinterpreting Wardown House Museum and Gallery

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Abstract

This case study paper describes key elements of the conservation, reinterpretation and redisplay of Wardown House Museum and Gallery, a Grade II Listed historic building in Luton, England. The paper explores how a fresh approach to interpretive storytelling combined with creative design rejuvenated the visitor experience. It explains how an interpretive design approach was developed, based on the story of the Museum's historic interior. It also demonstrates how old furniture and household objects can be repurposed into display hardware, and how bespoke digital and AV design can support an engaging visitor experience.

Wardown House Museum in Luton, UK, received Heritage Lottery funding for a major refurbishment in 2014.

Keywords

Interpretation
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Exhibition Design
***
Narrative
***
Interior Design
***
Sustainability
***
Historic building

Wardown House Museum

Originally a private mansion, Wardown became Luton's museum in the 1930s. The House has a distinct local history, and a series of historic interiors that reflect the original uses of the rooms and the tastes of its Victorian inhabitants. However, by 2014, after many decades of use as a municipal museum, much of the interior had been boarded over or obscured by exhibits. The collection displays were tired, poorly accessible, and lacked any coherent narrative. The story of the house, its architecture & decoration had been lost.

The building also needed conservation works to the roof, services and interior finishes; and better access, including a new lift connecting the basement with the floors above.

The Exhibition Design Brief

As design brief for the museum redisplay was threefold: to create a wholly new visitor experience in a restored Victorian interior; to provide a clear interpretive narrative for visitors; and to make the town's collection more accessible.
The interiors and exhibition at that time clearly demonstrate the scale of the challenge. The wonderful historic interiors of the Dining Room and Morning Room had been obscured with completely unrelated exhibition material. The Billiard Room had become an 'afterthought' space used for small-scale temporary displays, learning activities, and ad hoc storage. The Library had been turned into a black-box exhibition space without any clues to its original use and grandeur. The Lady's Bedroom had been used as the Curator's office, meeting room and general dumping ground.

The beautiful interior of the elegant Morning Room had been largely lost.

The Billiard Room had lost its distinctive period feel and ambience.

The Lady's Bedroom had become an office and general dumping ground.

All these spaces, and others throughout the house, were lost opportunities for storytelling and provided a very limited visitor experience.
The project also involved a wider Design Team led by a conservation architect, and including a services engineer, building engineer and historic interiors consultant. As interpretive designers, Imagemakers worked very closely with this team to ensure a fully integrated approach. In addition, the Museum had recruited over 300 volunteers to support the project, and developed a Business Plan and Activity Plan to accompany the capital project.

Interpretive Design Solutions

In response to the brief, Imagemakers undertook a series of workshops and consultation activities with staff, stakeholders and volunteers. With the curator, they developed an Interpretation Plan identifying audience profiles and characteristics, aims, themes and topics to inform the design solutions. This key document was supported by an object list with information about the collection items to be displayed, their sizes, and any conservation display requirements (e.g. security and climate control).

New external interpretation drawing attention to the historic building.

Circulation and Narrative

Working with the curator and conservation architect, Imagemakers developed a proposed visitor circulation and interpretive narrative across three floors and a dozen rooms. The narrative linked the historic uses of the house and its rooms to the collection display and storytelling. For example, the leisure collection, including sporting trophies, sports equipment and archival records, were to be displayed in the Billiard Room – the room where the Victorian gentlemen of the House would retire to play billiards. The fine art collection and musical instruments were to be displayed in the Morning Room, the main Victorian reception room for guests and functions like musical recitals. The maps, geography and natural history collection were to be displayed in the old Library, and the costume collection was to be displayed in the Lady's Bedroom, and so on.

Indicative circulation routes used for plotting display narratives and stories.

Design and Styling

The design ethos was to recreate a sense of the original period interior, but with a contemporary twist. Imagemakers worked with a specialist historic interiors consultant to develop appropriate designs for period-inspired wallpaper and wall tiles that also contained interpretive

and story-based imagery. Furniture set dressing such as blinds, towels and lampshades were designed in a period style but containing interpretive text and images.

Furniture set dressing such as blinds, towels and lampshades were designed in a period style but containing interpretive text and images.

Continuing the period feel, antique furniture was bought at auction and repurposed as display cabinets and cases. Audio equipment was embedded into armchairs that talk to visitors when they sit down, and into recycled objects such as musical instruments and broken gramophone players.

Built-in object display cases were made in what appears to be a traditional Victorian style, but with modern museum standard glazing, security and seals.

Second hand Victorian furniture was brought at auction and repurposed into display cabinets, sometimes including audio and AV components.

Built-in object display cases were made in what appears to be a traditional Victorian style, but with modern museum standard glazing, security and seals.

Digital and AV Media

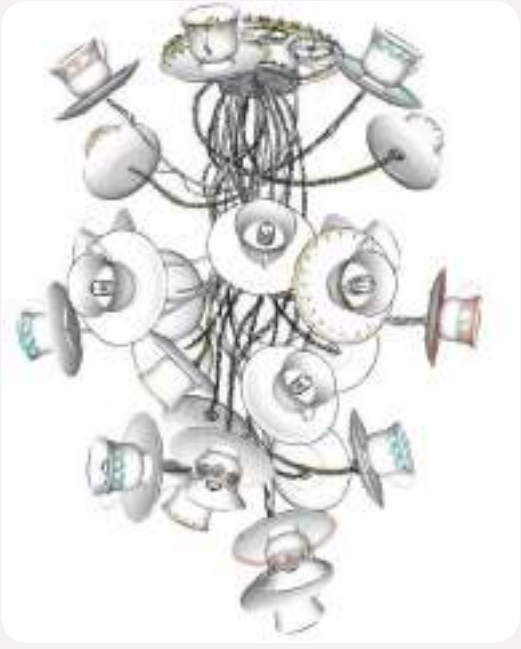
A digital tour was developed using tablets that are loaned to visitors, containing layered narrative explorations voiced by historic characters like Frank Scargill, the original 19th century owner of the house. Talking AV portraits were produced in old picture frames, again enabling characters from the past to speak to visitors & tell them stories about the house & its rooms. An antique film projector was retrofitted with a modern digital projector to deliver an AV film about social history and local politics in the Smoking Room, where the gentlemen of the house would sit and debate matters of concern.

The centrepiece of the Billiards Room is a digital billiard table in which visitors pot a virtual ball to unlock layers of content and storytelling about the history of sport and recreation in Luton.

A digital game of billiards unlocks layers of content in the restored Billiard Room.

Supporting the Museum's Commercial Operation

Part way through the project the design brief was expanded to include creating a Victorian style tea room in the old Dining Room, but with a contemporary twist. Here visitors can now read interpretive magazines about the collection and explore table-top display cases whilst enjoying a coffee and cake. The tea room's centrepiece is a unique and distinctive chandelier made from recycled teacups, and its historic decorated interior has finally been revealed and celebrated as a key part of the building's story.



The Dining Room is now a café with personality, including a bespoke teacup chandelier and display cases embedded into the tabletops.

WARDOWN HOUSE

Working with the Museum's business manager, the spatial design also enables Wardown House to host wedding ceremonies and other commercial events, thereby creating new income streams. The elegant Morning Room is now both a fine art gallery, a music collection display, and a popular wedding venue.

The Morning room is now a display gallery and a wedding venue.

Results

The results of the project were measured through an independent evaluation process. The evaluation research included 254 visitor feedback cards, 112 visitor feedback questionnaires, an e-survey of 35 volunteers, and in depth interviews with staff and volunteers.
Taken together, this data demonstrated the following outcomes:

- Visitor numbers more than doubled as a result of the refurbishment.
- After re-opening, 98% of visitors rated the displays as 'good' or 'very good'.
- After re-opening, the visitor profile changed, with an increased proportion of younger visitors and from the target local and deprived areas of Luton.
- 92% of visitors believed the project had made a positive contribution to Luton.
- Visitors rated what they learnt as being 8 out of 10 (with 10 being 'everything').
- Average visitor spend rose by 270% from 36p per head to 97p per head.
- 390 volunteers became active 'Museum Makers', participating in all aspects of the project include interpretation and displays.

- Typical visitor comments included:
    1. "Interesting and engaging ways of display."
    2. "I think it's all presented in a very original and creative way. Very impressive."
    3. "The displays and wall displays are very imaginative."

- The formal evaluation by the project's main funder, the Heritage Lottery Fund, concluded "The project was successful in telling the story of the house, the collection and the town in an engaging and creative way, receiving overwhelmingly positive feedback from visitors".

The Lady's Bedroom after the refurbishment project.

Conclusions

This case study demonstrates how good interpretive planning and creative design can successfully refresh a museum experience. It shows how collection displays can be successfully integrated into a period aesthetic, how good interpretation can tell an engaging story, and how the story of a historic building can be brought back to life alongside that of a diverse museum collection.

4

Exhibiting Exhibitions.
Re-staging, Re-viewing & Re-considering the Role of Seminal Displays

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Abstract

The re-staging of seminal exhibitions is an emerging phenomenon, based on the re-enactment of historical shows, often within larger displays accurately recovering or even reconstructing installations that have played a significant role in the evolution – or in the revolution – of the exhibition practice. Beyond its more obvious outcomes (e.g. to disseminate the exhibitionary culture and to rescue its milestones from oblivion), this activity is contributing to set forth some important advancements in the conception and use of exhibitions. In particular, it contributes to reconsider some episodes or some aspects that may have been neglected (e.g. those pertaining to the museographic dimension), it enhances the acknowledgment of exhibitions as multidimensional constructs and historically engaged media, and eventually it expands the growing interest for exhibition histories, that in the last decades have become particularly attractive case studies to museologists, historians, architects and cultural researchers at large. The paper proposes a synthetic overview on the origin, the tasks and the potentialities and criticalities implied in the re-staging practice, with the aim to envision its possible contribution to the agenda and the prospects of contemporary museums.

Keywords

Re-staging exhibitions
***
Re-exhibiting
***
Exhibition history

The trends that have characterized the evolution of the exhibitionary culture in the last twenty years include the raising interest for exhibition histories. On the one hand, this phenomenon has attested to the relevance of these events in the current socio-cultural scenario; on the other, drawing on a new understanding of exhibitions as a special form of heritage or lieu de mémoire (Nora, 1984), it has triggered significant changes in the approach to their study and use in the present context, thus promoting the experimentation with new opportunities for contemporary exhibition practices – the most innovative of which is probably the re-staging of past exhibitions.

Exhibition Histories: New Prospects for Research & Practice

For a long time the history of exhibitions has been conceived as a subgenre or a mere supplement to art history, and its study has been limited to the enrichment of artistic narratives.

A gradual change in this conception arose at end of the XXth century (Greenberg, Ferguson & Nairne, 2005; Vogel, 2013; Collicelli Cagol, 2015), when exhibitions started to be acknowledged as historically engaged media, which can play a strategical part in the construction of collective identities.

In fact, "The emergence of the 'remembering exhibition' phenomenon is a manifestation of Western culture's current fascination with memory" (Greenberg, 2009), but on the other hand this growing interest also evidences a new understanding of the cultural significance of exhibitions and of their role in documenting the changing ways in which knowledge and culture have been enabled, constructed and disseminated.

Exhibitions are the means through which, throughout the decades, societies have represented their relationship to art and to heritage, but also to their own history and identity, and to those of other cultures and peoples (Lumley, 1988; Bennett, 1995).

As such, both their content and their physical manifestations represent a special form of cultural heritage – drawing on the expansion of the concept of heritage as well as on the acknowledgment of the historic, scientific and social values of the display practice and the role it has played in identity and memory making processes. Drawing on this assumption, the reading of the evolution of the forms, languages, strategies and tools that pertain to the exhibitionary culture is thus being acknowledged as a valuable lens through which to observe our past as well as our present. On the one hand, it can offer a further instrument to approach history in itself, to reveal cultural debates of the past, and to retrace the evolution of ideas and positions on various cultural, societal and political topics; on the other, it can have a self-reflexive task and allow for the tracing and the multilayered understanding of the changes in the role and the work of the museum institution.

These are the reasons why, in the last twenty years, meaningful historical exhibitions have become particularly attractive case studies to museologists, designers, historians, anthropologists and cultural researchers at large. Today, they are at the core of relevant national and international "discursive events" (i.e. "the cultural moments of exchange and debate that are catalysts for changing perceptions and triggering new practices", Greenberg 2009) and, most importantly, they have become the object of innovative forms of research, documentation – and re-

documentization[1] – as well as recovering practices, which include the construction and release of multimedia archives, that allow for the development of multilayered, expanded and progressive models of study, and the virtual and physical restaging of seminal events.

Re-exhibiting Exhibitions: From Homage to Re-search-by-design Endeavours

This latter practice includes the replication (or recreation) and the revival of earlier exhibitions.

In particular, it mostly regards art exhibitions, and especially those historically-significant shows that revolutionized the norms of display or that had a seminal effect on the museum culture, both in museologic and in museographic terms – because these reenactments foster critical thinking on exhibitions as multidimensional constructs, thus tackling curatorial as well as design issues.

Indeed the sense of this practice does not lie in the exhibition of relevant artworks, but rather on the restaging of exhibitionary projects (or of a meaningful part of them), by re-animating their contents but also their spatial dimension, and thus activating a performative or process-oriented spatialization of memory which allows us to understand their outcomes experientially.

Although the idea underlying this type of exhibition practice is clear-cut, it actually encompasses a range of multifarious actions, varying in their methods and intentions. In particular, it includes the replication of historical shows (ensuing from the re-assemblage of the exhibited artworks and settings), but also the re-construction of displays that had gone lost, as well as the re-enactment of performances and ephemeral shows, the exhibitions within exhibitions or about exhibitions, and even exhibitions re-presented online.

This practice had already appeared along the 20th century, in some precursor events based on the restaging of particularly important shows that have been celebrated because of their relevance or their impact on cultural history – such as the International Exhibition of Modern Art, known as the The Armory Show, which had been organized by the Association of American Painters and Sculptors in 1913 in the 69th Regiment Armory in New York, and later displayed at the Art Institute of Chicago and at the Copley Society of Art in Boston. This event was quickly acknowledged as a milestone, as it introduced the experimental styles of the European avant garde in the history of American art, and thus it was re-staged in many occasions – and especially in its 50th anniversary (in 1963) and in its centenary (in 2013).

[1] *According to Reesa Greenberg (2009), this term has been adopted to describe various practices of documenting on the web, experimenting with new forms of recording, organizing and accessing online material.*

Some other preliminary episodes ensued from the need to re-visit controversial shows in order to re-assess or even debunk their infamous and awkward aspects – and probably the most emblematic case was the 1937 Degenerate Art exhibition. The event revolved around the collection of modernist artworks that had been confiscated by the Nazi Regime from European museums because of their insulting and subversive nature, and displayed in an itinerant show (inaugurated at the Munich Haus der Kunst) which was meant to inflame public opinion against modernism. Parts of the exhibition were restaged in various occasions, in Europe and in America, always complementing the few original artworks that were recovered with many other materials, aimed at documenting, reviewing and breaking down the implications of the show. Indeed these re-stagings did not mean to actually re-display the exhibition, but rather to examine and to comment on its history, as an opportunity to contribute to the development of historiographical and critical perspectives.

If the first episodes of this restaging phenomenon had already showed different purposes, ranging from the celebratory to the revisionist ones, the complexity of this practice grew further in the last fifteen years, when it accelerated and spread, thus producing a global "wave" of re-plicated, re-enacted, re-created and re-activated exhibitions, which fostered the experimentation with new approaches, methodologies and tasks.

Many of these re-staged events still are homage or anniversary exhibitions, designed to isolate pivotal moments in art and in museum history (also including those that may have been overlooked and marginalized), usually offering a revisionist take or commenting on the original show, and often acknowledging neglected aspects and perspectives, hence expanding their interpretation.

Nevertheless, many recent events are actually conceived as research-driven endeavors, conceived to enhance advancement of knowledge and dissemination on archival material, and to promote innovative pedagogic and methodological tasks. For example, they are offering a new testing-ground for research-by-design models, expanding the observation point on the exhibitionary practice and promoting an interdisciplinary perspective that encompasses its usually neglected layers, corners and dimensions, thus raising a new understanding of exhibitions as historically-mediated constructs that embed museologic, architectural, social and political stances, and soliciting an interpretation of the display as a form in and of itself.

The development of these new tasks has significantly changed the perception of the re-staging practice as well as its role in the contemporary scenario. Today these events are playing a strategic part

not only in promoting and advancing historiographical studies, but also in enhancing the ongoing transformation of museums. In fact, they can support the self-reflexive work to which cultural institutions are increasingly committing at present, and thus contribute to orient the path towards the critical revision of their strategies and tools.

Re-staging: A New Exhibition Genre

The complexity that we can recognize today in this phenomenon, the growing variety of its forms, and at the same time the distinctive ideas it addresses, allow for the re-staging practice to be identified as a new and specific exhibition genre (Greenberg 2009), i.e. a specific type of exhibition that is characterized by distinctive features, methods and tasks – although it doesn't have a univocally defined name yet[2] .

These shows are never mere acts of repetition: each event introduces differences, specific problems, new curatorial questions and multifarious critical stances towards past issues (Dulguerova, 2010; Greenberg, 2012). Hence their design is a complex endeavour and involves many aspects and dimensions (which cannot be discussed here). In general, it is possible to identify three main decision areas within around the planning of re-staged exhibitions can revolve and vary.

First of all, the accuracy of the reconstruction. This parameter can range depending on the possibility to reassemble the original artworks and settings, but also on the curatorial approach, that may entail the selection of specific parts, the juxtaposition of different shows, and the entwining of commentaries or complementary materials.

This aspects pertains to the second variant: the integration of new elements. Indeed, the re-staging usually implies the original artworks to be complemented by further documentation, such as photos of the original display, documents illustrating the curators' work or the show's reception, commentaries from the curator or other voices, evidence of the possible connection with other events, etc. Beyond being included in the new catalogue, these materials are integrated in the exhibition layout. They can be added in a marginal position (e.g. in an "additional" space, often at the beginning or at the end of the path), or they can be intertwined with the original display. This feature has been variously shown in the different re-staging episodes of the Degenerate Art exhibition. When reprised in New York – in the 2014 show "Degenerate Art: The Attack on

[2]This new exhibition genre has been referred to as re-construction, re-make, re-play, or re-staging, but also as sequel or re-cap (Hoffman, 2012), reprise and riposte (Dulguerova, 2010), re-enacting and re-exhibiting (La Rosa, 2016), ready-made (Celant, 2013) and re-production (Bal-Blanc, 2013); the lack of a univocally codified vocabulary results from – and stands for – the multiplicity and variety of the projects, methods and tasks explored within this practice, as well as its recent inception (and ongoing development).

Modern Art in Nazi Germany", curated by Olaf Peters at the Neue Galerie –, the absence of the artworks that had gone lost was highlighted by the empty frames mixed with the recovered paintings, while original photos of the German shows were displayed on specifically designed desks positioned in the middle of each room. The previous major re-display – the show "1937: Modern Art and Politics in Prewar Germany", curated by Stephanie Barron in 1991 at the Los Angeles County Museum of Art and later displayed at the Art Institute of Chicago – also included a small-scale model-like reconstruction of the galleries of the Munich Haus der Kunst, situated in a free-standing corridor with a slightly raised floor in the middle of a gallery, where visitors could enter as in a sort of time tunnel.

This latter integration refers also to another variant: the relationship between content and container. Indeed, very rarely re-staged exhibitions are displayed in their original venue, hence the approach to their insertion into a new place can have a strategical value, as it can highly influence the setting, the meaning and the reception of the show. Overall, the fidelity to past circumstances seems to be less important than the construction of the current experience, and environmental relationships are usually reinvented. Nevertheless, in some cases the relationship between content and container is an inextricable part of the experience, and thus it needs to be reproduced. A paradigmatic example is the re-staging of Harald Szeemann's "Live in Your Head. When Attitudes Become Form", originally displayed in the modern white rooms of the Bern Kunsthalle (in 1969) and reproposed by Fondazione Prada in 2013, inside an historical palace characterized by ancient frescoed and decorated halls, Ca' Corner della Regina in Venice. In order to maintain the original visual and formal relations and the links between artworks and space, the curators (Germano Celant, Thomas Demand and Rem Koolhaas) have grafted the exhibition in the new venue in its totality, through the full-size scale reconstruction of the original walls, floors and installations into the historical structure. A less demanding option was proposed by the 2017 replication of Kynaston McShine's Primary Structures exhibition at New York Jewish Museum, where it had firstly been displayed in 1966: the re-enactment included gigantic photos of the original spaces which were used as backdrops to the re-staged installations, thus providing both documentation and contextualization.

Although some may argue (i.e. Smith, 2014) that this practice may actually disguise artists' creativity drought and curators' obsessive look towards the past, on the contrary this new way to explore, revisit and even mediate (or mine) the past is proving quite productive. Indeed, re-staging an exhibition is never a mere repetition (Houston, 2016), and rather it

entails a critical work that can upgrade our understanding of exhibitions as a socially – and spatially – situated phenomena, reveal new perspectives and interrelations between different contexts and fields, enhance their impact as cultural moments of active debate, and thus improve their action as catalysts for changing perceptions and practices and inspire solutions for contemporary purposes.

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5

Light, Shadows and Screens: Possible harmonious coexistences

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Abstract

In a world populated by screens and multimedia devices that capture our attention, can traditional content compete for the visitor's attention? Instead of entering a war - certainly lost - against the screens, can we create a balanced coexistence between conventional and multisensory supports?
Technological devices such as projections and monitors with exhibition content have been gaining more and more space in the exhibitions for years, based on a passive relation with the audience.
Lately, media support started to gain very attractive, three-dimensional shapes, inviting the public for a more active role, with more immersive experiences. To the point that some visitors will feel bored without such technological innovation.

What place is left for other supports?

Light, and its contradictory partner, **shadow**, are fundamental tools for visibility editing. With light, we can highlight colors, enhance three-dimensional shapes and generate spatial perception. With shadow we can create breathing spaces between one thing and another; we can create rhythms. With the play of light, shadow, sparkles, reflections and transparencies we can create varied sensorialities taking the visitor's body as a reference.
I intend to explore how light can make this frontier softer, by blending different supports in the visual field of the visitor so that the experience does not jump from one technological innovation to another. Such a point of view will be illustrated by examples of exhibitions around the world where there was a happy coexistence between medias. These are examples where light interacted with videos, without being held hostage by it; where simple technological resources were used with a high narrative impact.
It is possible to create an amalgam and balance for the visitor's experience so that it is an enjoyable and a richer experience.

Keywords

Exhibition lighting design
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Interaction
***
Technology
***
Museum experience

Introduction

In everyday life, one person spends several hours interacting with gadgets and devices for working, networking, learning, studying and socializing. The museum environment has been changing its forms and shapes to catch the attention and interest of visitors, by creating more and more captivating exhibit supports for its contents. Screens and multimedia high technology devices now occupy much of the space (and budget) of exhibitions. Projections and screens have left the dark room, and high technology media supports started to gain very attractive, three-dimensional shapes, inviting the public for a more active role, with more immersive experiences. Nowadays, almost every exhibition has at least one piece of interaction with high technology support for content. And there are several examples of temporary exhibitions and long term museums, built mainly by projections, screens and virtual reality artifacts. One example is the TeamLab Borderless exhibition at the Mori Building Digital Art Museum in Tokyo, Japan, where the visitor navigates through empty rooms completely covered by responsive projections.

"Visiting a museum is a "multimedia" experience. Since the first written explanatory label was placed in an exhibition museum, visitors have gathered information both by looking at things and by reading about them. Multimedia is simply a combination of two or more different media. Computerized systems form part of a long tradition of interpretive and explanatory technologies and techniques that follow slide shows, text plates, and dioramas."

"Strictly defined, multimedia results when two or more media are combined to provide information about a subject. The media may be text, drawings, graphics, still photographs, moving images from film or video, and audio. Interactive multimedia enables communication between the multimedia system and its user, enabling the user to control the sequence and presentation of information. This in contrast to a film, for instance, which is a linear, meant to be seen by a passive viewer from start to finish." (Davis & Trant & van der Starre, 1996)

Until recently, exhibition projects with audiovisual content, used to locate screens and speakers in separate rooms. It created segmented and controlled environments, lacking visual continuity with other exposed elements. This was the way to preserve dark and silent ambience in order to guarantee an accurate experience for the content on display, as projectors were not so bright as they are today. Using technology as a language was something in development, both in its proposals and in technical possibilities.
With the development in the use of technologies and the appropriation of new

languages, the demand for new formats has stimulated many changes in the ways of exposing content and presenting it to the public. Projects have been in constant change, proposing a greater integration between elements of different formats through the exhibition space.
Technological artifacts such as projectors, screens, dioramas and holograms have also evolved and have greater flexibility and control of brightness and intensity parameters, facilitating the interaction with light in the same environment.
Besides all the innovation available for installations, analogical supports still survive, and concrete artifacts are very important in the museum experience. The coexistence between technological and non-technological supports for contents is desirable for the museum experience.

New Challenges for Museums

It is an important challenge to improve access to culture, museums, and their collections, and to increase visitation and include people with special needs. Expanding access to a broader audience should definitely be one of the objectives of museum institutions.
Concerning expography and the physical space for exhibitions, there has been a wider discussion, including regulatory legislation to guide decisions about how to address these issues. Interactivity resources can be an interesting tool to improve communication, signaling and labeling.
The challenges of bringing new audiences to museums must be embraced by all the disciplines involved in an exhibition project. Lighting Design can be a strong ally to create atmospheres, welcoming environments and inviting spaces. Exhibition lighting projects gain an important space as a tool to promote more intriguing and thought-provoking spaces.

How Can Lighting Design Help to Create a Well Balanced Coexistence Between Conventional and Multisensory Supports?

To put our eyes and brain in contact with a large variety of shapes, textures, colors, along with symbolical and historical layers that are presented to a museum visitor is a very rich sensorial experience. The challenge in exhibition design is to achieve the right balance between such a variety of visual stimuli. To make harmonious combinations between materials, screens, in different contexts and places.
Lighting is a very important tool in this approach. Its characteristics and multiplicity of uses is able to amalgamate the elements of the visual field in space.
The design features to format light in this new integration task are parameters like: brightness, intensities control, contrasts, colors and the use of shadows. Combined to the materialities of the surfaces to be illuminated, the lighting sources available can generate infinite combinations of visual effects.

Our visual system is able to operate over a large range of light levels, we can adapt very well to sparkles, colors, and contrasts. The careful and precise balance between light and shadow can transform the visual relationship between the visitor and the environment.

Shadows, as much as light, are an important part of the lighting design proposals. Dark areas help shape the space, creating hierarchies, highlights and rhythm. Darkness is also a tool used to generate form and volume and to inform our visual system about deepness and scale.

Case Studies

One case study to illustrate this idea of lighting as a tool of shaping relationships between different elements is the 19º Festival de Arte Contemporânea SESC Videobrasil, featured at SESC Pompeia, in Sao Paulo, Brazil in 2015. With many video installations, the curator and the architect were very concerned about the possibility of having conventional art in the same room as projections. They didn't want dark rooms for videos.

So the challenge was how to treat the boundaries of each piece of art. Because video projections were very close to paintings, sculptures and other works of art, lighting distribution and intensity were very controlled in order to guarantee the right ambience for each of them.

The solution for the lighting was to add a layer of indirect light to unify the room without interfering in the projection. Large areas remained totally dark, but the visitor still had the sense of integrity between the architecture and the exhibition. Reflected light from the screens were very important in the final composition and were used to fill some empty spaces.

Two years later, in 2017, in another edition of the same festival, this blending of screens, paintings, sculptures and installations became more radical.

The coexistence of supports created different visual possibilities with many interesting views, combining different art pieces with screens and sounds. The harmonious mixtures of films, painting and the architecture of Lina Bo Bardi created unlimited visual compositions.

A comprehensive sense of spatiality was achieved by combining indirect lighting, ambience lighting and wall washing at the perimeter of the big exhibition pavilion.

Exhibition: 19º Festival de Arte Contemporânea SESC Videobrasil. Copyright: SESC São Paulo

Exhibition: 20º Festival de Arte Contemporânea SESC Videobrasil. Copyright: SESC São Paulo

For the exhibition "GOLD - Serra Pelada Mine" of the brazilian photographer Sebastião Salgado, the curator decided that no other media would be used, only the photographs. There wasn't any multimedia apparatus. The pictures were presented floating, suspended through steel cables, and the images had a very high contrast of black and white.

The lighting was tuned in a very contrasted way. The photographer wanted the pictures to be very bright, specifically with a 350 lux level, above standards adopted world wide. The format of the lighting was sharp framed at the floating pictures. The ambiance light was completely dark to enhance the contrast between pictures and the rest of the room, and this high level of contrast was crucial for the visual impact that the photographer wanted. The images seemed to be backlighted.

Exhibition: GOLD - Serra Pelada Mine. Copyright: Pedro Mascaro

Exhibition: GOLD - Serra Pelada Mine. Copyright: Pedro Mascaro

Conclusion

Museums are living organisms that adapt and change over time. Museum technologies develop very fast and bring new solutions to old problems, and new challenges to evolve. The quick change in LED light sources, new wireless communication protocols for dimming lights and innovative audiovisual equipment open a whole new approach to the integration of technologies, not only in terms of technical functions, but also as new possible visual languages.

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6

SESILAB Descriptive Memorial Preliminary Draft

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Abstract

SESILAB will be implemented in the Touring Club of Brazil Building, a work by Oscar Niemeyer, located in the Setor Cultural Sul (Southern Cultural Sector) in Brasilia, side by side with the Plataforma Rodoviária (Road Platform), at the crossing of the Monumental Axis and the Road Axis, called Ground Zero and defined by Lucio Costa as the center point from where all the Plano Piloto (Pilot Plan of Brasilia) was structured. The building is to be erected on a 10,000m2 plot (about 3,8 sq miles) with a built area of 7,478.75m2 (about 2,88 sq miles). Oscar Niemeyer and his team's original design dates from 1963, and the building work was finished in 1967.

The Touring Club Building was used in many different ways along the years. It went through many renovations in order to adapt to different needs. There was never a proposal for a complete requalification of the whole building, only punctual and immediate interventions, like blocking areas that were originally open with brick and mortar or with temporary partitions, or covering the original exposed concrete with plaster, textures or paint, or using black frames over the glass and blocking the visual permeability of the building. Along with precarious maintenance, those interventions only led to the building's deterioration and to the current poor state of conservation it shows today.

By Niemeyer's own design, it was meant to have a simple, yet functional architecture. His main concern was not to let the building stand out iconically, but to value its integration and harmonization with its surroundings. Therefore, Niemeyer created a low-rise pavilion with an ample cover that makes the building look like a warehouse, as Lucio Costa originally envisioned the Casa de Chá (Tea House) to be like, at that same spot, when he designed the Pilot Plan.

Keywords

Gustavo Penna
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SesiLab
***
Brasilia
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Brazil
Arquitetura
***
Exploratorium

The Touring Club of Brazil Building

A curved flight of stairs connects the first floor to the ground floor, which has a high-rise ceiling, thus allowing the building to connect both with the monumental scales of the Monumental Axis and with the bucolic green areas of its surroundings, located among the Road Platform, the National Library and the Southern Autarchies Sector. An underground public passage below the Road Axis connects the Conic Building's complex and the Setor de Diversões Sul (Southern Entertainment Sector) to the Monumental Axis, the Road Platform and the Southern Cultural Sector (the National Library and the Republic Museum), going through the ground floor of the Touring Club of Brazil Building. The building also has a very characteristic modular structure made out of concrete, huge overhangs over the slabs of the first floor and a cover with a curved design given by its beams, which stand taller in the pillars and then go thinner the closer they get to the overhangs' edges, causing an effect that amplifies the whole perception of the overhangs. The balancing cover over the first floor forms verandas that go around the entire building's perimeter, creating a shaded area of protection and allowing for an ample view of the Esplanada dos Ministérios (Esplanade of Ministries).

SESILAB

Generally speaking, the original characteristics of the building were preserved, both in volume and façades as in the configuration of the original cover with its pillars and beams. In the 2014 intervention, in order to implement the bus station in the building, a metallic cover was added and there was a change in the flooring of the ground floor to create embarking and disembarking platforms. The design of the access paths and the medians was also altered by the creation of a bus maneuvering area and parking lot, which disfigured the original landscaping design that had organic shapes, not to mention the suppression of many trees. The proposal for creating SESILAB, with its new cultural and educational uses, aims at restoring the importance of the Touring Club Building to the city of Brasilia by reassuring its original vocation towards the development of cultural activities, according to the Pilot Plan by Lucio Costa, and then requalifying the building's immediate surroundings. The whole process concerning the abandonment of the building had repercussions on those surroundings, which were then occupied by lower-level commercial activities and informal trade. The degradation process also saw occurrences of drug use and drug trafficking that turned the Touring Club Building complex into a place deemed dangerous by the general public, in particular its underground public passage,

usually considered the most critical spot when it comes to criminal activity.

The choice for the Touring Club of Brazil for new implementation of SESILAB was based on many factors, such as: the historical and architectural importance of this cultural item in Brasilia's context; the building's strategic and central location, which provides for easy access to visitors in an area where 600,000 people pass through every day; it is also an already familiar place in the federal capital of Brazil, which favors a connection between that cultural space and the community; and the architectural characteristics of the building – a big modern pavilion structured independently, that allows for ample internal spaces and a vast flexibility of usage.

Besides both long-term and temporary exhibitions, SESILAB will also provide, through SESI, a robust educational program aimed at students starting from basic education to university-level, and another aimed at continual training of teachers and educators, taking experimentation as a path to raise the interest in learning and teaching in new ways. The space will be open for the general public and aims at sharing knowledge, new ideas and experiences among the scientific, technological and artistic realms, besides supporting innovation through new approaches to creating thinking.

The proposed intervention presented here aims at rescuing the original characteristics of the Touring Club of Brazil Building, a modern pavilion with a reinforced concrete structure with large spans between its pillars, a gigantic structure with an open-plan floor that allowed for different adaptations of the building along its existence.

Being that way, the proposal here aims at the demolition and removal of all the non-structural elements the building shows today: both brick and drywall walls, the external glass coverings, the internal partitions, doors and assorted framings. The metallic structure built in 2014 to cover the bus platforms will be removed. The staircase connecting the ground floor and the first floor will be kept, as will the guardrails that surround the terrace on the first floor.

SESILAB aims at democratizing the access to information related to innovation, science and technology through art, by fomenting creative capacities and the creative potential of the visitors through elaborate experiments that use the basic principles of Physics, Chemistry, Mathematics and Biology. To achieve this vision, a partnership was established with one of the biggest interactive museums in the world, San Francisco's Exploratorium (California, US), which proposes education by learning through experimentation and investigation – to think and reflect about the way the world works by articulating different fields such as art, science and human perception.

Intervention Proposal

The structural elements made out of concrete, such as pillars, slabs, beams and the covering, will be kept, whereas the plaster, textures and paint covers applied through the years will be removed. The original exposed concrete will be restored, making visible the wooden framings that were used when the building was erected. The use of exposed concrete is a defining trait of the Touring Club of Brazil Building, and quite a particular one, considering that almost all of Niemeyer's works are covered in white marble or some other noble material.

This proposal includes new enclosures using transparent glass framings, retreated in relation to the external face of the pillars, thus maintaining visibility of the pillars' modulation and also of the long overhangs on the covering's structure, which are striking visual elements of the building. These new glass enclosures so close to the pillars are important to create viable areas for the SESILAB to work, especially on the ground level, where most of the area is just open free.

With that, a new walkway is proposed for the general public in the underground passage, directing it straight to the Monumental Axis and to the Road Platform, with no need to cross the ground floor. In the existing underground way, a creation of a public area is proposed in order to hold exhibits or even to function as an auditorium, by employing the declivity of the flooring, where the expositive contents of the SESILAB can be shown to the general audience. The intention here is to better qualify this space, making it inviting and safe for people to use.

The Touring Club of Brazil Building currently has a large portion of its west façade retreated from the Road Axis by means of a 5m-wide, 7m-tall gap that is just residual space with no use. The guardrail along the sidewalk of the Road Axis is about 80cm tall and does not comply with current safety values, which currently demands at least 1,30m. Being that the case, this gap is proposed to be closed by a concrete slab leveled below the first floor of the building throughout the whole west façade, in order to create a garden that allows for more safety to visitors and passers-by, a transition zone between the vehicular traffic of the Road Axis and the internal areas of the SESILAB, while also creating a new covered area over the ground floor. This garden will be landscaped with cerrado (Brazilian savannah) specimens and, together with the creation of a garden-ceiling over the entire covering slab of the existing lower floor, where there were car mechanic repair shops originally, they will both comprise a large gardened area that will contribute to qualify the sidewalk areas by the Road Axis, thus making for a more pleasant walk for passers-by.

SESILAB will hold both long term and temporary exhibits, besides a

complementary educational programming focused on formation and training. Structure-wise, SESILAB will be divided into four macro areas: Exhibition Spaces; Educational Spaces; Customer Support Areas; Administration, Technical and Service Areas.

On the ground floor, the framed enclosures along the pillars will create a terrace with a 5,30m ceiling height under the overhangs of the first-floor slab, circling the whole east and north façade. Through the west terrace, the public will have access to the building, with an area for embarking and disembarking of passengers both from private automobiles and from buses carrying groups. Public access to the internal spaces will be possible on the ground floor through a reception / welcoming area by the existing curved staircase. The demolition of part of the first-floor slab right by this same staircase is also proposed, in order to create a triple-height-ceiling atrium, rising at about 9m, for better integration between the ground floor and the first floor. This atrium will work as a big internal plaza for the public, where vertical circulation, customer support areas (with lockers and restrooms) and a video-wall (an interactive panel with LED lights and a 9m-high, 12m-long ceiling-floor), showing the contents of current activities and connecting SESILAB to the world, will be located.

Directly connected to the atrium, the first long-term exhibition gallery can be found, named "World Phenomena," with about 900m2 (1,076 yd2), where another exposition path leads to the second gallery, named "Learning by Doing." In the final stretch of this second gallery, the proposal is to demolish part of the slab of the existing mezzanine in order to widen ceiling height – a necessity for the exhibition space to work properly. Along with that second gallery, in the spot below the part of the mezzanine to be kept, there will be a flexible space that allows for part of the third gallery contents to work, titled "Imagining the Future," or "The Maker Space". This space communicates with the Production Area of Apparatuses and Exhibitions by means of a glass frame that allows the public to see how the exhibitions are built. Also, together with the galleries, support areas to help them work properly are being planned; and close to the "Learning by Doing" gallery, a customer support area is in the plans as well, especially aimed at school groups, with restrooms, locker rooms and a lunch area.

The exhibition galleries on the ground floor will be directly accessible from the loading/unloading area located at the edge of the terrace, to the southern façade, through high-rise doors that let big volumes to go through. Close to this area, a cargo lift connects the loading/unloading area to the first floor. In the covered area to be created below the closing slab, over the span between the west façade of the building and the Road Axis, a technical gallery will be located, connecting the technical areas

with the exhibition spaces, in a way that piping and cables can go through without interfering with the public circulation and spaces. This gallery has two levels: one on the ground floor, with a services circulation area and a worker support area, and another on the same floor of the existing mezzanine, where technical controls and air conditioning equipment are located. Other technical areas are also in plans for the mezzanines above the customer support areas, close to the atrium. Going up to the first floor through the atrium, there is an access way to the Event Room, a flexible space that can also be used as an exhibition gallery or an auditorium. This space has a support area with restrooms, dressing rooms, a storage room and an audio-video booth, while also being circled by the terrace where other events can also occur. In the existing part of the mezzanine, which will be kept in place, the administration area will be located along with the support area for the workers. To access the mezzanine and the technical gallery on this floor, a new staircase is in plans, in accordance with the current accessibility and safety regulations. The existing staircase that accesses the mezzanine is proposed for demolition, but its concrete cylindrical volume will be kept for an elevator or a lift platform, giving universal accessibility to all the SESILAB's floors.

On this floor, close to the atrium, the Temporary Exhibitions Gallery is located, with an area of about 350m2 (418 yd2), with an ever-changing programming aimed at cultural and artistic activities. Contiguously to this gallery, the Educational Offices are located, a space for educational activities aimed at groups, with a support area comprising restrooms, locker rooms, a lunch preparation area and a storage room. The partitions between the Educational Offices and their separation from the Temporary Exhibitions Gallery will be made using acoustic partition walls that allow for many configurations or even for the creation of a bigger gallery with an area of about 600m2 (717 yd2).

Through the atrium, access is granted to the generous terrace formed by the concrete covering overhangs that circles the whole perimeter of the first floor. This terrace has a living area and an exhibition area to the middle portion of the east façade and all along the north façade. In part of the east terrace and all along the south terrace, a cafe / restaurant is proposed, a space that is meant to complement the activities of SESILAB. In a part alongside the south terrace, a kitchen and support area will be located to help with the café / restaurant activities, with the service flow occurring through the cargo lift. Whenever the cultural areas are closed, after working hours, the public can have access to that area also through the cargo lift.

Enclosures

New enclosures in transparent glass are being proposed, retreated from the external face of the concrete pillars all along the perimeter of the first floor and along the east and north façades of the ground floor. This aims at recuperating the visual permeability of the building, letting through the view of the Esplanade of Ministries and the Paranoá Lake behind it, as was the original intention of architects Lucio Costa and Oscar Niemeyer. To the veranda that circles the whole perimeter of the first floor, a guardrail is proposed, 1,30m tall and in transparent glass, retreated 60cm from the existing 82cm-tall guardrail that will be kept and restored. This new glass guardrail is a demand of newer safety rules, and it will be fixed only by its base, with frameless joints between the glass panels, with no vertical beams. At the south terrace, and by its eastern side along the café / restaurant, for better wrapping this ambient and to provide shelter from rain, the guardrail will be raised to 2,20m, keeping the same frameless joints system. This enclosure will be about 1,10m far from the ceiling, keeping no visual interference to the sight of the reinforced concrete overhangs above, which are a very characteristic trait of the Touring Club of Brazil Building. Those framings will be composed of the least possible number of pieces, making for a clean solution, frameless, allowing for spatial and structural clarity of Oscar Niemeyer's design, which is particularly valued in this proposed intervention. On the first floor, the glass panels will extend from the floor to the ceiling, measuring about 3,20m-tall and 2m-wide each.
On the ground floor, the 2m-wide glass panels will be the "jumbo" type, capable of filling the 5,30m height gaps between the floor and the ceiling. Only one horizontal framing is predicted to be placed between the pillars, on the internal side, 2,20m-tall, to protect the whole framing set and the door structure against the wind.
The connection between the underground passage and the Road Platform will be made through a public passage along the Road Axis's wall. It is also proposed a new landscaping design for this wall along the walkway to the Monumental Axis / Road Platform, requalifying and revaluing the main flow of passers-by in the surroundings of the building. To the green area close to the connection to the Road Platform, an amphitheater for open air activities is proposed, enclosed by a bush garden, with enough space for a covered stage to be located to the north side of the terrace the circles the ground floor. The outside areas of the complex encompass not only its original land (a projection of about 10,000m2), but also its immediate surroundings between the Road Axis, to the west (East Road Axis South), the Monumental Axis and the Road Platform to the north (via S1), the National Library complex to the east and the South Autarchies Sector to the south (via S2),

with about 30,000m2. The interventions proposed for the external areas were thought of in a bigger scale, considering both the spatial and functional relations of the immediate context of the building and its insertion in a bigger scenario represented by the natural environment around it. From this broader perspective, the recuperation of the original vehicular path and the original design of the green areas is also proposed, as they existed up until the 2014 renovation, in order to properly readjust the external areas of the Touring Club of Brazil Building so it can hold the Bus Terminal. In that 2014 intervention, parking areas were created, as well as bus maneuvering areas, and green areas were paved over and trees were just taken down. Besides recuperating the original design, the broadening of gardened areas is also planned, with a proposed 3,000m2 doubling the green area within the land.

Relationship with its Surroundings

On the ground floor, the surrounding terraces to the north and to the east create a fluid transition zone between the building and the ample natural context of its surroundings. The new transparent glass enclosures close to the pillars allow for better visual continuity between the inside and the outside.

The landscaping guidelines proposed are the renovation of the immediate context of the building, the reinsertion of the building in the natural settings around it – by means of broader green areas and new walkways – and the use of native cerrado (Brazilian savannah) specimens to guarantee an environmental recuperation of the building's surroundings and a revaluing of its natural biome. Those guidelines are aimed at reconnecting the Touring Club of Brazil Building's complex to the bucolic nature of Brasilia's parks and gardens, as proposed on Lucio Costa's Pilot Plan.








7

Architecture on a Human Scale

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Abstract

By placing man at the centre, we push him to interact with the building and all its parts, which become fluid and mix with the now sensorial experience that the user is living.
Starting from geometrical shapes, of which the building is composed, it can in turn break down trying to divide it and inscribe it in such figures to analyze all its facets. Inscribing a capital or a pediment in a circle or rectangle, for example, helps us to divide it from the rest and analyze it more carefully: the geometric binomial allows us to pay more attention to details, and build around it a series of activities aimed at enhancing, preserving and protecting it. The facets that can result from this analysis are of a sensory, aesthetic, geometric architectural, geographical nature and interact with other areas such as creative writing. Interacting with the building aimed at its fruition in cultural terms can also be traced back to mirroring: mirroring high or low reliefs, statues, imitating geometric movements or retracing the soft or sharp lines of others with one's own body can be an alternative in experiencing the building during a visit, or it can help to retrace the style and insert the series of movements in a theatrical performance. It can help in architectural restoration, or analysis for educational and educational purposes from school to university level. A different approach to the point of view, therefore, which can support a more in-depth critical analysis, from a historical, artistic or archaeological point of view.

Keywords

Sustainability
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Inclusiveness
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Accessibility,
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Temporary exhibition
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Design for all
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Man as measure

Specialized in the historical-artistic field of cultural heritage, my experience was born in the field of Museum Education and Accessibility, and then expanded to the Museum Exibition. After an initial experience in the management of the museum and its phases of management, as well as the coordination and training of resources, i've turned to museum education, expanding my knowledge through various training courses throughout the country. Having consolidated my skills through the conception and coordination of specific programmes for schools, I have dedicated myself to the field of Accessibility; my programmes have been included in a series of informative events in collaboration with various partners and museums. Finally, the International Art Curator for Childhood Museum Ireland Project, for whom I'm curating the exhibition related to Project 2020, coordinating the museum's historical and artistic activities in Europe and in the United States, and consolidating the leads that the museum has in the world.

ICOM Membership Committee: CECA - Education & Cultural Action

An alternative in the use of traditional metric systems can be to use the parts of one's own body, which although they may be insufficient in the technical fulfillment of buildings, can be of great interest if placed at the service of their use: Let's imagine a historical library located in a medieval centre; the measurement made with hands, legs and arms, carried out through panels and inspired by augmentative communication, can help in an intuitive way to solve and assist problems such as the use by the same of tall people with reduced mobility, authorized guides with groups with special needs, from schoolchildren to families with babies or pets. Explaining the height of a door, for example, with one leg and one arm vertical and superimposed, can intuitively indicate the widest passage from which to pass; one or two feet superimposed in front of a niche can indicate a bottleneck and so on. This is useful not only in case of design, but also in the use of a building: just think of a free visit, a couple can intuitively recognize the direction without necessarily the help of a map, because if this type of communication / exchange between the man and the building does not work in terms of "admission" in the premises of the same, it can certainly help in identifying where not to go.

"As soon as you enter a space, if you listen to yourself, you recognize that you already have a judgment: you have not yet studied where you are, but you already have an idea. This idea arises from the 'atmospheric' quality that all elements of architecture together determine. Geometry, topology, masses, light, rhythm, materials, sounds, smells, heat, pressure and textures: all together these elements together create an atmosphere. The appropriateness of an atmosphere is such, if it supports women and men who in the concrete of the daily, day after day, that atmosphere breathe, in the use of the 'human institutions' "Neuroscience applied to Architecture, September 2017".

It is since 1920 that Le Corbusier's energy has been concentrated in architectural projects as well as in an extensive theoretical study, re-evaluating forms of architecture and urban planning based on new principles and new canons: at the centre is man, the harmonic measure and criterion of all things. The protagonist and recipient of Le Corbusier's projects is man, ideally the Modulor, the design unit that is in a revolutionary position with respect to the fifteenth-century canon by Francesco di Giorgio Martini, in which man is proportioned within the base of a Latin cross church, and Da Vinci's Vitruvian man, ideally contained in a square and a circle. The perspective is turned upside down: it is no longer man who must fit into a space, it is the space that must fit into man. Insert, not surround or enclose. The building becomes space adapted to the size of the body but also to the vastness of the human dimension.

In order to design for all, it is not enough to admit the existence of human diversity and even less to make a single diversity a symbolic entity that represents, collects and integrates the needs of different user profiles, but it is necessary to operate within a more advanced and flexible concept of standard that considers and reports "to system" the different variables and alterations of the standard (mainstreaming strategy).

Operationally, it requires knowledge, as deep and accurate as possible, of the potential of the different user profiles and a design synthesis capable of giving answers compatible with the needs and expectations of each and that must be specific, to meet very particular needs, but which must appear generic to promote social inclusion. We speak of "compatible" solutions, rather than "ideal" solutions, because each user profile expresses specific needs and a certain level of conflict between opposing needs is not uncommon; consequently the designer, while setting himself the ideal goal of achieving optimal solutions for all, can often only come to mitigate individual problems. In addition, there will always be particular situations that will require the use of ad hoc design solutions.

For the very reasons that motivate it, design for all requires the involvement of users at every stage of the design process (participatory design).

From here, man returns to the centre, and an indispensable "yardstick" in the accessible design of a building: it should be noted that "borrowing" the definition Design for All as a design accessible to buildings, we intend to put a broader and broader meaning to the traditional one, emphasizing that by accessible, in this case, we mean completely usable: completely usable by all categories of users, both from a social, cultural and architectural point of view.

In one form or another, the concept of accessibility has been considered larger or smaller in most projects developing interactive systems. The concept varies between different professions, cultures and group interests. Design for all, universal and inclusive access are all different ways of approaching this vast topic, and in increasing the sensitivity of the interactive system for the widest range of use.

Accessibility is a qualitative concept that is interpreted differently depending on the design approach used for its development. The main purpose is that a "product" can be used by the widest possible range of people. However, this does not automatically imply that there is a solution that satisfies everyone.

A fair use of design can be summed up by borrowing accessibility criteria for people with special needs:

Flexibility of use - the design is suitable for a wide range of individual preferences and abilities.

Simple and intuitive use - the use of the design is easy to understand, regardless of user experience, knowledge, language skills or current level of concentration

Perceivable information - the design effectively communicates information needed by the user, regardless of the user's environmental conditions or sensory capabilities

Tolerance by mistake - design minimizes hazards and negative consequences of accidental or unintended actions

Low physical effort - the design can be used effectively, comfortably and with minimal effort

Appropriate size and space for approach and use - adequate size and space is provided for approach, range, handling and use regardless of user body size, posture or mobility.

All elements to be used in structuring, managing or redeveloping an architectural space

Accessible design therefore, understood in a broader sense, as defined in ISO Guide 71 "design focuses on the principles of extending standard design to people (...) to maximize the number of potential users who can easily use a product, a building, a service".

How to make a building fully accessible? Although, as specified above, there can not be a solution that suits everyone, due to environmental, architectural and physical limitations, you can certainly make accessible what you can see, through activities involving the five senses, which "talk" with the building and this is told

through an experience, intimate if you will, told by its components.We can hear, see, touch and "smell" a building.
We can hear the building by placing ourselves near it, at a safe distance if necessary, trying to grasp the sounds that surround it and come from it: it will always have something to tell, whether it is a castle perched on the sea or a building of popular destination; we will hear the sound of the sea or the sound of the street, but in any case it is telling a story, which can be reported in situ or processed for activities conducted remotely.
We can see the building, that is obvious, but perhaps not for everyone. If we find ourselves with people who are not in school, children, people with blindness or low vision, novice students or experts looking for new points of view. Trying to observe the same with a background music, maybe from the same era, helps us to bring back the period and "see" destinations of use, more or less evident remakes, artistic or vandalistic details;
Once again, man as a measuring term in all its parts, comes to our aid; and helps us to identify and make manifest the strengths and weaknesses of any building.
Through visual and precise communication, body parts can in themselves be an invitation or a discouragement to enter certain areas. They can act as an in situ aid, where it is dangerous to enter or where it is even forbidden because it is reserved: we are already thinking about how much more intuitively an open palm is perceptible than an ALT! sign, but taking a step forward we can use the same hand to indicate areas subject to structural or other restrictions. A standing and standing still man is already in itself a symptom of halt, but to place in correspondence of the zones placed to access restriction, for whatever reason, a structure that recalls him (X), already visually intimate to the arrest before the actual prohibition is formulated. Why not integrate the visual communication implemented through bodily forms as a means of making people understand the difficulties, also in terms of security, that a building brings with it; valuing them for what they are, i.e. natural limitations or imposed by external causes, which in any case "tell" the building. Part of scaffolding that is part of restoration work to be completed, barriers to the confinement of uninhabitable areas, disused areas to be redeveloped.
The senses help us on this: telling through them, interrupted stories that await completion through the same sensory activities useful for storytelling of stories already told by buildings already complete. Man as a measure therefore, and with all his senses, can be a valid alternative or help in evaluating a building, from a cultural point of view, in terms of accessibility and safety, in technical and architectural terms. Visual panels supported by intuitive language, individual or group activities that involve sensory skills or physical terms of measurement, can offer an alternative to the use and enhancement of buildings

of historical, civic, popular ... and extend their knowledge to a wider sample of the public who, apparently, due to difficulties of different nature, would not be natural users of the same.

But what's exactly means in terms of museum fruition? to put "man at the centre", meaning this concept as a means of communication or through which an exhibition, whether temporary or permanent, is expressed, is intended to extend the man-work relationship to the man-work-environment relationship.Using a "visual" language, it is possible to trigger a brain reaction activated by stimuli of various kinds: colours, characters, images... but using the image to which man is most accustomed, namely his own, what results can be obtained? Representing palms of hand or foot, to describe the length or complexity of an exhibition even before it begins, can intuitively give the visitor an idea of what he will see especially in crowded contexts, or if you find yourself accompanying situations more or less complex to manage: children, disabilities, elderly people, school groups, mixed tourist groups. From here, improve the organization in the management of the rooms, both independently and by the staff in charge, improve the museum guide service, improve the quality of the visit and the visitor's experience; transform the route into a comfortable trip managed independently of the time available.

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Renovation Museum Het Valkhof Nijmegen: Making an Existing Museum Building Futureproof, Sustainable & Accessible

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Abstract

This presentation details Museum Het Valkhof in Nijmegen, the Netherlands, for which a comprehensive refurbishment plan is being developed for the museum building as part of a wider recovery plan for the museum that aims to make both the museum building and the institution future proof. The paper addresses the context and architecture of the museum and the scope of the Masterplan for the museum building developed by ToornendPartners in close collaboration with the museum director, Ms Hedwig Saam, the museum organization and UNStudio, the original architect of the museum building. The Masterplan was delivered early 2019 and was adopted by the Municipality of Nijmegen and the Province of Gelderland, who as owners of the various collections of the museum, are main stakeholders late 2019. The design brief based on the Masterplan is currently being developed.

Keywords

Futureproof museum building
***
Master planning
***
Sustainability
***
Accessibility

Introduction to Museum Het Valkhof Nijmegen: Context & Architecture

Museum Het Valkhof in Nijmegen was the first museum designed by Ben van Berkel, the founder and director of UN Studio and was completed in 1998. The museum building, situated close to the Waal river, is located in a central and historically important site.

Image 1, Exteriors Museum Het Valkhof © TP

Image 2, Exteriors Museum Het Valkhof © TP

The site is part of the bid that has been submitted for the Roman Limes that crossed The Netherlands to become a UNESCO World Heritage Site.

Image 3, Limes line © Limes project website

In the images below, the development of the site through the ages is illustrated, running from the top left to the bottom right.

Image 4, Development Nijmegen Castellum © gemeente Nijmegen

In the image below, taken from the ambition document developed by the Municipality of Nijmegen, the building of Museum Het Valkhof is indicated in the bottom right hand corner. The Roman Forum is the red square projected onto the current museum building and traces of the Castellum walls have also been visualized. The ambition document also shows the ideas regarding the surroundings of the museum building, although the green an park-like surroundings have not yet been realized.

Image 5, Projection Castellum © gemeente Nijmegen

Museum Het Valkhof predates the popular concept of transhistorical presentations as the collections, that are owned in part by the Municipality of Nijmegen and in part by the Province of Gelderland, have always consisted of important historical and archaeological artefacts as well as contemporary art. The museum has various locations, with the UNStudio museum building and the building of the Museum KAM, that holds the archaeological collection being the two main locations. For Museum KAM a refurbishment is also being planned at

this time. This paper only addresses the UNStudio location at the Kelfkensbos Square. Unusual for the constellation of museum organisations and buildings in The Netherlands, the museum organisation is the owner of the building and receives funds from the Municipality and Province and other institutions for the care of their collections and running the museum.

Images 6, 7 and 8, interiors Museum Het Valkhof © UNStudio

UNStudio won the commission for the design of the museum building in an architectural competition, developing the building in the period 1995-1998. The architecture is both admired and reviled. While some find the glass facades to be too stern and forbidding, naming the building 'the swimming pool', the building also has welcoming open hybrid spaces and architectural elements that evoke the Waal river and bring coherence to the visitor experience, which are appreciated to this day.

Images 9 and 10, interiors Museum Het Valkhof © TP

The central exhibition space lives up to the original design concept of being able to experience that space in 88 different ways.

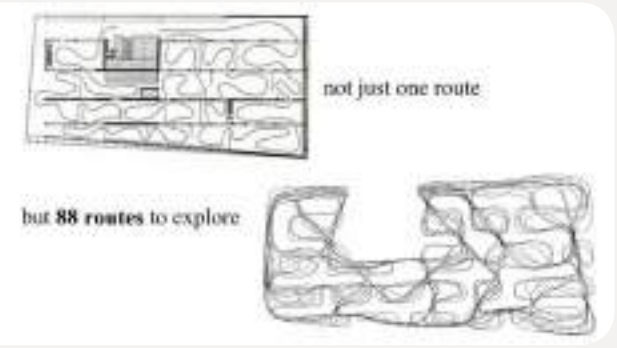


Image 11, routes, © UNStudio

But over time, now 25 years later, the building is beginning to show its age. The expansive ceiling panelling, waving and weaving through the building, is prone to damages that result from maintenance work on all the installations installed above it and additions and changes made to the under-the-ceiling lighting required to meet specific lighting demands for exhibitions. The height difference between the Kelfkensbos Square and the entrance level of the museum building has resulted in various ramps and steps that have been incorporated in the design, in some instances right behind a door, that are a daily hindrance to the accessibility of the building and starkly contrast the otherwise naturally flowing spaces. This not only affects the visitor experience inside of the building, but also prevents the flow between the Kelfkensbos Square and the building: the entrance of the museum building presents a stern delineation between the museum and its surroundings, cutting the museum off from the urban fabric and vice versa. Various other technical and functional issues need to be resolved as well: the glass façade has started to delaminate locally, the climate installations are outdated and practically unserviceable and the security installations and provisions are no longer sufficient. Several back of house spaces are no longer fit for purpose: the offices are cramped and there is no differentiation between the storage space for the collection and other items.

Images 12, 13 and 14, of technical and functional issues, © TP

Under previous leadership the museum organisation had been developing plans for years to address the issues with the building, both technical and functional. The plan developed in 2014 even reached a stage at which construction could have started, but the organisation turned out not to have the funding in place for the significant investments required to realize the ambitious plan. In the following years, studies for reduced plans were not deemed feasible and were not realized. This unfortunate period coincided with the museum falling behind in terms of maintaining the interest of the public, with visitor numbers dropping over time. A critical turning point was reached late 2017 when the then new director, Ms Hedwig Saam, developed a turnaround plan that was able to generate the much needed confidence within the Municipality and the Province, as main stakeholders and also investors, that a futureproof museum organisation could be developed. The new plan centered around the transition from a cultural and art historical presentation to a more transhistorical presentation, embracing and tapping into the depth and breadth of the collections.

To simultaneously address the building qualities required in support of that organisation and presentation, the development of a Masterplan for the refurbishment and recovery of the museum building was greenlit mid-2018.

Development of the Masterplan

While discussing the scope of the Masterplan at the start of the collaboration with the museum director, three vital aspects were identified. The first was to be realistic about the level of ambition that could be implemented in an existing building when it comes to functional and technical improvements, as well as the extent to which measures to increase the sustainability and reduce energy consumption may be implemented. The second aspect was the importance of not developing multiple scenarios for the building and building installations. A question often asked in our working practice by administrators and directors is to develop scenarios: a scenario containing only the 'absolutely necessary' changes, a scenario that contains changes that are 'nice to have' and a scenario somewhere

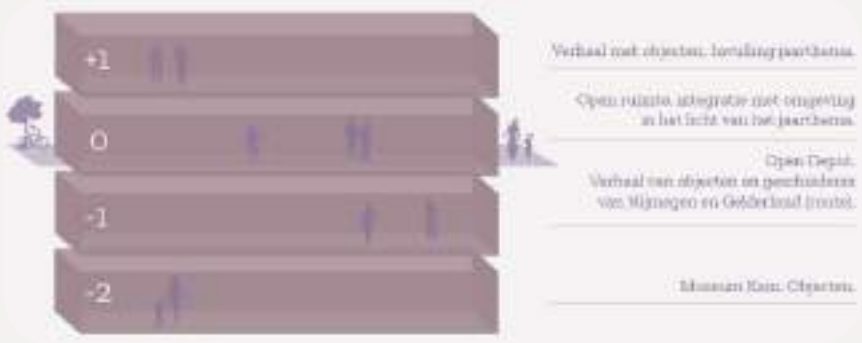


Image 15, transhistorical presentation, © Museum Het Valkhof

in between. The desire to have a choice or at least 'dials' that can be turned and tweaked to generate the best possible mix and match between as yet unknown ambitions and scope and also as yet unknown levels of investments, seems to be the main driver behind this. But while scenarios concerning the institution and organisation are certainly useful, and should be studied and developed, the same treatment does not necessarily follow for the building. Once the vision and mission of the organisation have been determined, there is typically a reasonably clear outline for the building and technical requirements that are needed in support of the organisation and its mission. Scenarios constitute separate Masterplans that require their contents to be developed integrally in line with the scope of the respective scenarios. When one Master-plan is commissioned, the best way forward is to take aim for the best possible outcome. Anything less will end up holding back the organisation, anything more is difficult to explain and consequently difficult to finance. The third aspect was to start with a meeting with the architect, to explain the plan and process ahead. With UNStudio open to the collaboration with the museum director and enthusiastic about futureproofing the building, work on the Masterplan commenced.

Outline of the Masterplan

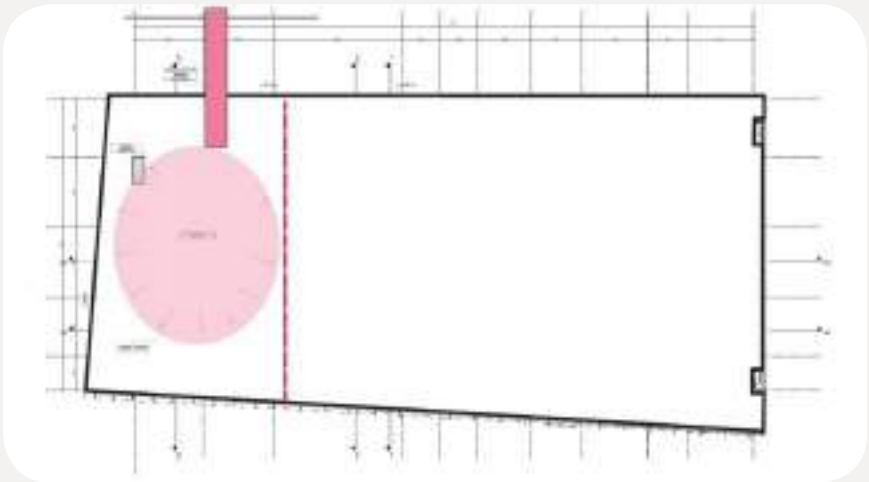
The Masterplan for the museum building needs to resolve not only the internal technical and functional issues. The positioning of the building in its surroundings and making it part of the urban fabric is an important goal. It is after all the starting point for an accessible, open and welcoming museum. An ambition document formulating the long term plans of the Municipality and the Province for the Valkhof Quarter in which the Kelfkensbos and the museum building are located had recently been formulated. Within a municipal working group, in which the urban planner of

1. Toegankelijkheid museumgebouw vanaf de Kelfkensbosplein
2. Naar binnentreden museum door verbinding horecaterras-Kelfkensbosplein
3. Overbrugging van stadswal naar dak van het museum (uitzichtpunt)
4. Doorgang museum van/naar stadspark door poortje in de stadswal
5. Openmaken Belvédère m.b.t. programmering/exploitatie
6. Onderzoeken of de trappen aan weerszijden van het gebouw (barrières) weggenomen kunnen worden.
7. Verbinding Kelfkensbosgarage en Museum Het Valkhof
8. Visualisatie 'castellum' grachten (doorlopend buiten binnen)
9. kunstobjecten in de omgeving (beeldentuin, park)

Image 16, surroundings and items © TP

the Municipality, Mathieu Schouten, participated, the potential opportunities in line with these developments were studied. Out of a longlist of items, a number turned out to overlap and could effectively be incorporated as part of the scope of the Masterplan, such as the outline of the Castellum. The resulting synergy secured a further development beneficial to the museum as well as to the surroundings. After the surroundings, attention was turned to the building interior, pinpointing the exact extent of the shortcomings and devising integral solutions. Starting from the entrance of the museum building, the museum aims for an open and welcoming floor plan accessible to all. In the future, a ticket will only be needed to visit the actual exhibitions that are planned on the basement floor and on the first floor. All floor plans have been optimized based on this principle, freeing up more space for exhibitions and new climate installations. A new feature that is still under development, is making the roof of the museum accessible to visitors. A connection will be developed between the city walls and the roof. The roof will be made suitable for artists' installations that incorporate the Limes theme, the location of the museum and the diversity of its collection.

Images 17 & 18, sketch floorplans of the Masterplan © TP



Images 19 & 20, sketch floorplans of the Masterplan © TP

Based on the new floor plans and a review of the various user flows and climate requirements, zones were developed for the climate conditions, which will aim to meet a minimum level of ASHREA B, and an improved security plan.

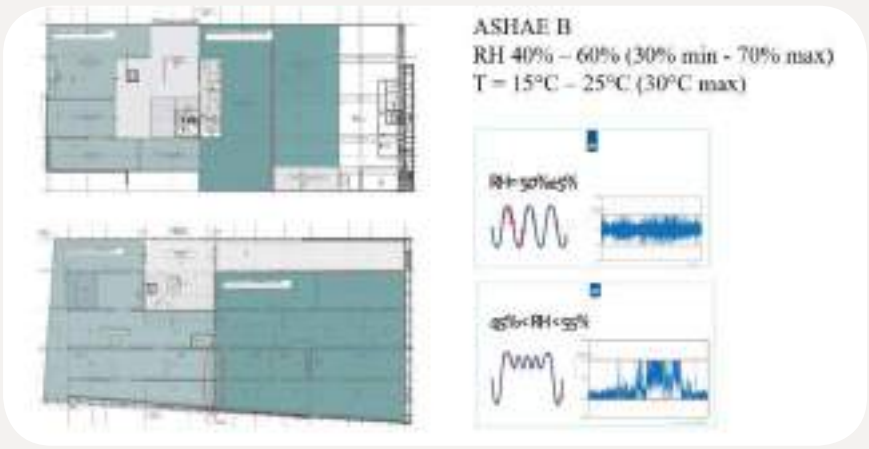


Image 21, climate zoning and -values © TP

A detailed overview with all the spatial and technical requirements of the spaces that are included in the scope of the Masterplan was developed, which lays the foundations for the design stages that are to follow.

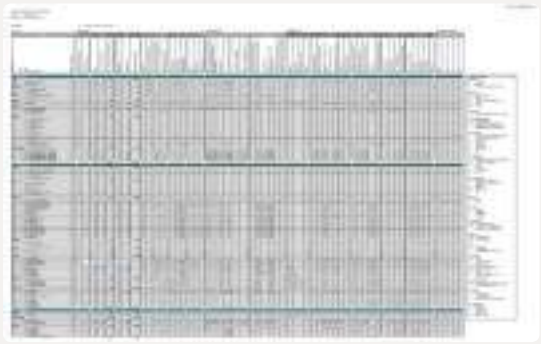


Image 22, overview of requirements © TP

Not only does the overview of requirements work towards the next project stage, it also allowed for extremely detailed costing of the plans proposed.

Image 23, detailed overviews of costing per intervention

This detailed costing was all-important to the approval process as it explains in great detail how each intervention affects the total cost. Instead of offering scenarios upfront, the costing overviews in combination with floor plans with all the interventions allowed for discussions on what the effect would be if specific measures were removed.

Having been asked by the Municipality which interventions we though could be done without, our answer was simple: in our view all measures were equally important to the intervention as a whole. We returned the question: which measures did the Municipality consider superflu-ous? As the Masterplan consists, as is often the case, of a great number of interventions brought together, it became clear the significant interventions such as investing in new climate and security installations were also deemed absolutely vital by the Municipality and that the costs for the projected interventions were reasonable. The cost of other interventions, great in number but relatively small in their respective costs, were so minor in the greater scheme of things that no discussions on these on the administrative level were required. The costing was validated and the scope and measures of the Masterplan were endorsed. With this first step towards formal approval of the Masterplan, the plan was approved late 2019.

Interestingly, an image as had been developed by UNStudio in 2014 for the plan that stranded due to lack of funding, turned out to adequately express the current ambitions for the building. In a way that plan came full circle, but now with a solid underlying business case in an approved Masterplan with secured funding.

Image 24, artists impression new façade, © UNStudio

Moving Ahead: Development of the Brief and Other Steps

After the approval of the Masterplan, or at least the formal commitment of the Municipality and the Province to fund the refurbishment of the museum building for the total amount indicated in the Masterplan, the project is now taking shape. An external project manager has been appointed who is responsible for furthering the Masterplan. Besides developing the brief for the design team for which we have been commissioned, several other tracks are being rolled out. Due to the sizable investments required, the Municipality will acquire the building from the museum organisation. This changes the dimension and the roles of all those involved, not just within the project, but for the long term, such as determining the allocation of tasks and responsibilities for future maintenance et cetera. The time frame for the Masterplan was also reviewed as part of this transition. A starting point for the museum was to remain open during the refurbishments, leading to the Masterplan being detailed in three main project stages with options for the time line requested by the Municipality. With the Municipality acquiring the building and taking the lead, this has changed: the project will be executed in one stage after which the museum organisation will return to the building as tenant. Taking out the stages, will bring the overall costs down as every cut made in the process is costly. In addition, a number of requirements have been added to the brief, following from standard requirements or goals the

Municipality has in terms of sustainability. The outline of the Castellum had already been identified as an interface with the museum building, now the importance of the site in relation with the Limes nomination to become a UNESCO World Heritage site will be reflected in the process and project. These additional requirements will bring additional costs, which will hopefully be offset by savings of a single building stage, allowing for the project to stay on the track that was devel-oped in the Masterplan.

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9 Sustainability Indicators in Museums

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PhD Museology
October 2020

Introduction

During my research on the use of renewable energies in museum buildings[1] I came to believe that museological institutions have responsibilities in environmental sustainability. In this presentation, I intend to consider the methodology museums can adopt to reach total environmental sustainability as well as cultural, social and economic.
In my early studies, I focused on the relation between museology, museums and environmental sustainability, and tried to find answers for the following questions:

- In what way does museology consider environmental preservation?
- In which areas can museology act and contribute to the preservation of the environment and living species?
- How do these concerns relate with museology's definition and its scope?
- How can we connect environmental worries and the work done by museums?
- Can we establish any relation between environmental preservation and heritage preservation?

On the other hand, I've defended that by considering the environment and planet Earth as heritage we are trying to create a collective conscience of the existence of an Earth's history or "Earth Memory" (Póvoas e Lopes)[2]. This Earth memory leads us to consider our planet as a "Global Museum" (Scheiner, s/p)[3] in which the heritage to be preserved is Planet Earth itself. A global museum linked to the concepts of Earth or biosphere, includes a relation between "mass and energy, in time, in complexity and influencing all of life activities in the planet" (Scheiner, s/p). In this global museum, Humanity comes face to face with its real dimension as a biological being and as an integral part of these activities.
Within this context, we need to consider environmental, cultural, economic and social sustainability in museology. And museums as institutions devoted to preservation, have to assume a

[1] *Furtado Mendes, M. C. (2011). "O uso de Energias Renováveis em edifícios de Museus". Tese de doutoramento defendida na ULHT para obtenção do grau de doutor.*
[2] *Póvoas, Liliana; Lopes, César. (2001). Construir uma memória da terra para o futuro. In: XIII Jornadas sobre a Função Social do Museu. Alcoutim e Tavira. Texto Policopiado.*
[3] *Scheiner, Tereza. (2000). Museu: génese, ideia e desenvolvimento. In: Curso Fundamentos da Museologia Teórica e Aplicada. Lisboa: ULHT. Texto policopiado.*

commitment with global sustainability whether they deal with material or immaterial collections, or with the community.

Sustainability: The Background

The concept of sustainability includes four central dimensions – environmental, cultural, economic and social; a space/time dimension as for all concepts, this one also changes in space and time; and finally, two other related dimensions regarding ethics and epistemology[4].

How have we reached this multidimensional definition of sustainability?

There are documents that allow us to observe priors of the concept and the way it has evolved:

The Cocoyoc Declaration, Mexico (UNEP, 1974)[4]: document resulting from the symposium "Models of resource use, environment and development strategies", carried out by the United Nations Conference on Trade and Development (UNCTAD) and promoted by the United Nations Environment Programme (UNEP). The document establishes the relationship between populational increase, poverty and environmental destruction in Africa, Asia and Latin America, as a result of the poverty that leads the underprivileged population to overuse the soil and plant resources;

The Dag-Hammarskjöld Report, (1975)[5]: entitled "The Other development", proposes an integral development, adding the political, social, environmental and cultural dimensions, in contrast to the development model only oriented to the economic dimension.

The Report of the World Commission on Environment and Development: Our Common Future (1987) [6]: materialized in the Bruntland Report establishes the best known and well accepted definition of sustainable development: "Humanity has the ability to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs". (artigo 27, s/p) [7]. This document is fundamental to consolidate the concept of sustainability in the current four dimensions.

We mention the "Convention on the Protection and Promotion of the Diversity of Cultural Expressions", (UNESCO: 2005) [8]: where it is stated "... that cultural diversity creates a rich and varied world, which increases the range of choices and

[4] *In: https://helsinki.at/projekte/cocoyoc/COCOYOC_DECLARATION_1974.pdf, consultado em 4 de outubro 2020.*
[5] *In: http://www.daghammarskjold.se/wp-content/uploads/1975/06/What-Now-v2.pdf, consultado em 4 de outubro 2020.*
[6] *In: https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf, consultado em 4 de outubro 2020.*
[7] *"Humanity has the ability to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs."*
[8] *In: https://unescoportugal.mne.gov.pt/images/Comunica%C3%A7%C3%A3o/convencao_sobre_a_proteccao_e_a_promocao_da_diversidade_das_expressoes_culturais.pdf, consultado em 4 de outubro 2020.*

nurtures human capacities and values, and therefore is a mainspring for sustainable development for communities, peoples and nations."

And, at last, we consider as a support and a reflection for the current concept of sustainability, the "Sustainable Development Goals" (SDG- 2030)[9] with its holistic and integrative vison of development. We highlight five objectives that we consider to be central to this debate: SDG 6 – Clear water and sanitation; SDG 7 – Affordable and clean energy; SDG 11 – Sustainable cities and communities; SDG 12 - Responsible consumption and production; and ODS 13 – Climate Action.

If sustainability as a goal is consensual, the same doesn't happen with the theoretical definition of the concept due to the expansion of its use in different political and social areas. Some authors claim that there is a lack of clarity in defining the concept area of focus; others point out a difficulty in the concept applicability saying that it is clear in theoretical terms, but not in practical ones; finally, others criticize the concept uses and interpretation saying that it lacks interpretation depth.

Museology and Development

At this point of my presentation it's appropriate to clarify the relation between museology and sustainability.

This relation was built from the concept of Development, one of the focal concepts of museology's ways of thinking and acting.

With the new museology concept, it became possible to think about museums and development and change the scope from collection's analyses to society's analyses. The introduction of a humanized approach to museums was an extraordinary step forward as it made possible to involve museology, communities and its people. Once communities are involved, museums will reflect the community's strengths and weaknesses in all aspects: social, economic, political, cultural, philosophical, symbolic, scientific, technological and environmental.

Concerns with the environmental aspect of sustainability were the earliest to emerge in museology given that the environment has been considered a global problem since the 60s and 70s of the 20th century.

This concern is reflected on several international publications, conventions and recommendations from that time period which constitute the first organized attempts on a global level to the preservation of our natural heritage. We find examples of a global concern on the environment in several publications from UN/UNESCO, ICOMOS and European Council.

[9] *In: https://unric.org/pt/objetivos-de-desenvolvimento-sustentavel/, consultado em 4 de outubro 2020.*

In 1971, the "Convention on Wetlands of International Importance especially as Waterfowl Habitats"[10](UNESCO) was signed and in it was acknowledged the interdependence between Human beings and its environment.

In the following year, 1972, Paris UNESCO's "Convention Concerning the Protection of the World Cultural and Natural Heritage" [11] was adopted by the General Conference. In it, natural heritage was considered alongside with cultural Heritage, acknowledging "they should be considered globally as a whole". It was proposed that that global heritage would be the object of preservation and heightened awareness. In article 2 of the Convention "the following shall be considered as "natural heritage":

- Natural features consisting of physical and biological formations or groups of such formations, which are of outstanding universal value from the aesthetic or scientific point of view;
- Geological and physiographical formations and precisely delineated areas which constitute the habitat of threatened species of animals and plants of outstanding universal value from the point of view of science or conservation;
- Natural sites or precisely delineated natural areas of outstanding universal value from the point of view of science, conservation or natural beauty."

It's important to note that the "Convention Concerning the Protection of the World Cultural and Natural Heritage" acknowledged as natural heritage natural features with aesthetic value which allowed to integrate vast and diverse areas of territory and subject them to the rules of heritage preservation. The Convention established for each State Party the obligation to develop policies that give cultural and natural heritage a role in the life of the community.

In 1976, ICOMOS – International Council of Monuments and Sites – expressed at the "Charter of Cultural Tourism"[12] the concern with human and monuments environment and, in the "Nairobi Recommendation"[13] produced by UNESCO that same year, the environment of historic and architectural areas is defined as: "The "environment" shall be taken to mean the natural or man-made setting which influences the static or dynamic way these areas are perceived or which is directly linked to them in space or by social, economic or cultural ties." (Article 1.b).

In 1976, the Council of Europe signed "The Granada Appeal"[14] for the protection of Europe's architectural heritage. These convention goes further ahead than the previous ones as it considers that "rural

[10] *In: https://dre.pt/application/conteudo/462207, consultado em 4 de outubro 2020.*
[11] *In: https://whc.unesco.org/archive/convention-pt.pdf, consultado em 4 de outubro 2020.*
[12] *In: www.lacult.unesco.org. consultado em 4 de outubro 2020.*
[13] *In: http://www.patrimoniocultural.gov.pt/media/uploads/cc/salvaguardaconjuntoshistoricos1976.pdf, consultado em 4 de outubro 2020.*
[14] *In: ULHT. (1999). Cadernos de Sociomuseologia, n.º 15. 209:214*

architecture and its countryside are threatened with extinction"(article 1). Nature's over-exploitation, mainly by industrialization, brings as a consequence "dangerous ecologic imbalance" that "cause profound structural changes in the landscape's characteristics (hedges, slopes, small woods, streams, etc." (Article 2). In this document it is considered that "the rural architectural heritage should be recognized not only for its aesthetic values, but also as a testimony of secular wisdom" integrating natural landscape with cultural heritage, and recommended that "the policy of integrated conservation of the architectural heritage also be implemented in rural areas" and "become one of the objectives of regional planning". This would imply a long-term development policy of society based on the respect for a harmonious relation between Man and Nature (Article 6).

The "Declaration on the Responsibilities of the Present Generations Towards Future Generations" issued by UN in 1997 is the most alarming document with regard to the need to preserve natural environment on a global scale.

This document is of great importance as it draws attention to environmental preservation as a fundamental requirement for the survival of the human species. We're no longer considering the need to preserve human cultural heritage but the need to assure our own existence on Earth as well as of all other species.

The "Declaration on the Responsibilities of the Present Generations Towards Future Generations"[15] considers the destruction of the Environment as a threat for the survival of future generations as stated in articles 4 and 5:

Article 4 - Preservation of Life on Earth

- Present generations have the responsibility to bequeath to future generations an Earth which will not one day be irreversibly damaged by human activity. Each generation inheriting the Earth temporarily should take care to use natural resources reasonably and ensure that life is not prejudiced by harmful modifications of the ecosystems and that scientific and technological progress in all fields does not harm life on Earth.

Article 5 - Protection of the Environment

- In order to ensure that future generations benefit from the richness of the Earth's ecosystems, the present generations should strive for sustainable development and preserve living conditions, particularly the quality and integrity of the environment."

Finally, on our look on international legislation, we mention the "Universal

[15] In: *http://mapacultural.es.gov.br/files/agent/27797/declaracao_responsabildiade_geracoes_presentes_geracoes_futuras.pdf, consultado a 4 de outubro 2020.*

Declaration on Cultural Diversity"[16] by UNESCO (2001) that considers biodiversity and natural heritage as part of cultural diversity, in accordance with the proposal for integrated conservation.

Going back to museums and museology, the first big conceptualized museological expression related with environment happened with the surge of ecomuseums in France, during the 70s, in accordance with the official policies of environmental protection at the time.

The concept of ecomuseum was created by Georges Henry Rivière in 1971[17] and Hugues de Varine (1978)[18], and intended to give an answer to the environmental concerns of the international political order at that time. The ecomuseum's defining feature was that it broadened museum's work scope, which was no longer limited by a building, a collection and a public but became an integration of a territory, a heritage and a community, encompassing space, time and social aspects in its definition.

With ecomuseums a new type of museum was proclaimed. A museum that valued and considered Human being's global environment associating the public to knowledge and to the protection of the environment (Varine, 1978). In this new museum the collection loses part of its importance to the collective heritage. The scope of study, work and disclosure of museums was now the Human being in a global perspective and in the interaction with its environment.

In Rivière[19]'s definition of ecomuseum the importance of the environment and natural heritage stands out. An ecomuseum tries to consider peoples' integration in their territory, referred to as "natural environment". On the other hand, it states we should see Nature in its natural form and consider it a Natural Heritage we must value.

In 1972 UNESCO organized the Roundtable of Santiago of Chile to discuss the role of Museums in Latin America. From this meeting resulted the Santiago of Chile Declaration[20] in which a new concept of museum was presented: An

[16] *In: http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CLT/diversity/pdf/declaration_cultural_diversity_pt.pdf, consultado a 4 de outubro 2020.*

[17] *Rivière, Georges Henri. L'écomusée (1971-1980), un modèle évolutif. In: Vagues, une anthologie de la nouvelle muséologie, vol. 1. MNES, Editions W, Savigny –le-temple, 1992.*

[18] *Varine, Hugues de. (1978). L'écomusée. Vagues, une anthologie de la nouvelle muséologie, vol. I. MNES: Savigny – le - Temple. 1992.*

[19] *"Un ecomuseo es un instrumento que un poder público y una población conciben, fabrican y explotan conjuntamente…*
Un espejo en el que esa población se mira, para reconocerse en él, donde busca la explicación del territorio al que está unido, junto al de las poblaciones que la han precedido, en la discontinuidad o la continuidad de las generaciones…
Una expresión del hombre y de la naturaleza. El hombre es allí interpretado en su medio natural. La naturaleza está en su salvajismo, pero tal y como la sociedad tradicional y la sociedad industrial han adaptado su imagen.
Una expresión del tiempo…
Una interpretación del espacio. De espacios escogidos, donde el visitante pueda reposar, o caminar.
Un laboratorio, en la medida en que contribuye al estudio histórico y contemporáneo de esa población y de su medio…
Un conservatorio, en la medida en que ayuda a la preservación y a la valorización del patrimonio natural y cultural de esa población.
Una escuela, en la medida en la que asocia a esa población con sus acciones de estudio y protección…
… En el ecomuseo la diversidad no tiene límites habida cuenta de las diferencias existentes. La población no se encierra en si misma, sino que recibe y da." (In: Rivière, G. H. 1992. La museologia. AKAL: Espanha. PP:191-192.

integrating Museum that provides the community with a comprehensive vision of material and cultural environment and as a vector of development, and considering heritage in a global way in which the natural environment is included. It is worth noting museums' social role in creating people's awareness to the problems of rural and urban environments.
From the Roundtable of Santiago the following resolutions stand out:

"That the museum is an institution at the service of society of which it forms an inseparable part and, of its very nature, contains the elements which enable it to help shaping the consciousness of the communities it serves, through which it can stimulate those communities to action by projecting forward its historical activities so that they culminate in the presentation of contemporary problems; that is to say, by linking together past and present, identifying itself with indispensable structural changes and calling forth others appropriate to its particular national context."

Museum's focus on contemporaneity and the problems communities face nowadays is perhaps the major contribution of the Santiago's Declaration. Working on the present allows to include in museum's field of action environmental issues as well as social, economic and cultural issues considered both pressing and relevant by the communities involved.
In 1984, ICOM organized the "I International Atelier Ecomuseums-New Museology", in Québec. From this event resulted the Québec Declaration[21], considered as a founding document of the International Movement for a New Museology. MINOM was formally created in 1985 and became an ICOM affiliated.
The New Museology proposed by MINOM it's characterized by a set of statements, assumptions and intentions expressed in a document made by the provisional work group (GTP). This group was created to prepare the I MINOM International Atelier in 1985, in Lisbon, where MINOM was formally created. In this document the following was stated:

1. GTP recognizes the existence of a movement on a global scale, for a new museology characterized by common purposes and common practices.

2. GTP recognizes as representatives of this movement museums, individual or collective actions that may vary depending on country or specific conditions; the most known examples being ecomuseums and neighborhood museums. Regardless of shape and

[20]In: https://pt.scribd.com/document/178819333/DECLARACAO-DE-SANTIAGO-DO-CHILE-DE-1972, consultado em 4 de outubro 2020.
[21]In http://www.minom-portugal.org/docs-quebec1974.pdf., consultado em 4 de outubro 2020.

content differences these museums and actions have in common the following characteristics: provide the community with a better understanding of itself and of the conditions of their existence; museums' work should have an interdisciplinary approach where the human being is positioned in its natural, social and cultural environment. With this in mind, the concepts of "environment" and "context" prevail over the "object"; museology uses methods and practices based on the community's active participation; and it's characterized by open and decentralized structures that are able to blend in with both territory and community.

3. The new museology is above all defined by its concerns, stances and actions and it shouldn't be seen as a way to "modernize" museums just by using modern methods to do research, documentation, management and entertainment.

4. The novelty brought by the new museology concept as to do with historic and social contexts of the countries involved. In some countries this might seem revolutionary in relation to dominant museology practices, as in other could be seen as a natural evolution of museums[22].

One of the innovative characteristics MINOM proposed for New Museology was to consider that museums have a social role and are integrated in the communities and in their environment including its cultural and natural aspects. On the other hand, it considered museums can contribute to the development of the communities and their surroundings using heritage, the community itself and the territory as a resource.
As a result of this change in museum's definition ICOM (International Council of Museums) also changed its definition of the museum institution in their statutes (1989 and 2001 general assemblies) to the following:

"A museum is a non-profit, permanent institution in the service of society and its development, open to the public, which acquires, conserves, researches, communicates and exhibits the tangible and intangible heritage of humanity and its environment for the purposes of education, study and enjoyment."

In this definition ICOM doesn't mention directly an intervention in the environment however in light of the concepts mentioned we can come to the conclusion of the importance given to nature which relates with environmental sustainability. It is considered as heritage

[22] *In: Moutinho, Mário, (1989). Museus e sociedade. Cadernos de Património, 5- 79:82. Museu Etnográfico do Monte Redondo.*

elements from human environment, live species in nature and natural reserves, including landscapes.
Recently, in ICOM's 25th General Assembly in Quioto, Japan (September 2019), it was discussed the need to create a new definition of museum. The following definition was put to vote but its approval was postponed:

"Museums are democratizing, inclusive and polyphonic spaces for critical dialogue about the pasts and the futures. Acknowledging and addressing the conflicts and challenges of the present, they hold artefacts and specimens in trust for society, safeguard diverse memories for future generations and guarantee equal rights and equal access to heritage for all people.
Museums are not for profit. They are participatory and transparent, and work in active partnership with and for diverse communities to collect, preserve, research, interpret, exhibit, and enhance understandings of the world, aiming to contribute to human dignity and social justice, global equality and planetary wellbeing." [23]

One of the major concerns expressed in the conference was climate change, mentioned right after the opening speech by then ICOM president Aksoi Suay, addressing old concerns raised previously in the Santiago of Chile Declaration in 1972!

Museums & Sustainability or Sustainable Museums?

Ibermuseums produced in 2019 a document entitled "Common Conceptual Framework for Sustainability in IberoAmerican institutions and museological processes" [24] which reflects on the particular museological reality of IberoAmerican. According to the Common Conceptual Framework for Sustainability, "sustainable museums and museological processes are committed to environmental, cultural, social and economic sustainability, promoting a management that meets their surroundings' needs and values the museological patrimony for present and future generations."
Sustainable museums and museological processes are concerned with their social transforming role, with methods and goals for integrative action development that have a positive impact in the cultural, social and environmental dimensions. These museums are proactive and create connections through their involvement. In the effort to interrelate all four dimensions, museums remain reflective of them and promote citizens' participation with special attention to historic context. Sustainability

[23] In: https://icom-portugal.org/2019/09/10/sobre-a-proposta-da-nova-definicao-de-museu/, consultado a 4 de outubro 2020.
[24] In: http://www.ibermuseos.org/pt/recursos/publicacoes/marco-conceitual-comum-para-a-elaboracao-do-rmi/, consultado em 4 de outubro 2020.

is built as a continuous process of improvement considering each museum particular features and origin.
In this document the 4 dimensions of sustainability in museums are defined as follows (p. 64):

1. Environmental Dimension: it's the incorporation of sustainability in all museum activities, habits, processes and spaces, contributing for the protection and conservation of ecosystems, water resources and biodiversity;

2. Cultural Dimension: it concerns value diversity and communities' particularities, as well as monitorization of their changing processes;

3. Social Dimension: it aims to improve communities' quality of life enabling easier access to culture, preservation of historical memory and social cohesion; it strives for equity and decrease of social differences in a global, democratic and participatory way;

4. Economical Dimension: it pursuits the development of procedures as well as sustainable management models; it tries to acquire financial resources (public or private investments) needed to fulfill its mission; it contributes for the development of local economy and economic and financial balance.

By assuming the four different dimensions for sustainability, museums should reflect on them through their actions and activities.
Continuing with Ibermuseus Conceptual Chart, the environmental dimension for museums sustainability it's characterized by the following areas:

Environmental
Preservation of collections and buildings
Resources use reduction: prevention and materials recycling in exhibitions, reduction in the use of electricity and water in museums, etc.;
Reduction of pollutants: sewage, air contamination, waste;
Incorporation of environmental aspects in communications;
Awareness of the museum environmental impact;
Proposing and implementing improvements such as environmental diagnosis and ecology of services.

As for the cultural dimension for sustainability in museums, it is characterized:

Cultural
Museum as a place for reflection and debates;
Link between Past, Present and Future;
Promotor of Interculturality and Cultural diversity;
Promoting integral heritage.

The social dimension for sustainability in museums includes the following concerns:

Social
Communities access and participation;
Awareness, training and research actions; organization and diffusion involving the communities;
Preservation of historical memory and social cohesion;
Contribution to decreasing social differences in a global, democratic and participatory way.

Finally, the economic dimension for sustainability in museums is characterized by the following aspects:

Economical
Public, private or mixed management of administrative processes in museums;
Short, medium- and long-term planning;
Adoption of economically efficient resources;
Implementation of waste monitoring systems;
Creating resources through self-financing (sponsors and fiscal benefits), through selling services or merchandising;
Link with touristic and leisure activities;
Contribution for the development of local economy.

Indicators for Measuring Sustainability in Museums

Once the areas in which each museum can operate to achieve global sustainability are defined, we are able to establish indicators for each museum. Our proposal for indicators it's not a closed one, it's just an example that each museum can adapt depending on their needs of self-evaluation.

We consider as measurement indicators to achieve environmental sustainability in Museums the following:

- Total of energy consumption of the museum, considering the last 12 months, coming from renewable sources;
- Total water consumption in the last 12 months;
- Ratio between recyclable and non-recyclable waste in the last 12 months;
- Total of fossil fuels consumption in the last 12 months;
- Percentage of natural resources used for the exhibitions and storage of the collections;
- Percentage of reused items in exhibitions.

As measurement indicators to achieve cultural sustainability in Museums we propose:

- Growth rate of the collection in the last 12 months;
- Percentage of the collection in need of conservation works in the last 12 months;
- Number of preserved cultural manifestations in the Museum area of influence;
- Number of young people associated to the continuity of cultural and social manifestations;
- Percentage of the collection in exhibition;
- Percentage of the collection in reserve and appropriately storaged.

As measurement indicators to achieve economic sustainability in Museums we propose:

- Ratio between public financing and other financing sources;
- Number of volunteer work hours in the last 12 months;
- Ratio between the collection growth and income growth in the last 12 months;
- Ratio between the number of partnerships in the total number of the museum activities;
- Percentage of museum suppliers with environmental concerns and environmentally friendly policies.

As measurement indicators to achieve social sustainability in Museums we propose:

- Number of people with access to the collections in the museum in the last 12 months;
- Total number of online visitors in the last 12 months;
- Total number of registered volunteers in

the last 12 months;
- Percentage of people involved in the decision-making process (by age, gender and cultural group);
- Ratio between employees in the first 10 years of career and employees in the last 10 years of career;
- Ratio of museum employees with training on organization sustainability;
- Number of times, in the last 12 months, an outside expert or member of the community has been invited to participate in the planning of museum activities;
- Total number of collection items and percentage available online;
- Number of published articles on museum collections by museum staff;
- Number of permissions given for the use of the museum collection's images in publications;
- Number of school visits in the last 12 months;
- Number of participants in public activities promoted by the museum such as conferences, lectures, movie showings, etc.;
- Number of exhibitions or events held in the last 12 months, with the purpose to teach the community about sustainability.

Towards the Future

As mentioned before, these indicators can be used by any museum. They are general indicators for sustainability but each museum should define specific indicators to allow a more precise analysis. Certainly, there will be space for proposals for other indicators to add to these.

However, we should not assume that the mere use of these indicators will automatically make museums sustainable. A more profound change will be needed on the theoretical and methodological principles that are the base to museums activities.

Social museology has shown us a possible way for museum's path towards the future. This path will have to include in museum's activities the respect for Human Rights, a selection of themes for exhibitions that can influence behavioral changes, such as lifestyle or consuming habits, to open up museums to the community engagement, to promote respect for Nature and Biodiversity, to encourage and increase the use of renewable energies in museum's buildings.

It is equally necessary to change the way investigation, preservation, communication and education is done in museology by: selectively, mindfully and proactively collecting heritage, listing and designing exhibitions in an interactive way, and promoting activities that are inclusive and meaningful for the community. In other words, we want museums to be connected with the Present time and to contribute to discuss/think about today's important questions. Sustainability is just one of those questions.

3.II

New Challenges for Museums

Italian Commission on Accessibility: A Brief History From 2007

Introduction

Why a Commission dedicated to museum accessibility is necessary? This is the fundamental question which Dario Scarpati (former chair of the Thematic Commission on Museum Accessibility) and I have been asking ourselves some years ago.

Italy was the only ICOM National Committee to have created a "Thematic Commission on Museum Accessibility". It was created in 2007 by Dario Scarpati and today it is chaired by Lucilla Boschi, Curator of Museo Tolomeo at Istituto dei Ciechi [Institute of the Blind People] Francesco Cavazza in Bologna. Today the Coordinator is Lucilland Boschi a reference and organizational figure of the national projects for ICOM Italy is Annamaria Ravagnan, who is appointed in the "Probiviri" Committee of ICOM Italy from 2016.
The Commission, which deals with the topics of accessibility, inclusion, and museum usability in all its facets, currently consists of more than 50 active members in Italy.

Participation in cultural life and delight in the arts are fundamental human rights enshrined in Article no. 27 of the United Nations Declaration:[1]

1. *Everyone has the right freely to participate in the cultural life of the community, to enjoy the arts and to share in scientific advancement and its benefits.*
2. *Everyone has the right to the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author.*

Recently the accessibility concept has evolved naturally, moving from a focus almost exclusively on people with physical difficulties (motor, vision and hearing) to an understanding of the range of physical, social, cognitive and relational conditions.
Helen Chatterjee states: "Gone are the days when museums were viewed as static and inert […] More 'contemporary perspective' illuminates how museums offer 'an interactive environment that can contribute positively to present day well-being'", (Chatterjee and Noble, 2013).
The experience carried out by ICOM's National Committee in Italy on this topic has brought

[1] *Universal Declaration of Human Rights, G.A. res. 217A (III), U.N. Doc A/810 at 71 (1948).*

many concrete results, better defining the concept of accessibility, inclusion, usability and, recently, emancipation of the public and equity.

During its more than 14 years of existence, the Commission has developed systems for understanding the relationship between facilities and people with physical, sensory and cognitive disabilities, and has also studied exhibition facilities and services offered to the public.

The Accessibility Commission has promoted a cognitive survey of Italian museums to open a dialogue between the museum and society through the administration of a questionnaire to professional figures, such as directors and curators of museum institutes, using the interview method.

After an experimental phase of interviews conducted in museums of Bari, Mantua, Milan and Rome, the project was extended to the whole national territory. The data obtained from these interviews originated a glossary of terms related to the theme of museum accessibility, which shall be a useful tool to create a common language between different operators in the museum field. Building a common language is key: for instance, psychologists will use the terms of their discipline in a much more precise way than the museum professionals, and vice versa, but to elaborate an 'accessible' museum, both must utilize the same language.

The glossary will soon be submitted to ICOM Italia members for validation and subsequent publication in Italian and English.

The Commission has also worked on the elaboration of guidelines that should act as a stimulus to museums and museum workers.

One of the objectives of the Accessibility Thematic Commission is the recognition of museum operators and the different functions they perform in order to include these new professions both in ICOM Italy's museum experts document and also to present these new professions to MiBACT (Ministry of Cultural Heritage and Tourism). Another important objective of the Thematic Commission on Museum Accessibility in recent years has been not only the definition of quality standards to be adopted in the museum field but also the definition of simple practical guidelines in response to the FAQ to achieve the accessible museum. The Commission has been working on highlighting best practices on its website, with the aim of disseminating interesting projects and linking project managers to each other.

Both international and Italian regulations on museum accessibility have been published on the Commission's website, and continuously updated, as well as a reference bibliography, both Italian and international.

In addition, in recent years, the Accessibility Thematic Commission has promoted and supported numerous museum accessibility and inclusion projects for people with motor disabilities, people with cognitive disabilities, migrants, homeless people, prisoners, etc.

Recent Italian Projects Promoting Museum Accessibility

In recent years in Italy, increasing attention has been given to the theme of museum accessibility. The following is a non-exhaustive list of projects worthy of mention:

1. The project Born with Culture

A document is given to the parents of newborn babies, allowing the child and its family free entry to the museums of their city of residence, or nearest city.

2. Museo Teatrale alla Scala

Visit and workshop attendance at Museo Teatrale alla Scala during regular opening time for groups of people affected by intellectual disabilities – a real challenge. A detailed description of this experience is provided in this article as a practical example of how to implement this philosophy to avoid ghettoization.

3. Museum for homeless people

Museo dei Cappuccini in Milan has adopted the following slogan: Art Nourishes the Spirit and the Body and invites homeless people to visit. Homeless people who come to the Opera San Francesco per i Poveri only for lunch or to have a shower are invited to visit the nearby museum accompanied by the staff from the education department. Visiting the museum can help to restore dignity.

4. Montecassino Abbey Museum

An inclusive experience project developed by Ivana Bruno and Luca Bianchi in Montecassino Abbey Museum, where a hearing-impaired art historian and an expert in museum accessibility who is visually impaired use Italian Sign Language (LIS) and tactile exploration to guide visitors through the museum, showing how all the senses are important and superfluous at the same time.

In the meantime, we tried to answer to a second question: is it useful to create an International Committee for Accessibility, Inclusion and Usability?

In a meeting held during the ICOM General Conference in Kyoto on September 4th, 2019, many interventions stated the utility of creating an International Committee for Accessibility, Inclusion and Usability.

A New Perspective on The Museum's Mission

Museum functions have increased with the passage of time and it is not out of place to define a museum today as a site to meet and create relationships, capable in many cases also of mitigating social tensions. It is in this context that the concept of museum accessibility must be interpreted. The importance of effective communication to improve accessibility has been underlined by the Italian Government. Special attention has been devoted, thanks also to Italian Government endorsement, to establishing guidelines for captions, signage installation and subtitles, in addition to labels and object descriptions.[2] Furthermore, the Italian Government defined guidelines for an accessibility plan inside museums.

A strong priority for ICOM's future success is to establish the theme of accessibility as a multidimensional and transversal one, expanding from the overcoming of architectural barriers to other museum functions, like communication, education, environmental psychology and new technologies. The themes of accessibility and inclusion need to be expanded from people with motor and sensory disabilities to people with cognitive disabilities, not forgetting all people at risk of social fragility, like prisoners, deprived, homeless, migrants and hospitalized patients.

In the last years, special attention has been devoted to social effects of cultural participation. The future of psychological well-being and social well-being goes also through museums participation and engagement, as a case study in Milano City performed in 2018 showed. We designed a project to assess this issue, with a cross-sectional study, on a sample of the population consisting in 1,000 inhabitants. Our objective was to assess how cultural participation affects mental health relative to subjective well-being (measured with Psychological General Well-being Scale) and social well-being (measured with the Social Index Scale, which combines community development and social volunteering activities intensity). The survey was carried out with the assistance of DOXA, an Italian pollster company, through telephone interviews.

The system used a large database of contacts and the master data of 20,000 families in Milan. The households to be interviewed were randomly selected by the computer, the interviewer removing any possibility of choice, thereby avoiding distortions in the sample. Gender, age, education level and employment status were taken under control for stratification purposes.

The Social Index: intensity of community development and social volunteering activities; and the Psychological General Well-being Index (PGWBI): a measure of quality of life shows that

[2] *Working group for the drafting of measures also at the regulatory level concerning the overcoming of cultural, cognitive and psychosensory barriers (D.D. rep. n. 582 of 27.06.2017).*

[3] *Enzo Grossi, Annamaria Ravagnan, Federica Viganò, Giorgio Tavano Blessi.*

no other cultural activity gave better results in comparison with museums attendance.

In recent years, many museums have developed specific projects for people with mental health problems. Although the word "well-being" seems to be omnipresent, there are very few indications of the methodology to be adopted to detect any beneficial effects in the daily context and this constitutes the main difficulty in measuring the impact of these initiatives. In other words, when talking about well-being, it is obviously fundamental to have at one's disposal appropriate measurement tools. Only in the last 20 years have scholars begun to systematically address the study of psychological well-being with appropriate measurement tools, under the impetus of the birth and development of positive psychology.
Most of the available tools focus, however, on the evaluation of a "state" condition that reflects the individual perception of well-being relative to a previous period (generally the last four weeks). Truly little has been done to build up tools for momentary psychological state measurement.

Final Considerations

ICOM Italy's 2019 proposal for ICOM's new Museum Definition contained the concepts of inclusion and accessibility.
The museum is a permanent, non-profit institution at the service of society and its development, open to the public, accessible and inclusive, which carries out research on the material and immaterial testimonies of man and his environment, acquires, preserves, and communicates them and specifically exposes them for the purposes of study, education, enjoyment and participation, through forms of shared planning of activities and overcome those barriers that still obstruct the full participation of citizens in culture.
As ICOM continues to debate a new definition, we hope that the terms "accessibility" and "inclusion" will be included.
We believe that the future focus must be not only on inclusion and accessibility for people with motor disabilities or physical disabilities but also for the homeless, prisoners, imprisoned, detained people, migrants, newborn, infant, poor people, people affected by cognitive disabilities.
Till now it is not possible to visit museums with a pet, with the exception of support animals like seeing eye dogs. In this regard we should consider the fact that a number of people living alone refrain to attend the museum without their preferred pet, especially dogs... A recent museum philosophy for wide inclusion aims to create pet-friendly museums. In Italy we have a lot of experiences, like Museo Lapidario Tergestino in Trieste, where dogs are allowed. However, ghettoization, marginalization, and the creation of closed enclaves for frail people should be avoided. One unique and diverse public for museums. Let us not forget that the

museum experience is also to share. In this respect we should be aware of the important role played by mirror neurons. Since the discovery of mirror neurons, we have seen a tremendous increase in scientific publications revolving around the question of the neural computations and networks that enable us to share the feelings of others. Mirror neurons are those neurons in different brain areas that "mirror" the behavior of the other, as though the observer were itself acting when activated, resulting in imitation that many scientists now believe is the foundation of empathy. Therefore, perceiving joy, happiness and well-being from other people attending a museum can positively influence our mood, predisposing us to the same feelings. This emotion amplification can be the secret for the success of a particular museum able to facilitate people's interaction.

New terms have become part of the museum vocabulary: accessibility, inclusion, usability, equity and user's emancipation. Recent studies (Camic et.al, 2013; Jackson, 2019) have shown the importance of the social role of museums in the well-being of all categories of citizens. Unlike accessibility for people with motor disabilities, good levels of accessibility for people with cognitive disabilities have not yet been achieved. I reiterate my previous reflection that the museum experience is about sharing! We need to build a common language, spread the best practices models and share methodologies to assess results obtained.

We are sure that the theme of accessibility is a cross topic for all ICOM Committees, for this reason we believe it is important to set up a specific International Committee, in order to address this complex issue in a shared and participatory manner, and share best practices and common guidelines, in addition to preparing shared actions and composing glossaries and bibliographies.

Accessibility and inclusion themes in cultural institutions increasingly involve not only people with motor, sensory and cognitive disabilities, but also all people at risk of social fragility like, homeless, poor, migrant and so on. It is in this meaning that the concept of museum accessibility must be interpreted. Perhaps the most important result achieved is the focus on cognitive and social accessibility. It has been a slow and difficult, but constant step.

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Introduction by Maddalena d'Alfonso

The ICOM General Conference during the pandemic year was conducted in a new shape, not physical but online in a digital circumstance. The main effort of the organization was searching for the right thematics to maintain the connections between people and the museum's spaces, museum's activities and the related museum's organizations.

The ICAMT Board decided to focus on the new situation of the lockdown to reinforce the thought on possible strategies of museums to face the crisis. The constrictions and the restrictions pose an accent to the risk to be together in spaces, to visit a common stage and finally to discuss personally and front to front the themes exposed in exhibitions, seminars and public debate. On the other side, everybody has felt the importance of spaces where to share sensitivity, sentiment and passions in the face of a common tragedy and of the historical changes following the sprawl of the pandemic.

How can the museum contribute to the new perspective of the human being? Which museum remains a common ground to sustain the transition to a more sustainable world? Is it possible for the museums community to contribute to managing a more safe environment being together? What are the new needs of people when they visit a museum space?

The contributors of the ICAMT Online Conference 2020 constitute a very unique collection of thoughts on a long shot and tortuous way needed to reconstruct a post-pandemic Museum as a common living space for democratic and inclusive processes.

Maddalena d'Alfonso
ICAMT Board Member

Visiting Safely: A Simulation Modeling Approach to Optimizing Museum Spaces for a Covid-19 World

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Abstract

Today, museums everywhere face the same urgent question: How many visitors should be allowed in museums simultaneously in a Covid-19 world? Numerous answers have been given to this question in recent days, with experts offering their best advice for this unprecedented time. However, much that has been said has relied on subjective opinions or static numbers that do not take into consideration venue-specific factors and the dynamic nature of visitor flows. In this paper, we propose a robust quantitative approach to this question based on simulation modeling, as opposed to the one 10th rule (i.e. allowing in a 10th of pre-Covid-19 peak day attendance numbers) or calculations based only on total surface areas and social distancing guidelines. We introduce the concept of carrying capacity (or the number of visitors a museum can host at any time), and present a simple method on how to calculate it, and show how to create a "carrying plan" that considers how to manage and optimize the utilization of exhibit space and equipment such as kiosks, in addition to staff resources. This method considers factors, such as:

- Group sizes (based on people of the same household)
- Social distancing guidelines
- Exhibit-specific factors (exhibit popularity, placement, etc.)
- Layout and size of exhibit areas
- Typical walking paths between exhibits and halls
- Typical walking patterns of visitors

We will further illustrate these practices with a real-world example.

Keywords

Social Distancing
***
Museums
***
Carrying Capacity
***
Simulation
***
Agent-based Modeling

Introduction

Like many other institutions, museums are trying to safely reopen their doors to the public with social distancing measures in place during the ongoing Covid-19 pandemic. Even with all WHO-recommended cleaning procedures and face coverings in place, one important issue remains: how many visitors should be allowed to enter museums simultaneously to minimize the virus transmission risk? Coming from a "reduced capacity" perspective, many museums and other similar institutions have proposed to let in a mere tenth of their pre-Covid-19 peak day attendance (referred to throughout the paper as the 1/10th rule). Such a generic and subjective rule isn't generalizable to all museums' shapes and sizes for the following reasons: Firstly, the number should be small enough to ensure that Covid-19 transmission risk will be low enough to account for larger crowds that generally gather around popular exhibits. Another flaw in this methodology is that the recommended capacity for museums with larger pre-Covid-19 peak attendance volumes will be higher than museums with similar characteristics but smaller pre-pandemic volumes, thereby unnecessarily penalizing less popular museums.
Another commonly proposed method to determine the right number of visitors is founded on the six feet (or 2 meter) rule by proposing one visitor for every 36 square feet. However, such calculations only consider the total available space while assuming visitors are uniformly distributed throughout their whole visit. These calculations tend to provide a higher capacity number than is safe, hence increasing transmission risk. Both these simplistic approaches to finding the safe number of visitors produce static numbers that do not take into consideration venue-specific factors and the dynamic nature of visitor flows.
In this paper, we propose an alternative method to coming up with an optimal number of visitors based on carrying capacity, a manufacturing concept we have adapted specifically to help renowned museums manage their visitor flows. We will first explain carrying capacity as a concept and then demonstrate how to use simulation modeling to determine the carrying capacity using a real-world example.

Carrying Capacity with Social Distancing

Carrying capacity is an important but misunderstood concept in managing visitor flows in public spaces. It is not simply a calculation to determine how many people can fit into a space. Rather, carrying capacity calculations must take into account not only space limitations, but also availability of all other resources such as kiosks, ticketing booths, online ticketing systems and staff that are

required to accommodate visitors in a museum. Furthermore, carrying capacity should account for constraining factors as well as museum objectives. In this case, we want to maximize museum carrying capacity while minimizing Covid-19 transmission risk.

A generally accepted fact is that virus transmission risk will increase in tandem with the number of visitors inside any space, such as a museum. Specifically, Covid-19 transmission risk increases exponentially after a threshold value. Figure 1 depicts this relationship between visitor access and transmission risk.

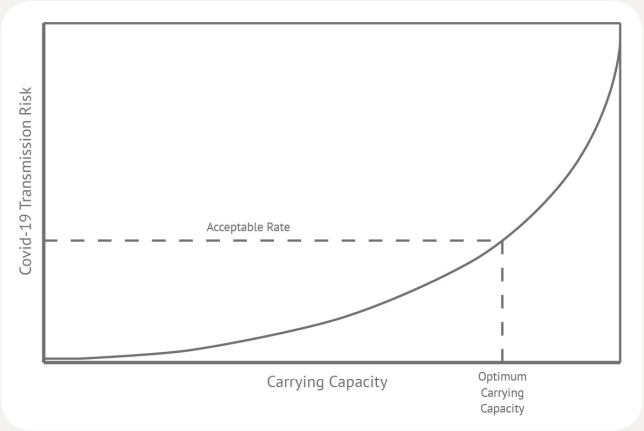

Figure 1: Carrying Capacity vs. Covid-19 Transmission Risk

Although the curvilinear shape of the relationship between transmission risk and carrying capacity looks plausible, an accurate calculation of the relationship has not yet been done, as no data exists currently. Despite this, the following simulation modeling approach can overcome this difficulty.

According to WHO, a six feet space between persons minimizes transmission risk. Hence, in our social distancing model, guests are required to keep this distance while viewing exhibits or are stationary when waiting in queues. This real-life rule is mimicked in the model's simulation of human movement: Even while walking, modelled visitors take care to stay away from others by changing their speed or direction of movement. Therefore, museum carrying capacity can be determined by experimenting with a model that is already intrinsically programmed to minimize transmission risk.

A Simulation Modeling Approach

Simulation is key to modelling these types of complex situations because "[s]imulation is the imitation of the operations of a real-world process or system over time…to draw inferences concerning the operating characteristics of the real system that is represented," (Banks, J. (1998, p. 3). Simulation is not a new concept nor is it limited to computers: It can be done by using physical or paper models. However, almost all current applications of simulation today are done using computer models and specifically developed simulation software. Simulation models have been used widely to understand complex visitor management and flow

problems, e.g. Kiran, A.S., Kaplan, C. & Ping, J. (2013, pp. 86-92).
A representation of a real system is called a "model" in simulation. Thus, using computer simulation software, we have developed a model that evaluates the carrying capacity with and without social distancing that takes into account:

- Scale layout of the museum
- Size of exhibit areas
- Exhibit-specific factors (exhibit popularity, placement, etc.)
- Typical walking paths between exhibits and halls
- Typical walk patterns of visitors
- Social distancing guidelines
- Groups sizes (based on people of the same household)

To properly execute the simulation accurately, museum spaces must be treated individually, in addition to interactions among visitors within the museum space itself. Therefore, we chose to develop "agent-based" models, a detailed model used to analyze the free-form walk of people and interactions replicating the complex nature of visitor behavior in a museum space. Visitor specific characteristics are assigned to individual entities based on visitor modalities. During the simulation, each visitor behaves differently. They choose their next destination and their walking paths to next destination based on location and the movements of other visitors.

They also review and adjust their movements periodically; for example, if the area they are heading to becomes congested, they change their walking path or destination. Also, accessibility problems are taken into consideration such as individuals with disabilities taking longer times to get from point A to point B.

Implementing the Models: A Real-World Case & Experimentation

Two agent-based simulation models have been developed using a realistic museum gallery based on a US venue:

1. Pre-Covid-19 Model: This model represents the base case when there is no social distancing. This model will be used for calculating the carrying capacity under normal (i.e. pre-pandemic) operations
2. Social Distancing Model: This model represents the potential opening of a museum in a socially distancing world. The carrying capacity obtained from this model will be compared to the pre-Covid-19 model.

As mentioned previously, museum carrying capacity should also ensure optimizing visitor satisfaction. The visitor satisfaction is represented in the simulation models as the following quantitative criteria:

1. Percent of the desired exhibits seen by the visitors (e.g. desired vs. seen)
2. Wait times in various queues / delays caused by congestion around exhibits and walkways

To obtain the carrying capacity for both cases, we have run each model under different visitor volumes and selected the scenario which provided the best customer experience. The selected scenario has been used to calculate the museum's carrying capacity. Each volume scenario has been run multiple times to ensure statistical significance of the results. The results for each case are given in Table 1, which shows the carrying capacity of the simulated museum under "normal" (i.e. without social distancing) conditions and under pandemic or social distancing conditions.

As seen from Table 1, the optimal hourly carrying capacity is 321 visitors under "normal" and 114 visitors under

	Capacity (# of visitors allowed simultaneously)	Average percent of exhibits seen	Average time spent in gallery (min)	Average total distance walked (ft)	Average total wait and delay (min)	Hourly carrying capacity
Normal Operations	50	100%	18	732	1	163
	100	100%	21	876	3	282
	110	100%	22	913	3	299
	120	100%	23	950	4	313
	130	100%	24	998	5	321*
	140	100%	37	1,158	11	229
	150	100%	59	1,409	21	152
	200	100%	112	1,819	36	107
	250	100%	154	1,936	54	98
Pandemic Operations	10	100%	21	732	1	28
	20	100%	22	784	1	53
	30	100%	24	845	1	76
	40	100%	25	932	2	95
	50	100%	27	1,042	2	109
	60	100%	31	1,198	4	114*
	70	100%	38	1,349	7	111
	80	100%	43	1,421	10	112
	90	100%	54	1,544	15	99
	100	100%	62	1,702	19	96

*Table 1: Detailed Average Results of Multiple Runs with Various Capacity Scenarios for Normal and Pandemic Conditions (*indicates optimal hourly carrying capacity for each case).*

"pandemic" conditions for the venue modelled. These two scenario results are summarized in Table 2.
As can be seen in Table 2, visitors walk more and spend more time in the gallery under pandemic conditions.

	Normal Operations	Pandemic Operations
Hourly Capacity	321	114
Average Time Spent in the Gallery (min.)	24	31
Average Distance Walked in Gallery (feet)	998	1,198
Average Wait & Delay Due to Congestion (min.)	5	4

Table 2: Hourly Carrying Capacity for Normal and Pandemic Conditions

However, the total wait and delay time is reduced because of a smaller number of visitors in the gallery. It is worth to note that the 1/10th rule would severely restrict the hourly carrying capacity to only 32 visitors whereas the square footage rule would recommend 200 visitors per hour, and thus increase transmission risk to an unacceptable level.
To further increase the hourly carrying capacity, museums can also use "group bubbles." These group bubbles are implementable by tickets sold to groups rather than as individual tickets, with each group is allocated a group ID. Members of the same group would be allowed to stay closer than 6 feet, while unique, easily-identifiable group IDs would allow staff to better insure social distancing rules. ("Managing museum visitor flows in a socially-distant world" 2020). To understand more about group bubbles, please refer to our previously cited blog on managing museum visitor flows during pandemics for a more in-depth explanation.

Conclusions

The previously suggested generic calculations for estimating the visitor capacity could cause visitor dissatisfaction and revenue loss for museums or increase the virus transmission risks.
To avoid these issues, accurate carrying capacity calculations should instead consider specific museum layout, exhibits' characteristics (number, relative locations, size of the exhibits, etc.), visitor preferences and behavior. To do this, simulation models can help museums to optimize capacity without increasing virus transmission risks. Specifically, agent-based simulation models can accurately mimic the real-world conditions due to their capabilities to use actual scaled layout drawings and the ability to simulate each individual visitor behavior. In such a simulation model, virtual visitors

make decisions based not only on their preferences but also the positions of other visitors. Realistic chance events can also be accurately represented by such models and statistically valid visitor satisfaction factors such as wait times can also be obtained. By using this detailed kind of simulation modelling, museums can not only better plan for the worst but also understand their visitor flows, thus making it easier to implement other visitor management strategies, such as group bubbles, to make their museum experience at an optimal level during these trying times.

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2

Museum as a Cultural Hub: The Challenge of Sustainability in a Post-Pandemic Scenario

Gaia Turchetti

Abstract

The pandemic is determining new needs, new languages and new models for the fruition and management of culture - both in the physical and digital fields - which the museum as a community space must necessarily understand, acquire as its own and mediate in relation to the peculiarities of each single territory. The museum as Hub is therefore the "third space" chosen for the (re)definition of cultural networks, a place for exchange and also for training and research, where to encourage new and good development practices at local and territorial level, where culture it fully fulfills its role as fourth pillar of sustainable development. Talking about sustainable development, at a time when the word 'global' returns to be joined by a stronger sense of 'local', is therefore an extremely complex operation in which the real and operational 'sense' of the term "sustainable" – alongside by that of "development" – it must no longer be sought only from an economic point of view, but increasingly socially embracing environmental issues as part of a collective need of change.
All this must find space not only in the policies and strategies of cultural institutes, but also in its physical spaces which are learning to coexist, now more than before, with digital ones.
So how will the mission of museums change and what new or modified spaces will the museum have to equip itself to respond effectively to these new stimuli? So how can we redefine a sustainable museum today? These are the questions and dynamics that the study tries to analyze internationally with a critical eye.

Keywords

Sustainable Development Goals (SGDs)
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Museum
***
Cultural Hub
***
Cultural-led Regeneration
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Covid-19 Cultural Impact

Museum as a Cultural Hub in SGDs

As already found in 'Our Common Future' sustainable development is not a "sustainable development is not a unvarying state of harmony, but rather a process of change" (WCED, 1987 point 30) which in recent years, following a growing awareness of the processes and actors that determine it, increasingly sees culture as the cornerstone of this development, elevated as a fourth pillar, fully interconnected with, and as important as, the other three (namely economic growth, social inclusion and environmental balance) (UCLG, 2010). The "culture shapes what we mean by development and determines how people act in the world", as we read in Culture in the implementation of the 2030 Agenda (Culture2030Goal campaign 2019) and is the key that facilitates the reading of the different dynamics in place, interconnected (as revealed by the ISTAT 2020 analysis for Italy) (ISTAT 2020), dynamics that it is essential to know and manage in order to balance and rebalance the long-term nature of the SDSs, as advocated in the document "Statement by the CULTURE2030GOAL Campaign" of 20 April 2020 and dynamically respond to the challenges posed by the pandemic. In a synthetic picture of the short, medium and long term impacts affecting museums, the OECD (OECD, 2020) has framed how, first of all, the financial sustainability of museums is at risk, with a relative step backwards of cultural institutions towards all those local development projects in which they are involved, with the medium and long term risk of a marked contraction of research and training that are part of the museum's mission.

In the light of this scenario, it is therefore interesting to re-read the concept of emergency on two distinct levels, not only as a timely and immediate response to an event - here we refer to the recommendations of the AAM American Alliance of Museums, CCI Canadian Conservation Institute, Icom, Mibact, or individual museums to respond to the specificities of their territory of reference, which have provided guidelines to help and support museums in the first and complex operations of reopening to ensure full or almost safe accessibility of the spaces. The concept of emergency also concerns the growing awareness, as Henry McGhie writes in his "Museums and Disaster Risk Reduction: building resilience in museums, society and nature" (McGhie, 2020), that the Covid is only one of the potential threats of our time to be responded to in a flexible and resilient manner by virtue of the museum's responsibility towards the community to provide a "point of access", reading and participatory action, inclusive and contextualised within the processes in place.

It is precisely because of this responsibility, not only cultural but primarily social, that

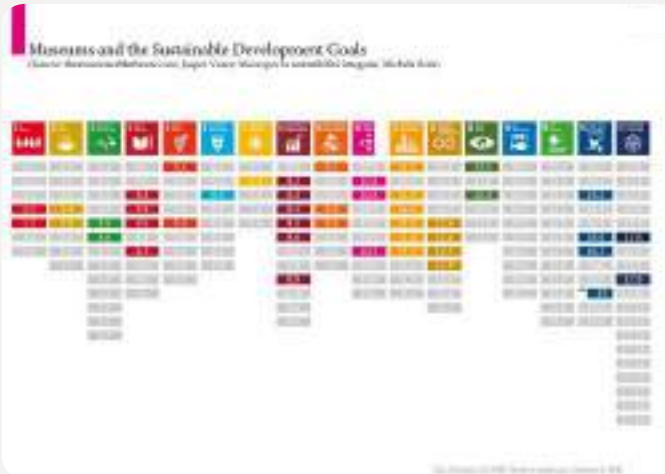
the museum must promote, encourage and work concretely to trigger or improve data collection, planning, monitoring and evaluation mechanisms in the context of the 2030 Agenda.
It is within this context that the interest of research moves, which has as one of its specific objectives the understanding of the process of "localisation of SDGs" (Culture2030Goal campaign, 2019) that sees the museum as one of the protagonists. In order to understand how the museum can act operationally to redefine its programming, its flows and its spaces, it is necessary to understand how museums perceive SDGs, if and how they implement them within their policies, and what the predictions of transformation of the museum space are, not only in response to this post-pandemic moment, but as we said, in response to the general systemic crisis situation.

The Italian Scenario

In the field of research, two are the objectives that we wanted to achieve and that concern the framework of the problems mentioned above in the specific Italian scenario:

- At first, understand how Italian institutions are responding to the issues of management, accessibility and sustainability and carry out a transversal reading of the processes in place, processes (new and not) of cultural regeneration that affect not only the museum but also the territory.
- At the same time to understand specific effects on the territory, investigating the process of cultural regeneration linked to the opening of a new contemporary art museum in this post-pandemic scenario: MAXXI L'Aquila (Abruzzo, Italy)

The pandemic is determining new needs, new languages and new models for the enjoyment and management of culture, which the museum as a community space must necessarily understand, acquire as its own and mediate in relation to the peculiarities of each individual territory, bearing in mind the objectives of Agenda 2030 as a mainframe. To this, in the case of L'Aquila, are added all those dynamics of knowledge, acceptance and representativeness that a new museum must conquer when it begins that slow process of insertion within a new context.



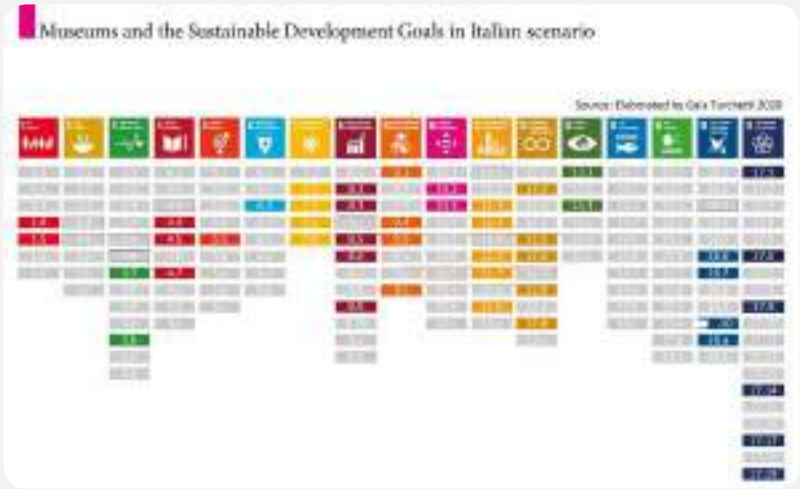
Graph 1_Museums and the Sustainable Development Goals, Quadro. Extract of the main goals related to museum policies. (Rota, 2019; Visser, 2019). Re-elaboration: Gaia Turchetti 2020.

Graph 2_ Realities interviewed from museums, cultural institutes and institutional subjects. Elaborated by Gaia Turchetti 2020 with Qgis-Google Earth 2020.

Starting from an extensive literature in the field, the SDGs and their specific targets for the museum environment were first selected (Graph 1). Subsequently, in order to understand how much this picture could be responsive to the real perception and operational transposition of the Objectives at the national level, a series of interviews were carried out with museums, cultural institutes and institutional subjects conducted from May to September 2020 and further increased (Graph 2). These interviews have so far made it possible to collect mainly qualitative data on the mission, current and future planning, post pandemic dynamics and other issues of management, accessibility and environmental sustainability that individual realities are implementing with the aim, on the one hand, to be a useful reflection and inspiration for an opening museum and, on the other hand, to feed the dialogue between institutions operating and strengthen the exchange of visions and ideas, the basis for sustainable development.

These questions have been built keeping in mind the specific objectives of the SGDs and trying to grasp from the qualitative data also a systemic reading thanks to a discretization of the acquired data.

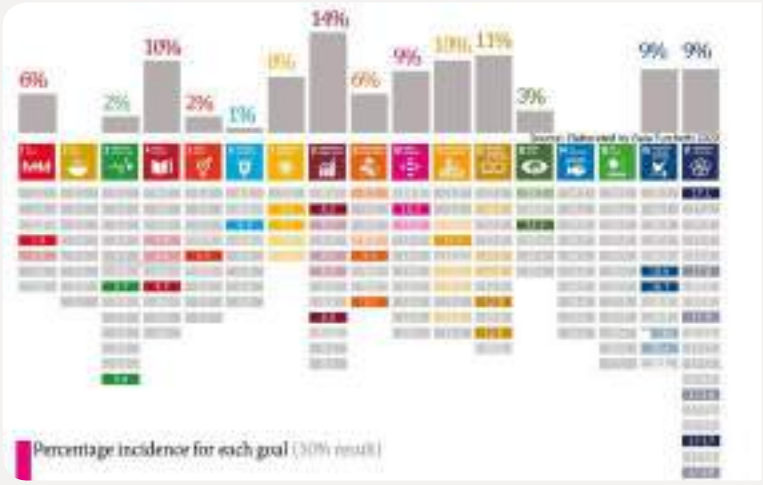
From this phase, still in progress, has emerged a re-reading of the entire scheme of goals partly different or integrated with respect to that summarised by the analysed literature (Graph 3): that is, a widespread interest also for the targets referred to the MOI (means of implementation), not previously emerged, and a growing interest also addressed to



Graph 3_ Museums and the Sustainable Development Goals in the Italian scenario. Selection of SDGs deduced from the research. In color the targets that emerged from the qualitative survey on the selected Italian museums. Elaboration: Gaia Turchetti 2020.

targets 7 and 17. (Affordable and clean energy and Partnerships)
It is a growing interest, in fact, the one of cultural institutes towards good practices to improve the energy efficiency of their structures, even if historical, and not least the use of diversified systems of energy production - from the most used photovoltaic systems to systems that exploit geothermal energy. But it has also emerged a growing awareness of the museum as a place and subject in charge of spreading the culture of environmental sustainability with educational and training activities for children and adults.

Another interesting aspect concerns the development of forms of partnership between public and private entities where the museum increasingly acquires a primary role. In these forms of horizontal subsidiarity, aimed at making the results of an intervention more and more effective and targeted to the needs of the territory, the museum often plays a role of support to local creativity with projects that, despite the current situation, stay active in future programming.
An assessment was then made of the percentage of incidence for each target group considered. (Graph 4). The survey showed that the primary objective in the strategies, programmes and actions of the museums analysed is the promotion of inclusive and sustainable economic growth, full and productive employment and decent work for all (Goal 8, Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all). The main focus is on technological updating and innovation, which has accelerated during this pandemic period -with the digitization not only of heritage but also of many of the management processes of a museum. In many cases, however, this clashes with economic and management problems that prevent some museums from embarking on autonomous paths of diversification and updating.



Graph 4_ Percentage incidence for each selected from the search. Percentage refers to a partial result related to a work in progress. Elaboration: Gaia Turchetti 2020.

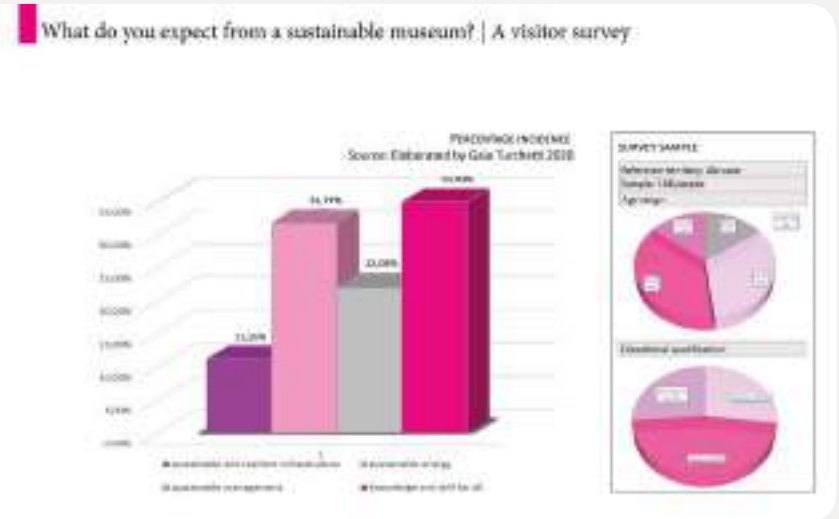
The presence then of an increasingly local audience is triggering new challenges for a different and diversified response, intensifying, encouraging or researching networks with the territory that today are even more important than before.
Elaborating the responses obtained in relation to the individual goals, key words

have been obtained for each goal or group of goals that will serve for further investigation and to cross-reference data from other fields of investigation. (Graph 5)

Graph 5_ Keywords extrapolated from the comparative reading of SDgs and qualitative and quantitative surveys carried out. Elaboration: Gaia Turchetti 2020.

In addition to this current overview at the national level, it was decided to add a parallel analysis carried out on the reality of Abruzzo, in relation to the opening of the new MAXXI in the city of L'Aquila. On the occasion of the pre-opening of the museum, I conducted a second analysis of a qualitative/quantitative nature.

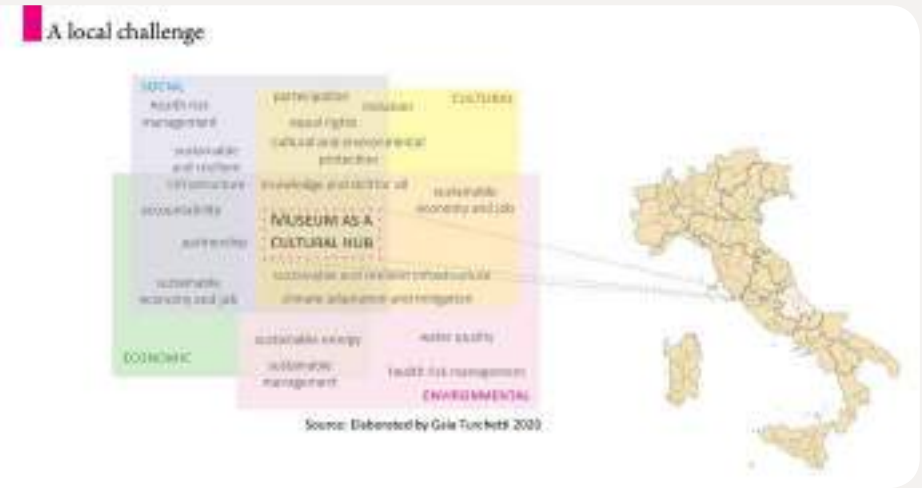
Visitors were given a survay that among other questions asked the visitor:
What do you expect from a sustainable museum?
The answer provided a parallel response to what was revealed by the survey at national level and provides for the moment an interesting piece of data that will be compared with the data collected in the subsequent phases of the museum's opening and activities (graph6): the main role of a sustainable museum is to disseminate knowledge and expertise on sustainability issues - from exhibitions to conferences, debates or workshops for adults and children - in line with the direction that many museums and especially international organizations are pursuing.



Graph 6_ What do you expect from a sustainable museum? | A visitor survey. Excerpt from the ongoing research on the opening process of the new MAXXI L'Aquila, Abruzzo, Italy.

From Data to Architectural Practice

The museum in its role - increasingly incisive - as a cultural hub, must therefore propose and produce research with a continuous exchange with the world of schools, universities and even business, converging towards common and shared objectives 4 main axes of sustainable development: social, economic, environmental and cultural (Graph 7). In order to do this, the museum must also be able to change/modify its spatiality, so as to enhance inclusion, interactivity, and the involvement of those 'non-public' who are little or not at all accustomed or familiar with the 'traditional' space of culture.
Re-reading, then, the data collected in a design perspective, the first step is to understand how to transform/adapt the space to meet the needs and needs that have surfaced, what flexibility in architecture, what spaces to equip to play this guiding role.
Future spatial changes in the museum will not affect the exhibition areas, but more and more the spaces of travel, of sociality (although spaced out), towards hybrid spaces of culture that become part of the living space of the city, a place of exchanges and meetings, which help the institution to acquire or regain a role, a value, a representativeness in its territory.
The research, presented here only in part, has therefore set itself the objective of providing data on which to base these design interventions so that there is consistency between the demands of the operators and the public and the operations of the designer, aware, however, that the real challenge is perhaps another one: how can the architecture of a museum, through intelligent and participatory design, help communities to understand, acquire and develop even those objectives that today seem more distant from the common and widespread work? This in the awareness that SDGs cannot be read separately but elaborated and implemented in an organic way.



Graph 7_ Museum as a cultural hub. Key concepts for museum design in 4 areas: social, cultural, economic and environmental. Elaboration: Gaia Turchetti 2020.

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The paper presents part of the results created by the author in the research entitled: "Management, accessibility and sustainability: from the project to the opening of the new MAXXI L'Aquila. A process of cultural-led regeneration", conducted as part of the framework agreement between the MAXXI Foundation, National Museum of XXI Century Arts and the Scuola del Patrimonio, Fondazione Beni Attività Culturali, Rome, Italy.

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3

VR in the Time of Social Distancing: New Multidisciplinary-Inspired Directions for Virtual Exhibitions

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Abstract

Social distancing is currently the international disease control standard as a response to the spread of Covid-19. This situation has brought many significant challenges to Cultural Heritage (CH) professionals and associated institutions. Although physical patronage at museums has dropped significantly, there are opportunities for retaining and possibly increasing viewership by using the latest virtual reality technology (VR) and other advanced multimedia tools. To be better informed, it is helpful to look at sectors outside of CH that have made an effective integration of these systems and methods. A comparative precedent is the international medical sector, which actively employs advanced VR for education, research and daily practice. The field has been highly active in the integration of VR to effectively address issues such as enhanced training, communication, public/professional engagement and remote access.

For both CH and medicine, developing VR content is time-consuming, and the associated computer hardware and associated exhibition equipment can be exceptionally expensive. By drawing upon state-of-the-art research and applied activities from the field of medicine, the proposed paper will look at specific precedents that would be of direct interest and benefit to CH. Looking at methods such as digital documentation, virtualization, 3D presentation, AR interaction, haptic systems, and other VR tools.

The suggested topics will be discussed within the framework of the EU ERA Chair in Digital CH, project "MNEMOSYNE", which aims to propose systems, guidelines, and standards for the holistic documentation of Digital Cultural Heritage.

Keywords

Virtual Reality

* * *

Cultural Heritage

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Medicine

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Covid-19

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Text mining

Introduction

Although still considered cutting-edge innovation, Virtual Reality (VR) is not a recent invention. Many of the methods and techniques behind real-time virtual reality and immersive environments were initially developed in the early '80s. Currently, VR is a growing force within the seemingly distinct sectors of Cultural heritage (CH) and healthcare.

The use of Immersive Technologies has proven to be beneficial in the CH sector. So far, VR has been offering the possibility of immersive experiences, creating a state-of-the-art demand for access to museums and CH sites. Indicative examples are the VR reconstruction of an ancient Greek temple in Messene, as part of CREATE project (Christou et al. 2006), or the 3D visualization of the Egyptian funeral objects exhibited in Sforza Castle in Milan (Gonizzi Barsanti et al. 2015). Similarly, the rapid growth of VR is shaping how medicine is being taught and practised. Driven by the technical advancements in the gaming and entertainment sectors, VR has now emerged as an essential tool in many areas of clinical care (Norcross et al. 2013) and research (Bohil et al. 2011).

The advent of the pandemic impacted several of the aspects connected to the application of VR technologies in both CH and healthcare. Digital accessibility and telepresence gained new significance in this context, currently placed among the key needs to be addressed.

In this small contribution, we attempt at outlining and comparing major themes, trends and challenges in VR usage in CH and medicine, tackling their last developments due to the Covid-19 impact. This stimulating task allowed us to draw some raw inspiration and insights for adapting virtual exhibitions to the post-pandemic context. The following paragraphs explore briefly the main long-term themes for both the disciplines, presenting a more in-depth balance in the light of the pandemic context.

Given the intrinsic differences of the two investigated areas, we implemented two different approaches: for CH studies we went through an extensive literature review, while for medicine we additionally performed data mining with Rstudio (2016)[1].

[1] *The whole procedure explained step by step, the datasets and the code are available in a dedicated repository (Osti 2020).*

Virtual Reality in the CH Domain: A Concise State of the Art

The use of Immersive Technologies in the CH domain has become a dynamic trend since the mid-2000s, a technological innovation that could open up new representation and communication paths in managing both the tangible and the intangible heritage, while allowing new kinds of interactive and sensorial contact with CH assets. Providing a critical review and analysis of the CH immersive applications, Bekele et alii (2018) established a classification which delineates the purposes that those technologies serve. Given the validity of their analysis, we opted for maintaining the categorisation and enriching it with our considerations:

1. Education, the most traditional among the areas of usage for VR, which is continuously evolving toward new approaches.
2. Exhibition enhancement, oriented towards the enrichment of visitor experience in situ, at physical museums and sites.
3. Exploration, based on the visualisation of historical and current views of CH assets, focused mainly on research purposes for more specialized users.
4. Reconstruction, as a tool for audience interaction with multifaceted views of tangible and intangible aspects of CH.
5. Virtual Museums, among the most debated areas of practice, implying the total commitment to a digital space.

We want to stress the importance of this latter area, given its current and future centrality in relation to pandemic/post-pandemic context. With Virtual Museums, we have the chance to realise the dynamics of a virtual reality curatorial approach, completely differing from the exhibition practices of the physical museum (Carrozzino & Bergamasco 2010). According to ViMM definition (Polycarpou 2018), a Virtual Museum is a digital formation that, based on the features of the traditional museum, exploits the capacities of a digital environment "through personalization, interactivity, user experience and richness of content". A Virtual Museum does not make exclusive use of VR tools and does not have to be necessarily connected with a specific physical museum collection, since it can go beyond that (Perry et al. 2018). For example, fostering a Sense of Place has recognised as a potential pillar of VR simulation projects (Aiello et al. 2019); another emerging scenario could be specialised training, though it is not considered a trend (Bruno et al. 2017).

VR and CH during Covid-19

The required lockdown and social distancing caused many sectors to reappraise and revisit the online and virtual approaches to learning, exhibitions, and outreach. According to a recent report by UNESCO, 90% of museums (more than 85,000 institutions) have closed their doors during the crisis, nearly a third have significantly reduced their staff, and up to 10% may close permanently (UNESCO 2020). The Network of European Museums Organisation (NEMO) run a survey on that topic, analysing nearly 1,000 responses collected between 24 March and 30 April 2020 from museums in 48 countries – the majority from Europe. The survey findings resulted in three immediate recommendations to be considered for mid and long-term strategies design(ICOM 2020):

1. Promotion of open access to CH and use digital on-line tools; more intensive efforts towards accessibility enhancement will be required.
2. Enhancement of digital skills of the CH sector, to strengthen participation and access by digital means.
3. Invest in what makes museums unique: their collections and rich content. Fun, engaging and creative digital offers will be part of museums' digital future.

The confirmed major challenges are engaging and "massive but customised" access to digital CH, other than delivering high-quality content and interactive environment.

VR in the Medical Domain: Insides from a Quantitative Approach

The use of VR technology in medicine is roughly datable to the end of the 20th and the beginning of the 21st century.
The first approaches were probably motivated by the need of medical staff to visualise complex medical data, particularly during surgery and for surgery planning. At that time, the potential of virtual reality seemed unlimited, generating unachievable expectations and confusion among medical professionals; these issues are evident in the extensive material published in both scientific and popular press (Riva 2002). However, the variety of specialistic applications reported in literature does not allow us to provide a concise but comprehensive overview; for this reason, we implemented a data mining approach to understand which applications are most representative of Medicine.
The National Library of Medicine (NLM, National Institutes of Health, Bethesda, US) is recognised as the largest biomedical library in the world, currently playing a crucial role in bioinformatics.

The related e-utilities in place for the National Centre for Biotechnology Information (NCBI) provide access to this vast query and database system (Sayers 2010), with the aid of thematic tools. Dedicated packages for the R language were used to retrieve the general publication trends for VR in medicine (2011:2020) and covid-related context usage (2019:2020) from NCBI.
Based on the results obtained for the general trends (see Figure 1), we found evidence that VR has a long tradition other than a vast array of well-defined adaptations, though usage contexts and tools seem to be "polarised". The two identified categories are research-oriented (e.g. surgery/protocols development) or training-oriented usage contexts. So, the most representative VR applications can be found in education and staff training (Mcgaghie et al. 2014), surgical simulations (Joda et al. 2019), rehabilitation (Riva 2003), pain management (Gold et al. 2006) and neuroscience (Riva et al. 2019). In the last three years, VR applications have seen a sudden increase in terms of scientific publishing, though the numbers see each journal publishing a mean of 2 VR-related articles per year. This can be concerning the recent inauguration of VR-themed journals – e.g. Frontiers in Virtual Reality, dedicated but not limited to the Medical area.

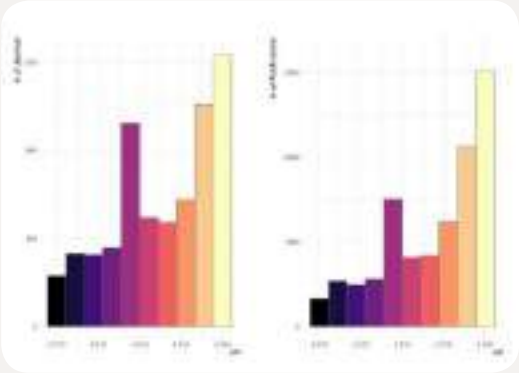

Figure 1. *Journals publishing VR-related articles (left) and VR-related publications per year (right) obtained through data mining with Rstudio.*

VR in Medicine during Covid-19

Despite the urgent and inevitable focus on public health, during the Covid-19 pandemic, a critical concern for medical educators is the increasing difficulty in training the next generation of doctors, as real-world experience is hardly replaceable (Rose 2020). However, the last months have seen new ways of interaction in virtual environments, reshaping the ideas behind their usage. Figure 2 displays a ranking of the most used words stemmed from the articles concerning VR and Medicine that have been published within the last year. A shift in training and teamwork dynamics is noticeable – e.g. in approaches to patient treatment, medical marketing and disease awareness (Singh et al. 2020), as the emergence of "telehealth", which has been defined as "entire spectrum of activities used to deliver care at a distance—without direct physical contact with the patient" (Wosik et al.

2020). At last, new protocols and strategies to overcome the emotive impacts of the pandemic and have been proposed (Gao et al. 2020; Riva et al. 2020).

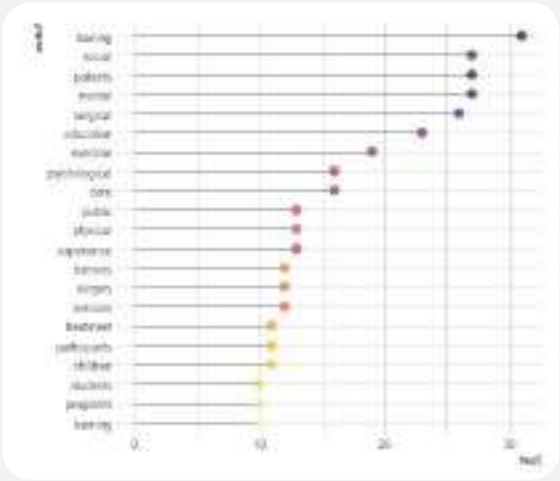

Figure 2. *A list with 20 of the most represented words in the Covid-19 VR-related literature, obtained through data mining with Rstudio.*

Discussion and Conclusive Remarks

Some interesting convergences between the two areas emerged; a summary is presented in Table 1.

In particular, both domains have in common the need for accessibility enhancement. In terms of VR usage, the global trends for the two disciplines are different: VR approaches from CH try to foster the Sense of Place, conveying a historical narrative, bringing the viewer back in time, educating and/or enhancing the experience. Viceversa, Medicine proposes tools and exercises to escape reality through the immersion on natural environments – previously for pain control purposes and then adjusted to the pandemic.

Additionally, the opposite approach – live streaming the reality of the pandemic – is considered among the potential approaches.

Both areas are reflecting on the new scenarios of a permanent implementation of virtual environments; but while CH seems more focused on highlighting museum uniqueness and providing user-levelled access, medicine invests on personalisation of digital care and alternative training systems.

	CH	Medicine
Perspectives	Improved representation of CH sites and Museums, alternate access to knowledge	Personalisation of care and enhanced accessibility of VR.
Usage	From creating Sense of Place to recreating/preserving/implementing the knowledge of the past.	From live-streaming to escaping reality
Opportunities	Telepresence, user-levelled access to knowledge	Telehealth, education and training

Table 1. *Summary of the main perspectives, usage trends and opportunities of VR technologies application in CH and medicine.*

Based on this comparison (table 1), there are several interesting directions suggested from Medicine developments that can be considered for enriching current VR applications and approaches in the CH domain.

An intrinsic aim is, for example, to have network infrastructures similar to the ones of Medicine, which allowed a successful data mining attempt but also could enable other exciting scenarios, like the ones proposed for industry 4.0 in the pandemic era (Javaid et al. 2020). More specifically, the implementation of Artificial Intelligence (AI) would be extremely interesting from the point of view of enhancing accessibility as, for example, it allows understanding user behaviour patterns. A more explicit aspect goes back to the global idea of the reality-virtuality continuum proposed originally by Milgram and Kishimo (1994). Thinking about multiple usage scenarios for the same technologies while attempting to cover the whole mixed reality spectrum could help us to face the limitation of resources we have in CH, in comparison to Medicine. A single technology-centric approach should be avoided, preferring an integrated one; if this is not possible we can adapt and reuse the same technologies in different fields of application.

Developing the training dimension in connection with research aspects seems to be a promising path to walk for the future, as demonstrated from Medicine, though the CH sector remains relatively attached to the mindset of traditional exhibition and heritage site presentation practices.

Acknowledgements

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4

Museum Architectures for Digital Experiences: Towards a New Spatial Typology?

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Abstract

Over the past decade, digital technologies have offered new potentials to mediate between museum content and visitors, and set new challenges for the design of museums and exhibitions. They form part of most museums, most often as interpretative tools, and increasingly as the exhibit and the key experience itself, for example by offering immersive and embodied interactions. A key question from an architectural and spatial point of view is how to embed digital experiences in the museum context. How does the use of digital technologies interact with museum space? To explore these questions, we will analyse, through first-hand study, three spatial complexes in museums that illustrate different kinds of interaction between digital and spatial dimensions. Methodologically, the paper uses analytical techniques which combine representations of space and configurational analysis. The application of these techniques brings to light the common dominance of spaces which emphasize enclosure, invite occupation rather than movement, and focus perception. It is demonstrated that in all the cases it is the combination of digital technologies and the exploitation of space that creates the final museum experience. The findings suggest that technology is stimulating developments in the spatial typology of museums.

Keywords

Museum Space
***
Spatial Design
***
Digital Experiences
***
Immersive Environments
***
Graphs
***
Space- Types

Introduction & Research Question

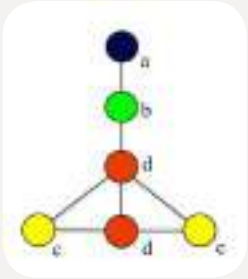
Over the past decade, digital technologies have offered new potentials to mediate between museum content and visitors, and set new challenges for the design of museums and exhibitions. They form

part of most museums, most often as interpretative tools, and increasingly as the exhibit and the key experience itself (see for example Hornecker and Ciolfi, 2019; Kenderdine and Sanderhoff, 2020). They are currently being designed at scales ranging from tangible interactions to immersive sensory environments. The latter are the focus of this paper. A key question from an architectural and spatial point of view is how to embed digital experiences in the museum context. How does museum architecture, as the arrangement of space, accommodate the need for bodily engagement, immersion, and focused intensity?

In contemporary museums we find a wide range of digitally mediated experiences in a variety of layouts.

In this paper we will analyse, through first-hand study, three spatial complexes in museums that illustrate different kinds of interaction between digital and spatial dimensions. The selected cases vary from the 'traditional' museum which uses technology to create sonic environments and enhance viewing, to the cutting-edge museum where the display of objects is coupled with the innovative implementation of immersive technologies.

Before engaging with the case studies, some methodological remarks are appropriate. We use a theory of spatial configuration, known as space syntax, which allows spaces to be typed in accordance with their relations to others, and building designs to be compared by representing key aspects of visitors' experience (Hillier, 1996; Hillier and Tzortzi, 2006). Specifically, we use representations of layouts as graphs, with spaces as circles and their relations as lines, and distinguish four space types. As can be seen in Figure 1, a- (or occupation) spaces are dead-ends, so cannot be passed through; b- (or control) spaces control access to other spaces and so offer only the same way back; c- (or circulation) spaces form rings, so offer one alternative way back; and d- (or choice) spaces offer more than one alternative way back, so route choices.



a-spaces are dead-ends, so cannot be passed through

b-spaces control access to a-spaces (or other b-spaces) and so offer only the same way back

c-spaces form rings, so offer one alternative way back

d-spaces offer more than one alternative way back, so route choices

Figure 1 *The abcd space types according to their embedding in the layout.*

[1]*Space Syntax is a theory and methodology to describe buildings as systems of spatial relations, and a set of tools for evaluating their functioning and for representing and comparing aspects of the user's experience (see Hillier, 1996).*

[2]*We characterize the spaces according to the space syntax theory of 'space-types' which defines spaces in terms of how they are connected to the layout of which they form part (Hillier, 1996; Hillier and Tzortzi, 2006).*

Museum layouts tend to be dominated by c-spaces to create sequences, perhaps complemented by d-spaces to allow alternative routes, but less frequently by a-spaces or b-spaces, as for example in the case of the plan for a museum by Leonard Sturm in 1704, often said to be the first of its kind (Figure 2).

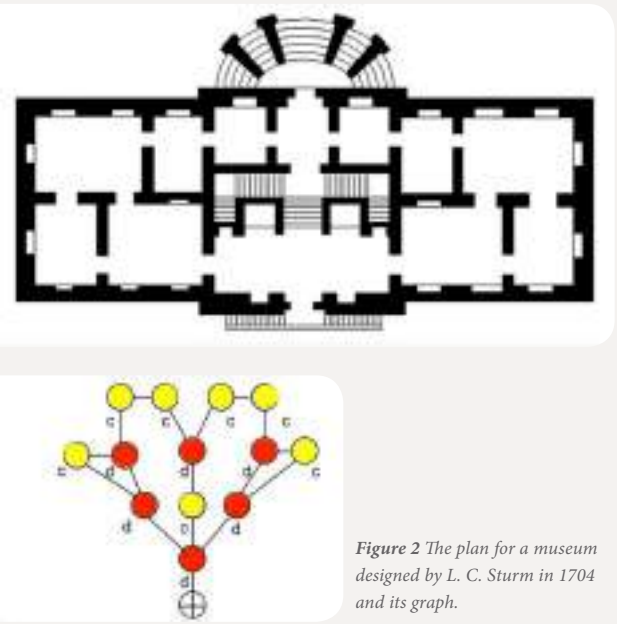


Figure 2 *The plan for a museum designed by L. C. Sturm in 1704 and its graph.*

Case Studies

Turning to our case studies, we will begin with the Musikmuseum in Basel, Switzerland (2000). The building, originally a monastery and then a prison in use until 1995, was converted by Meinrad Morger and Heinrich Degelo to an exhibition space for a collection of European musical instruments, dating from the fifteenth to the twentieth century (Kirnbauer, 2009). The museum repeats, with slight differences, the same plan on three floors. The layout of the display takes the form of small rooms (that were once cells) opening onto a main space (once a corridor), thus serving the thematic arrangement of the collection (Figures 3 and 4). Each individual room is dedicated to a sub-theme, for example, music for hunting, or a type of instrument, like the drum.

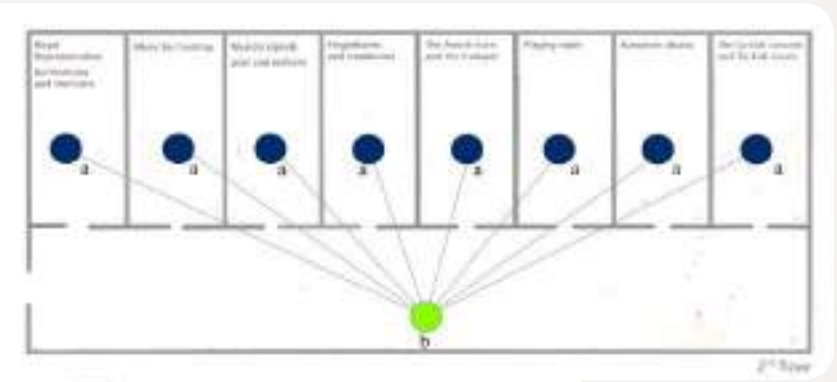
Figure 3 *A panoramic view of the main space of the Musikmuseum, Basel. Source: courtesy of © Historisches Museum Basel.*

Rooms are darkened, and only exhibits are directly illuminated, inviting visitors to focus their attention, and allowing instruments to be seen as aesthetic objects. In parallel, rooms are open to the main space in which musical instruments of a larger scale are placed. Their narrow door openings afford restricted views to the main space, which are carefully planned to

create intriguing visual juxtapositions. But information extends beyond the visual.

In each room there is a touch screen, which not only provides information about the exhibits, but also allows visitors to select musical pieces related to the instruments on display and experience them in space, rather than through headphones. The sound fills the space and creates for visitors the feeling of being immersed, which is further enhanced by the sense of a spatial context enveloping them bodily, which is created by the enclosed character and scale of the rooms.

Figure 4 *Plan of the Musikmuseum with a graph superimposed and space types.urce: K. Tzortzi © Historisches Museum Basel*



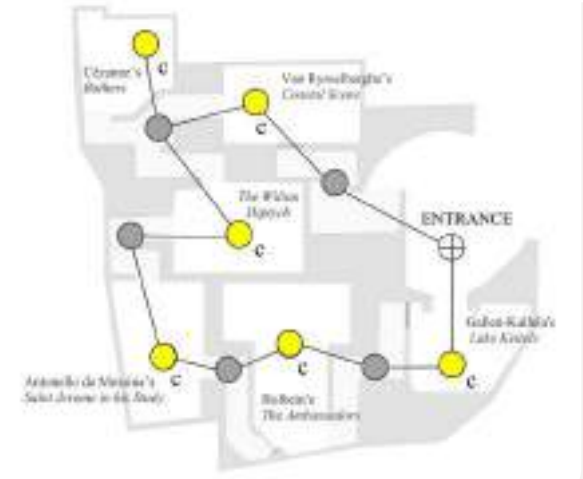


Figure 5 *Plan of the 'Soundscapes' exhibition, National Gallery London, with a graph superimposed and space types. Source: K. Tzortzi © The National Gallery*

Moving to the second case, a diametrically different concept and spatial design lie behind the immersive 'Soundscapes' exhibition, organised, in 2015, at the National Gallery London. The Gallery proposed a fresh view of its collection, and specifically of six of the most well-known paintings (Figure 5), varying in date from the fourteenth to the twentieth century, by inviting musicians and sound artists to select a painting and compose a piece of music or sound art in response (Ede, 2015a). For example, the Turner Prize-winning sound artist Susan Philipsz inspired by Hans Holbein's 'The Ambassadors', transposed a detail of the painting, a lute with a broken string, a symbol of discord, to the sound installation by removing one string from a violin.

The 8-minute long 'soundscape' ('Air on a Broken String') accompanied the visual narrative, 'making the discord perceptible throughout the gallery space' (Soundscapes, 2015).

The aim of the exhibition was not to add meaning in the art-historical sense, but to enhance looking, asking visitors to 'hear in a purposeful way' (Ede, 2015b).

The paintings were displayed individually, each in its own darkened room, with light directed only on the painting itself. Hung on the most prominent wall in each space, they were presented with music or sound, played from specially created high-tech speakers embedded in the walls. Instead of the usual sequence of spaces, with one gallery leading directly to the next, rooms were connected through entirely dark sound-isolating corridors (shown in grey in the graph in Figure 5), so visitors always emerged onto a corridor-like space before moving to the next room. The six rooms, with their closeness and visual insulation, created, for viewers, the sense of being engulfed by the materiality of the physical space, and the immaterial space of the sound. At the same time, the experience of each gallery was felt as separate from the previous and the next one, as visitors were required to walk through the intervening corridors in complete darkness.

The final case is the Moesgaard Museum, an ethnographic and archaeological museum in Aarhus, Denmark (Bundegaard, 2014), which offers a variety of digital experiences that aims at creating a sensory narrative environment. Here we will look at the spatial complex dedicated to the Bronze and Iron Ages and organised on three levels (Figure 6). It is essentially an open space divided into sub-spaces. These are darkened, and the objects, directly spotlit, create, using Pallasmaa's words, 'an illuminated space of intimacy for each work' (2014, p. 243).

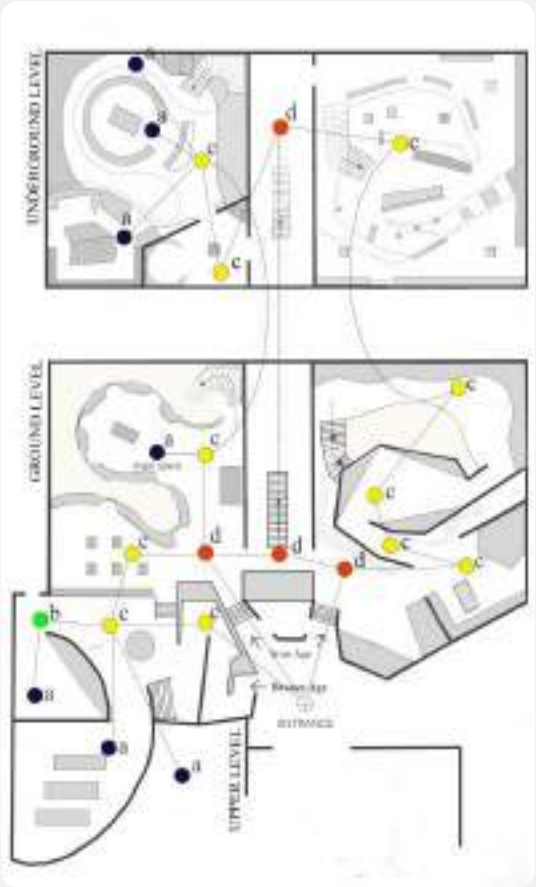


Figure 6 *Plan of the Moesgaard Museum with a graph superimposed and space types.*
Source: K. Tzortzi © Moesgaard Museum

The main space of the complex is a double-height, visually open space, which gives a picture of life in prehistoric Denmark. It presents archaeological findings, which were offerings to deities in bogs, lakes and rivers. The space itself alludes to a bog: it is defined by a low, fence-like form and its uneven floor gives the sense of walking on marshy ground. At the same time, it is surrounded, at a distance, by the walls of the building, on which are projected four short animated films. Each film narrates a personal affective story (three from the

perspective of a woman and the fourth by a father and his son), closely related to the exhibits shown in this space (Figure 7). They all work as an imaginative and emotive background to the display of objects and immerse visitors in a theatrical stage. Strikingly, as the films are activated individually by visitors, the way they are synchronized in the main space can never be predetermined and so exactly repeated, creating a unique experience of this display each time it is visited.

But despite being a dead-end space that

Figure 7 *View of the main space of the Moesgaard Museum. It is defined by the curved, low, fence-like form and enveloped by the walls of the building, on which the animated films are projected. Source: Media Department ©Moesgaard Museum*

emphasises enclosure, the main space is visually very powerful in that it dissolves the perception of a limited space by relating directly to a high proportion of the spaces of the complex on all three levels. As a consequence, the animated films which are projected on the ground-level main space can also be also seen from the upper level, and partly from the lower floor level. Projection and sonic elements, in combination with the lighting design, unify the environment and immerse visitors in 'a sense of a coherent experiential entity' (Pallaasma 2016, p. 130).

The key feature of the Moesgaard Museum is that the display narrative, rather than being based only on textual information, is largely structured as a series of experiences, which are distinct, yet tightly interwoven, through complex and sensory synergies between displays, such as, background music played in the spaces at low volumes, and, most notably, the spatial and visual links between the different levels, which are assigned a symbolic function, through their metaphorical meanings of sky, life, and the underworld.

Comparative Discussion

Taken together, these three examples share a striking spatial property in common, the high number of a- (or occupation) spaces each has, that is, of spaces that must be lived in and experienced, rather than passed through. As made clear in the graphs:

- The Musikmuseum is made up of a-spaces open to a b-space which controls access to the individual rooms (Figure 4).
- The 'Soundscapes' exhibition takes the form of c-spaces organised in a simple, hard-to-avoid sequence. But the corridors which separate the spaces and emphasize the spatial discontinuity of the complex, coupled with the routes through the galleries which are close to their edges,

give them the formal feel of a-spaces (Figure 5).

- In contrast to the repetitive pattern of space-types in the previous cases, the display layout of the Moesgaard Museum uses all the space types and makes extensive use of a-spaces, as in the case of the main space (Figure 6).

Returning to our initial question about the interaction between museum space and digital experiences, two interlinked points seem to be emerging. First, our examples suggest that a- (or occupation) spaces are favoured for the installation of immersive sensory environments created through digital media and the communication of complex embodied meanings. The spatial and topological properties of this type of space can be seen as affordances for the assimilation and understanding of the intense experiences they accommodate which combine information for different senses. By providing one permeability link to the other spaces of the complex, a-spaces emphasise enclosure, invite occupation rather than movement, and focus perception. In combination with digital technologies, they also allow for staging a coming together, a collective experience, since it is about experiencing in individual ways but in the company of other visitors.

Through our analysis, we have also found that a-spaces can be exploited in different spatial situations. In the Musikmuseum and the 'Soundscapes' exhibition, a-spaces (or functional approximations of a-spaces) are delineated by physical, visual and aural boundaries, producing consistent discrete experiences, while in the Moesgaard Museum, a-spaces combine spatial closeness with visual openness and acoustic transparency. In the first two cases, a-spaces are linked indirectly to each other by mediating corridors ('Soundscapes'), or a common space that governs access (Musikmuseum), allowing for 'parataxis' or juxtaposition of distinct experiences. In contrast, in the third case, a-spaces contribute to close interrelationships with other spaces and the creation of a powerful integrative experience.

This brings us to our second point. The clear dominance of a-spaces in all the above arrangements of space can be distinguished fundamentally from the 'conventional' museum design of sequences of c-spaces linked by long axes and offering visitors powerful vistas. One can think for example of the Sainsbury Wing of the National Gallery London (Tzortzi, 2015). In our sample, the two-dimensional convex structure is more important than the linear axial that characterises the 'traditional' layout, and the local visibility is prioritised over the distant and synchronic. This can be illustrated by the contrasting visual fields (in grey in Figure 8) drawn from central points in the Musikmuseum and the Sainsbury Wing.

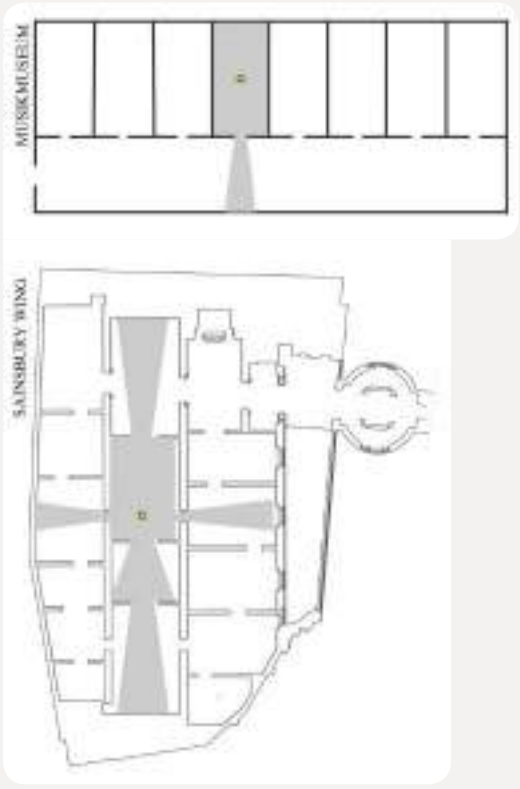


Figure 8 *Visual fields (in grey) from central points (in yellow) in the layouts of the Musikmuseum and the Sainsbury Wing.*

Concluding Remarks

While it is clear that, on the basis of our sample, no generalisation is possible, these examples suggest that digital experiences in museums are beginning to affect key beliefs as to how museum space can be designed, but in the sense of opening up new possibilities, rather than closing them down.

It could be argued, in conclusion, that in all these cases the immersive effect is composed of two things being exploited together, space in the sense of its articulation to create distancing, containment and enclosure, or visual links, and technology.

In other words, it is the combination of digital technologies and the exploitation of space that creates the final museum experience.

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The New Architecture and Exhibitions in the Museum Building in Russia

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In recent years, and specifically at the beginning of the century, many new premises and conceptual and multifunctional complexes that meet the latest trends in world museum practice have been constructed in Russia. These include major reconstructions of old museum buildings and their expansions, as well as new construction of unique museums that have never existed before, related to the history of a place or event, on the historical territory.

Attention should be paid to the unique Kulikovo field Museum complex (2017) - a completely new museum facility built on a historical site, on the field where the largest military battle with the Tatar-Mongol conquerors took place 600 years ago, which became a liberation in the history of Russia in 1380.. The project of this unique museum complex was awarded the highest award – the state prize of Russia in the field of culture and art for 2018. According to the concept of this museum two buildings buried two levels underground and directed at sharp angles to each other, like two armies colliding in battle, only slightly rise above the ground, without disturbing the overall panorama of the field, which is the most important, authentic, historical exhibit of this museum. Architect U. Gnedovsky, expositioner A. Rayner. The exhibition tells the story of this battle and presents artefacts found at the battle site. Battle scenes are represented by models and specially created videos, multi-videos, and artworks. The museum has many installations, interactive complexes and areas for working with children.

Among the new original architectural and exhibition facilities was the State Museum of Weapons in Tula, near Moscow. Since the XVII century the city was famous for its gunsmiths and gun factories.

The museum is based on the historical collection of weapons of the famous Tula factories, which were collected from the beginning of the XVIII century, including almost all types and models of weapons, starting with cold weapons, firearms, military, sports and hunting weapons. The original shape of the museum building is a symbolic association with the helmet of ancient Russian soldiers.

The museum has four exhibition floors arranged in a circle that represent a collection of legendary Russian weapons. These are swords, sabres, rapiers, pistols and shotguns, and their modern types and forms. In front of the museum there is a

large open-air exhibition area for large-sized exhibits. Designer of the exhibition is Alexander Konov.

Interesting is the Museum of the archaeological tree in Sviyazhsk, in Tataria, with the reconstruction of the urban environment and the subject series of the whole ancient Russian city found during archaeological excavations, with streets, skeletons of houses, a huge number of found household items, over which a huge overlap was built, and a museum space was created. The project was developed by a team of creative Association "Samrukh" under the leadership of A. Nabiullin. For Russian practice, this is the first museum built on this principle. On top of the building is green architecture - a hill with a lawn.

Another original Museum building was the New Jerusalem Museum and exhibition centre, near Moscow, next to an outstanding architectural monument - the New Jerusalem monastery of the XVII-XVIII century. It also includes the principle of green architecture and minimal intrusion into the historical landscape of a unique monument. It is sunk into the ground, and comes to the surface with a green hill and an original circular outer courtyard.

This modern museum presents both a permanent exhibition dedicated to the history of the monastery and the relics that remained from its difficult fate, as well as a large number of exhibition halls that host very popular temporary exhibitions.

Significant new buildings include the Centre of President Boris Yeltsin in Yekaterinburg. This modern multifunctional building with a large museum exposition is dedicated to the first Russian President, who was born in this city. The building was designed by the BERNASCONI architectural firm headed by Boris Bernasconi. The museum is dedicated to the modern history of Russia and the personality of Yeltsin. The exhibition was completed by the American Bureau of Ralph Appelbaum, winning a competition between 20 projects. The concept of the museum, called "7 days", was written by the famous Russian film director Pavel Lungin. The museum includes an art gallery, a cinema conference hall, and a full range of facilities for modern activities for this cultural and educational centre.

At the same time, construction is underway not only in large and metropolitan cities, but also in remote regions – for example, in the far northern city of Khanty-Mansiysk. Large reconstructions were created there and unique new museums were built. This city built a Museum of Oil and Gas, the natural resources which became the basis of its economy.

The Museum of Nature and Man has also become an important centre for the young city. It is a reconstruction with an original and interesting exposition. Another unique museum is the Museum of contemporary artist Gennady Raishev, which has a mosaic

of the artist's painting on the facade of the building. The building has a symbolic boat shape, which is very important for the culture of the northern Khanty and Mansi peoples. The interior of the museum is high-tech in its design and houses the artist's works. His workshop is also located in the same building.

Significantly more renovations and modernisations were constructed, not to mention the fact that during this time many of the largest of Russian museums carried out major modernisations – such as the Tretyakov gallery, the Historical Museum, and the State Hermitage Museum. A huge reconstruction project of the Museum of Fine Arts was carried out by the Foster architectural Bureau, which unfortunately has not yet been implemented.

The most important project was the reconstruction of the eastern wing of the General Staff in St. Petersburg, a branch of the Hermitage. An architectural project called "Studio – 44" by architect Nikita Yavein. The reconstruction was completed in 2014. When the courtyards of an entire block were closed and a system of large exhibition spaces was created, which can be transformed depending on the purpose of the exhibition. Large conference halls and comfortable halls for exhibitions of contemporary art with personal rooms dedicated to the most important artists of the twentieth century were built. In 2019, the Musical Living Room of the Morozov mansion in Moscow with the Maurice Denis painting ensemble was reconstructed.

Another interesting project in Saint Petersburg is the "Water Museum" complex in the old water tower of the city. This museum is dedicated to all the current problems of modern urban water supply. A very popular multimedia exhibition was created there called "the universe of water", dedicated to the Neva river and the water supply in the city.

The private Faberge Museum has become a new museum for Saint Petersburg. It houses the jewellery art of the famous Russian company Carl Faberge. The interiors of different styles were reconstructed in the historical building, exhibiting the products of the famous jewellery house.

Another museum was opened in Moscow to mark the 200th anniversary of the Patriotic War of 1812. This is a completely new exhibition space, which is located on two levels in the courtyard of the Moscow City Duma building and the Historical Museum space. The exhibition tells about the Patriotic war with Napoleon, presenting artefacts and authentic relics of this war. The expositor is Natalia Yazykova. This museum project has earned the state prize of Russia.

To mark the anniversary of this war, a new re-exhibition of the museum-panorama named "the battle of Borodino" was created.

The reconstruction of the Moscow Planetarium is also of great interest. Here, the historic building in the style of Russian Constructivism was raised on a platform, which made it possible to create lower floors and new service and exhibition spaces.

The reconstruction of the Ruina wing of the Moscow Museum of Architecture has also become significant in the course of reconstruction projects, as it has meaningfully preserved all the architectural losses of the historical building, and revealed its structural and spatial basis. This opens possibilities to use it effectively for temporary exhibitions.

For the Museum of Modern Art, a 1960s building was reconstructed, with its neutral architecture and modern laconic decoration.

The most unique project of recent years can be considered the Jewish Museum and Tolerance Centre, which was created on the basis of an outstanding monument of Russian constructivism of the early twentieth century – architect Konstantin Melnikov and engineer Shukhov, who built it for the city's transport garage. The reconstruction of this building and its transformation into a museum deserves attention. The exhibition was first created by the American Bureau of Ralph Appelbaum. The museum was created in a single large space with a great number of installations, multimedia complexes, and with the use of life-size dummy figures.

In addition to architectural events in the museum life of Russia, there were many major exhibition projects, both public and private, among which the most expressive were a number of exhibitions by the talented Russian artist Anatoly Zverev, created in his museum in Moscow, as well as in Florence and Milan.

These are numerous exhibitions and, in this case, dedicated to Andersen's fairy tales, which were illustrated by the artist. As well as a number of expositions dedicated to the work of the famous Russian film director Andrey Tarkovsky. This is an exhibition based on the films "Andrey Rublev" and "Solaris".

Speaking about museum construction in Russia in recent years, we cannot fail to mention two large-scale projects that are generally quite controversial from the point of view of traditional museology. This is the Palace of Tsar Alexey Mikhailovich in the Kolomenskoye Museum-reserve in Moscow, built in full size and with expositions made from archive materials. It is a copy of the palace of the XVII century, the measurements and drawings of which remained when the palace was destroyed. This reconstruction of the palace was performed with violations of historical technologies, because here, reinforced concrete is used in load-bearing structures and logs are used only for facing. Since there are almost no preserved monuments of the XVII century in Russia, this reconstruction is of great

interest to visitors and gives an idea of the national history.

Another large-scale palace complex was the recreation of Tsaritsyno. The Grand Palace complex, built by the outstanding Russian architects Vasily Bazhenov and Matvey Kazakov in the XVIII century for the Empress Catherine II. However, she did not like the Palace, and it was never completed. Having existed for 2 centuries in ruins, it was finally rebuilt and now represents a large museum and exhibition complex in a beautiful park in Moscow. Literally only a week ago, the museum quarter was opened in the city of Tula for its 500th anniversary.

Currently, work is underway on the reconstruction of the Moscow Polytechnic Museum, a cultural heritage site built in the late XIX – early XX centuries by architects N. Shokhin and I. Monighetti. Restoration work is being carried out according to the project of a Japanese architect Junya Ishigami, which was approved by the 2011 competition. It includes overlapping of the courtyards of the museum in the centre of Moscow.

A large reconstruction of the Cosmonautics Museum in Kaluga is also underway.

In this brief report, we have tried to give a visual representation of the most interesting and expressive events, which are certainly much more numerous in museum construction in Russia in recent years.

The Answers for the Issues of the Korea's New National History Museum of Saemangeum Reclamation

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Abstract

"For the best museum for the visitors!" Last May, Korea's Minister of Land raised a question: what the new National Museum of Saemangeum Reclamation should be among 873 museums including 49 national museums in Korea during this Covid 19. Saemangeum is a new reclaimed waterfront area aiming a city of new civilization, size of 409 square kilometers. At the expert meeting by Saemangeum Development and Investment Agency on July 2020, the following issues are raised: (i) differentiation from other museums, (ii) targeting visitors, (iii) storing space, (iv) out-space, (v) community participation and (vi) expansion of theme. In this article, the answers for the issues are proposed as the followings: (i) museum should be an alive museum in a movie; (ii) focused visitors group are 30~40s parents with kids or 60~70s senior citizens; (iii) storing space can be an open display space; (iv) the outside area can be used for kids with small-electronic excavators; (v) community can participate in local food market or special over-sleep program; and (vi) the theme of the museum can be extended by a live-online oversea friend museum. In this approach, the international cooperation from the members of ICOM would be a great asset.

Keywords

New Museum
***
Visitors
***
International Cooperation
***
Saemangeum Korea

Chapter I. What Is Saemangeum & The Saemangeum Museum of Reclamation?

This year of 2020 is the 10th anniversary for the completion of the Saemangeum seawall recorded as the world longest seawall with the total length of 33.9km in the Guinness Book. Saemangeum, a name of Korea's local development area, is located at the middle west of South Korea, 2.5 hours drive from Seoul. The meaning of 'Saemangeum' is a new huge filed name

after the first word of two neighboring rice fields. The main concept of this project is to create a waterfront city by reclamation with 6 multifunctional land use plan in the area of 409 square kilometers (283 square kilometers of new land, 118 square kilometers of lake).(SDIA, 2020)

The reclamation project started in 1991 with only for agriculture purpose. Then, in 2010, the sea wall construction was completed and in 2013, a Special Act on Promotion and Support for Saemangeum Project was enacted and an executive central government organization was established which is Saemangeum Development and Investment Agency(hereinafter "SDIA"). Through recent remarks from Korea's leadership, Korea's government has showed the direction for Saemangeum as a global new hub of various business and culture in the future. At the ceremony of proclamation for Saemangeum renewable energy project on October 2018, Korea's President Moon Jae-in declared that "we will make Saemangeum in North Jeolla the centerpiece of the Republic of Korea's renewable energy industry." (Kang, 2018)

Last July ARIRANG TV filmed a special business program about Saemangeum. Here, Prime Minister Chung Sye-kyun said that "Korea government will promote this region as the base for the fourth industrial revolution."(ARIRANG , 2020). The direction of development has been empowered by global business players such SK Broadband's investment announcement for the hyper-scale data center of approximate 2 trillion won (USD 1.75 billion) on October 2020. With the perspective of tourism business, Saemangeum embraces most types of natures such as ocean, mountains, lake, rivers, and islands. Furthermore the island area has been recognized by CNN as one of the 33 gorgeous islands in Korea (Violet, 2017). In August 2023, the World Scout Jamboree will be held in Saemangeum and welcome the participants about 50,000 teenager scouts and volunteers from 171 countries (Jung, 2017). Also, Saemagneum Development Corporation, a public company, will break the ground for a new smart waterfront city in December 2020. Near this new city

and leisure-tourism area, the National Museum of Saemangeum Reclamation History will be opened.

Category	Contents
Name	National Museum of Saemangeum Reclamation History
Theme	To Display Korea's History of Reclamation
Size	(Land) 39,692㎡ (Gross Floor Area) 5,441㎡ (Display Area) 2,100㎡
Budget	(Total) USD $ 32.5M / KRW 36B (Land) $ 5M (Construction) $ 24M (Design & Supervision) $ 3.2M
Periods	2016~2022 (*Current Status: Ground breaking)
Location	Saemangeum Tourism Area, Buan County, South Korea
Operation	New Foundation to be established with est. 60 staff
Timeline	- 2012 Ministry of Agriculture initiated Museum of Reclamation History - 2013 Stopped due to low feasibility and transferred to SDIA - 2013 The budget of new museum had been reduced 57% - 2018 Design and Display Plan completed - 2019 Revised a master plan to connect with neighboring info-center - 2020 New request from Minister of Land, Infra and Transport - Aug.~Oct. Ground breaking and finalizing the contents and display plan - 2022 Completing construction and test-operating - 2023 Open-Ceremony

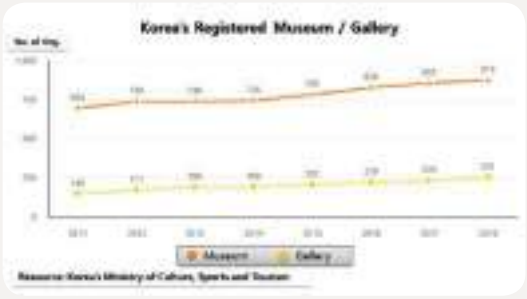
The Saemangeum Museum was first proposed in 2013 by Buan County government and a legislator of the region (Yim, 2013). The purpose was to commemorate the construction of the world longest sea wall. The museum project, however, was not enough to pass the balancing test of national budget system at the time. After few years struggling to position the right direction of the museum, eventually the project was permitted. In 2016, a research of construction for the Saemangeum Museum suggested a model of eco-museum and the current location of the museum after balancing test with the elements of traffic accessibility, function of location, relevance with cultural tour and contents, and the condition of future growth(Yim, 2016). The purpose of the museum is to show the history(past) and the development plan(future) of a huge reclamation project in Korea and abroad. [1] According to SDIA's notice of the museum construction plan (SDIA, 2018), the total budget for the museum is USD 32.5M (for the land acquisition: $5M, construction: $24M, design and supervision: $3.2M). The period of construction is from 2016 to 2022 and the current status of project is in the middle of construction after Augusts' ground breaking and collecting relics the total size of the land is 39,692 square meters(Gross floor area: 5,441 square meters; Display area: 2,100 square meters). The museum has four zones such as history, science, future and theater; and it has 10 categories and 29 themes display themes.

[1] *This purpose reminds the ICOM's new definition of museum which is "Museums are democratising, inclusive and polyphonic spaces for critical dialogue about the pasts and the futures. Acknowledging and addressing the conflicts and challenges of the present, they hold artefacts and specimens in trust for society, safeguard diverse memories for future generations and guarantee equal rights and equal access to heritage for all people." (ICOM website, 2020)*

Chapter II.
The Answers for 6 Issues of the Saemangeum Museums

Recently during the monthly leadership meeting of the Ministry of Land, Infrastructure and Transport, the Minister raised a question for the Saemangeum museum which was how the museum can be differentiated from the other existing 874 Korea's museums. Followed experts' meeting for the museum, six issues were raised: (i) differentiation from other museums, (ii) identifying the visitors, (iii) expanding the room for storage, (iv) maximizing use of surrounding area, (v) community participation and (vi) more themes.

In this article, I would like to propose the answers for the issues. Starting point is Korea's law and history. First, Korea's Museum and Art Gallery Support Act describes seven projects that a museum should implement. From these mandatory projects in the law, the museum can find the clues and the area of works for differentiation form others. Also, in the Korea's history of modern museum, there have been passionate and self-motivated leaders and supports from international fellow experts. One of the leaders even opened his own director office for the local kids to have the first children museum class after recognizing kids' interest for the museum(Gyeongju Museum, 2020). When the leader had a special passion for the visitors enough to start a new program, the museum could overcome various issues and provided the best service with the cooperation of the community. Like Jakin(means establishing) and Boaz(means strength) of the pillars of the Solomon's Temple , the law and the leaders' passion for the customized service can answer to the issues.



[2]*Korea's Museum Law, Article 4 (Projects)(1) A museum shall implement the following projects: 1. Collecting, managing, preserving, and exhibiting museum material; 2. Providing education on museum material, and conducting professional and scientific surveys and research on museum material; 3. Conducting technical surveys and research on preservation, exhibition, etc. of museum material; 4. Holding various events related to museum material, such as lectures, lessons, movie presentations, symposiums, exhibitions, fairs, presentations, shows, explorations, and field surveys; 5. Reproducing museum material, and publishing and distributing various publications; 6. Cooperating in an organized manner with other domestic and foreign museums and art galleries, such as exchange of museum material, art gallery material, publications, programs, and information, and interchange of curators of museums and art galleries; 6-2. Hosting or encouraging various events concerning lifelong education; 7. Other projects necessary for achieving the objectives of establishment of museums.*

[3]*In the Old Testaments, 2 Chronicles Chapter 3 Verse 17 says that "He(Solomon) erected the pillars in front of the temple, one on the right and the other on the left, and named the one on the right Jachin and the one on the left Boaz. (NASB)" In Hebrew, 'Jachin' means 'He established' and 'Boaz' means 'He has the power'. Two pillars for national museums can be the law as foundation and the passion as power.*

[4]*The importance of the museum leader's passion was recognized in the article and statements of a director of the Metropolitan Museum of Art in New York: "Passion is what sells the museum. The Development Office paves the way and the Director's charisma and* ***passion makes the difference.****" (de Montebello, 1996)*

1. Differentiation: FM (Funny Museum) vs. PM (Prototype Museum)

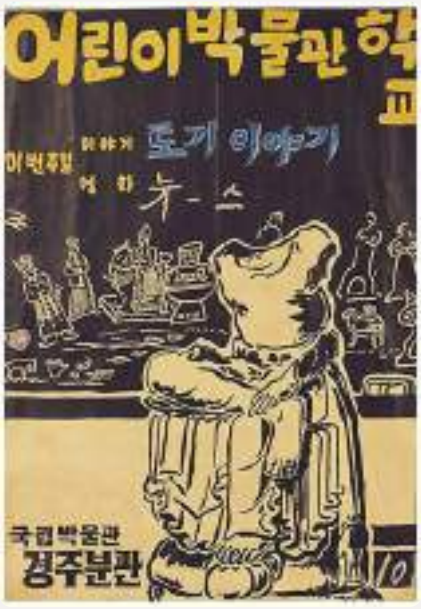
The answer for this issue is to make a museum as a news maker. One of the best commercial copywriters in early 20th century US, Bruce Barton(1886~1967) , in his book, The Man Nobody Knows, pointed out the best advertisement strategy learning from Jesus is to make a news and it must be No ROUTINE. Boring is the impression of most Koreans about the museum from the fixed and routine atmosphere. To make a difference, museums should develop interesting program with the level of being a news maker. In this perspective, the Saemangeum Museum can try some experimental programs: (i) 'Diplomat Week' for international exchange program to meet a group of participants from oversea museums through online; (ii) 'One Night & One Dream in the Museum': visitors can oversleep in the museum and have a program with different time zone community, for instance, the oversleep program at the Sejong library in Korea and American Museum of Natural History in US; (iii) 'Excavator Drive': kids like to operate a machine specially an excavator if it is possible and safe.

Proposed program is a 'Global Friend Museum Week' which needs cooperation with oversea museums related to the reclamation or waterfront city's museums. In this program, the open-hour issue can be solved too. The Open-hours is one of the complaints for the Saemangeum Information Center across the Saemangeum Museum.

This area is famous as the best location for sunset scenery. Yet, the closing hour before 6 PM matters. Therefore, if there is an overnight program with watching sunset and other meaningful events such as connecting foreign museums with different time zone, and providing cooking class or dancing with foreign culture can provide very unique and attractive experience. Based on the MOU between the Kingdom of the Netherlands and Republic of Korea regarding Saemangeum project; and the common concept of reclamation, two countries' cultural exchange program is recommended.

2. Who is the focused visitor of the museum?

The answer for this issue, the focused visitors, should be students, family with children and family with seniors. According to SDIA's administrator, the number of visitors to Saemangeum was over five million in 2018 after opening the bridges between Gogunsan islands (Kim, 2020). Among millions visitors, the study for building the Saemanguem Museum (2016) expected three groups of visitors such as group of kids, students and family. With this expectation, the museum's blue print should be child and family friendly with interesting learning opportunities. One of examples for this program development is the first children museum school in Gyeongju National Museum in 1954. Here, the director paid attention to possible visitors and concluded the focused visitors as the local children. Then, he developed interesting program for kids and found the space for program by opening his office.



Also, his strategy and management of the program was very flexible and well-responded to the needs of the children. So, the program had been changed from showing the photo of relics to playing a movie. The museum cooperated with US military-government office for borrowing a movie player and local school for using classrooms. To define the focused visitors can be a starting point for the customized museum with the Sustainable Development Goals.

3. Lack of the Storage Space: Open the Warehouse and the Branch-Museum

The answer for the more space from no space issue is to find another space in the museum or out of the museum. The first approach to find it in the museum needs a renovation such as opening the storage as an exhibition hall. A good example for this brand new trend is a Dutch Museum, Museum Boijmans Van Beuningen in Rotterdam which will display 151,000 art collections, which is almost 90% of treasures in fall 2021(McGreevy, 2020). With the vision of showing 100% whole collection to the public, the museum has

invested $95 million for a new accessible warehouse museum. Saemangeum Museum can adopt it to design the storage space for visitor's accessible area.

Also, second approach is to make various branch-museums. Here, SDIA needs to find a space in the public or government building. With the first approach's spirit, which is to display more collections, it would be possible to contact other institutions for using some space and designating it as a branch museum.

In Saemangeum area, the 1st floor hall of SDIA's building can be an exhibition hall for the Saemangeum Museum's collection, and the Saemangeum Development Corporation also has a space. Furthermore, like the case of New York Storm King Art Center, using a whole mountain park as a gallery with sculptures, the space of Saemangeum seawall can be a place for exhibition of the collections in the storage. Due to the enormous size of sea wall, it has even four lines road and two lines road.

The room space between the two roads can be a place for the exhibition of the collection. Therefore, the shortage of storage issue can be solved through finding alternative spaces and reopening the warehouse as a display area.

4. Maximize the Outside of Museum: The Outside Attracts Visitors to the Inside.

The answer for this issue is to maximize the outside area with attractive items.

The recommendation for the items is the followings: (i) balloon, (ii) gallery, (iii) food trucks, and (iv) beach activity.

For instance, in Korea, an ancient Soowon Hwa Castle became one of most visit places because of the helium balloon experience which flies over 150 meter with maximum 20 passengers for 10 minutes (Lee, 2020).

Having a helium balloon in the Saemanguem museum site, it will attract more visitors who want to see the size of 409 square kilometers development. The other idea of gallery is similar to the New York Storm King Art Center mentioned above Issue 3.

Also, putting a food truck outside of the museum, the cooperation with a local community and business association is required.

5. Community Participation: Ambassadors, Business cooperation, and Curators

One of good examples for the cooperation between a museum and local community is Gunsan Modern History Museum in Korea. This museum developed a business cooperation model with local community: (i) local food trucks can park in the museum area; (ii) the museum ticket gives discount for local store; and (iii) the museum website advertises local tourism. This local community friendly approach can be adapted to the Saemangeum museum.

As an improved method, the new museum may make an MOU with a local business association as a Museum's Ambassador for mutually advertising through museum's website and local stores on site. Having a child curator is another rich asset for a museum. Near the Saemangeum museum, there are some elementary schools with few students. For kid-curators, it is a good learning experience about world and local history, city development, and future industry. For the museum, having a kid-curator is another attractive point not just for kid's family members but various age groups.

6. International Cooperation and More Theme: Museum friends and activities via on-line

In the era of pandemic, international cooperation has been blocked in many ways. There is, however, another open-door for more interaction via on-line. To make a unique and interesting museum, various attempts to build a global cooperation are recommended. For instances, the Saemangeum museum may initiate an on-line program with the Netherlands reclamation museum to make a friends for children. In this program, the kids from each country may introduce themselves and doing some activities such as cooking traditional food, running a race in the museum. This activity will give a special impression of museum to the kids like a museum as a special door and place for global and unique experiences. Also, it can develop a type of global business by introducing each museum's souvenirs via on-line and make a real transaction. Also, during the online friend program, the resources for other country's cooking can be imported before the program with special discount.

Chapter III. Conclusions

The new Saemangeum Museum has faced some challenges to be one of the best museums among 874 Korea's registered museums and to overcome unexpected Covid-19 situation which was not reflected the plan and blueprint of the museum.[5] However, the new museum's direction meets the new definition of Museum by ICOM which is focused on "past and future" together (Geraldine, 2019). The request from Korea's Minister raised fundamental questions and issues for the Saemangeum Museum. The history of Korea's museums shows the direction and importance of director's passion for the visitors and museum. Under this unexpected Covid-19, we can maximize the new way of communication via on-line in the world of museum. Also, constant renewal and tries for the customized program and service will bring more visitors to the new museum. Indeed, it is a good new step to join the first ICOM online seminar and to introduce what the Saemangeum museum is. In order to make the Saemangeum museum's dream come true, ICOM members' interest and cooperation are required.

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Physical and Virtual Experiences on Contemporary Museums: The Case of MIS Rio de Janeiro

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Abstract

Since the 1960's the "traditional" museum architecture has been challenged in having to cope with an ever growing number of virtual forms of art such as videos, projections, films, performances, happenings, documentaries and video art that completely changed the relationship between one´s body and art: from an object/body/space fruition to the apprehension of a moving image and/or a moving body, that requires specific technical conditions of light, acoustics, projections and sets for interaction between performers and visitors. Nowadays, the Covid-19 pandemic and the need of social distancing affecting us since March 2020 has challenged museums and cultural institutions from all over the world to enable multiple virtual experiences of its buildings, collections and exhibitions, fact that calls for an urgent feedback on what museums are willing to stand for in a data informed virtual era that we're facing and what is architecture's role regarding it. Considering this context, this paper analyzes the MIS Rio de Janeiro by Diller Scofidio + Renfro, as a case study: a contemporary museum that presents a bold spatial proposal to cope with virtual contents and experiences, implanted at the loaded cultural and historical Carioca landscape.

Keywords

Physical / Virtual Experience on Contemporary Museum.

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Considering the long history of architecture, the museum typology devoted to the displaying of art and historical artifacts has been evolving through different spatial configurations that reflect the status of these cultural objects and their fruition according to each cultural economic context: the palaces transformed into museums like the Louvre in Paris, the lined up galleries of the neoclassic Altes Museum in Berlin, the first designed exhibition hall of the Secession Pavilion in Vienna, the adaptation of a commercial building at the origins of MoMA in New York, the modern free space of the Neue National Gallerie in Berlin, the postmodern walkscapes of the Stuttgart National Gallery, the programmatic mix

of Pompidou Center in Paris, and the spectacle of architecture's protagonism of Guggenheim Bilbao. All these different spatial propositions for museums and galleries where designed targeting excellency in experiences regarding art, historical objects and architecture that depend on the visitant's presence to achieve the best interaction with the cultural objects, being these conditions the fundamental aspects of a good architecture and a good exhibition design. Thus, it is fair to assume that "traditional" museum architecture and exhibition design could be considered the ones that depend on the actual presence of the visitant's body for the fruition of the works of art and historical artifacts, where architecture stablishes connections and builds statements regarding cultural, social and economic contexts.

Since the 1960's this "traditional" condition has been challenged in having to cope with an ever-growing number of virtual forms of art such as videos, films, performances, happenings, documentaries and video art, that completely changed the relationship between one´s body and the works of art inside the museum: from an object/body/space fruition to the apprehension of a moving image, or a moving body, that requires specific technical conditions of light, acoustics and image projections, and also, the different sets required by the performer's body in relation to his/her audience inside museum spaces.

The immediate impact of this change happened first on art museum's infrastructure needing to upgrade electric and data systems to achieve the growing demand of connections required, followed by the need to consider the ever-growing number of "black boxes" cluttering architecture's spatial fluidity and layouts. There was also the need for more multifunctional spaces apt to receive different modes of interaction between artists and audience indoors in museums and galleries that were not initially designed for it. These new demands defied the "traditional" museums' spatial configuration, its functioning, programs and use.

Although still depending on the physical presence of the visitor, museums devoted to moving images, sound, and performances could be regarded as "nontraditional" once lacking the major presence of "objects" of art and the props that come alongside them, not to mention the disruption of the narrative circulations that art objects' exhibitions depend on.

Since the first examples of museums devoted to the moving image[1] that have adapted old buildings and warehouses, closing windows and painting walls black to enable image projections, we have been seeing the appearance of new

[1] *The first Moving Image Museum of USA appeared on 1988 as an adaptation of an old film studio (see: http://www.movingimage.us/about/history) and the MOMI London – Museum of Moving Image of London was built in 1984-88 " (…) under a fast-track 'design, manage and construct' contract and the timetable (…) sandwiched as it was above a car park and below the southern approach road to Waterloo Bridge". Retrieved from: https://www.e-architect.co.uk/london/momi-london, consulted on October 2020.*

architectural projects dealing with the complex technology of moving image and interactive digital contents without failing to address the multiple tasks of a contemporary museum. The ZKM - Center for Art and Media Karlsruhe founded in 1989 is an important example of the museum typology's development trying to keep up and embrace contemporary art: "a cultural institution, a place that expands the original tasks of the museum: a house of all media and genres, a house of both spatial arts such as painting, photography and sculpture and time-based arts such as film, video, media art, music, dance, theater and performance, with the mission of continuing the classical arts into the digital age."[2]

The project also deals with the complexities of a listed, huge, industrial building of the early 20th century that adds an important layer of history to the contemporary cultural institution as a place worth visiting, besides its multiple contents.

All digital and virtual exhibitions, from simple wall projections to digital environments that need room for interactions have been challenging architecture to rethink spatial configurations accordingly, demanding not only sophisticated infrastructure of data, light and sound but quality spaces where people can move freely and safely, getting the most of a real/virtual reality experience.

As an example, Atelier des Lumières[3] has occupied the old disused Chemin-Vert foundry to create a Digital Art Centre in Paris. After major renovation on infrastructure works, the Atelier des Lumières opened its doors to the public with interiors transformed into a single, huge, "black box" with wall washing high tech moving images that hide architecture's qualities or defects, reduced as it is to multiple projection surfaces and enough free room to the visitant's roaming inside it. The exterior of the "black box", however, remains as object of an attentive design: the support programs, the welcoming of its visitors, the connections with the street and the city.

Last year, the exhibition "Bjork Digital" has occupied the Museum of Image and Sound of São Paulo[4]: all interior walls were painted black and the exhibitions spaces were divided into "stations", as hubs, to host several types of digital interactive contents. (Ills.1,2,3,4) The awkwardness of bodies plugged into virtual realities devices was striking to the ones inside the museum, waiting their turn to connect. (Ills.5,6) The museum space was hopelessly transformed into a sequence of zones scattered through a big all black interior where there was nothing else to do but wait your turn to plug in. Even though devoted

[2] *Official ZKM website available at: https://zkm.de/en/the-zkm, consulted on October 2020.*
[3] *Atelier des Lumières website available at: https://www.atelier-lumieres.com/en, consulted on October 2020.*
[4] *Museum of Image and Sound of São Paulo website available at: https://www.mis-sp.org.br/.*

Ill. 1. Exhibition "Bjork Digital" at the Museum of Image and Sound SP, 2019. External view of the museum. Retrieved from https://viagemladob.com/wp-content/uploads/bjork-digital-mis-sp-ft-710x503.jpg.

Ill. 2. Exhibition "Bjork Digital" at the Museum of Image and Sound SP, 2019. Internal view of the museum. Retrieved from https://www.mis-sp.org.br/assets/site/img/mis-museu-da-imagem-e-do-som1728.jpg

Ill. 3. Exhibition "Bjork Digital" at the Museum of Image and Sound SP, 2019. Retrieved from https://4.bp.blogspot.com/-uCBN4pcpmlQ/XL-VSsO18iI/AAAAAAAACuQ/ZMCu0FQivzAqo3K1WIuoz9FK-XCR0cb6ACLcBGAs/s1600/bj%25C3%25B6rk-digital-brasil-5.png

to Image and Sound content for years, the MIS SP and its "traditional spatial configuration" was not well prepared to a digital content. Digital interactive art and its modes of operation need architectural mediation to guide the visitant's body both in and out virtual realities without neglecting the "real" condition of such artistic proposal: an activity enabled by a cultural institution and all its complementary programs – a place worth visiting regardless its current attractions. In both cases discussed above, digital contents must be considered by thorough architectonic designs devoted to the specificities of such programs without failing to attend to the museum's core and all it stands for.

In times when the role of contemporary museums is being reviewed and questioned, this task stands as an urgent one. According to the International Committee of Museums (ICOM): "museums are participatory and transparent, and work in active partnership

Ill. 4. Exhibition "Bjork Digital" at the Museum of Image and Sound SP, 2019. Retrieved from https://2.bp.blogspot.com/-1x2HC8-ge5c/XL-MgH7Ta2I/AAAAAAAACtw/xjYoq5_3hNYmy5TGC3qiShyWg8AQypOxwCLcBGAs/s1600/bj%25C3%25B6rk-digital-brasil-2.png

Ill. 5. Exhibition "Bjork Digital" at the Museum of Image and Sound SP, 2019. Retrieved from https://imagens.som13.com/3051529/3051529/esta-confirmada-exposicao-da-bjork-aqui-no-brasil-no-mis-3_foto.jpg

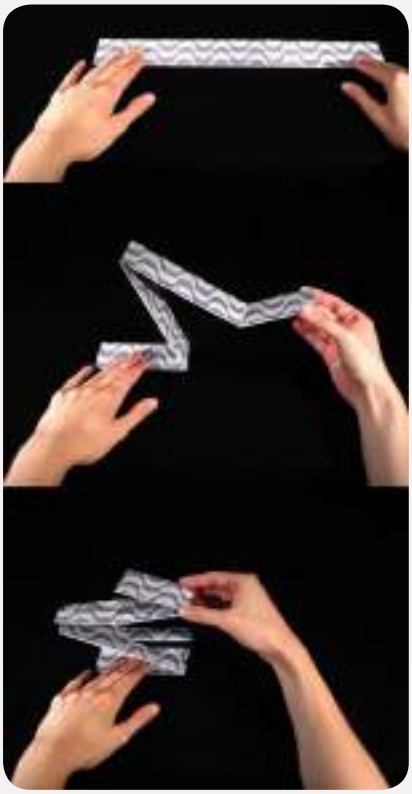
Ill. 6. Exhibition "Bjork Digital" at the Museum of Image and Sound SP, 2019. Internal view of the museum. Retrieved from https://3.bp.blogspot.com/-bS-B_0d4dEU/XL-csurzp0I/AAAAAAAACuc/Fae9l-4eBmkBDlayjD-6Q_0J5T2A94-vACLcBGAs/s1600/bj%25C3%25B6rk-digital-brasil-6.png

with and for diverse communities to collect, preserve, research, interpret, exhibit and enhance understandings of the world, aiming to contribute to human dignity and social justice, global equality and planetary wellbeing." This proposal concerns and calls for a renewed role where museums and cultural institutions must build a strong link with its local and global community, assuming tasks that go beyond the displaying works of art and historical artifacts, but the building of art and history's importance from within each community, be it tiny little villages on the countryside or huge metropolis, all tied together through the world wide web. From this perspective, the role of architecture and exhibition design gets an outstanding importance as the beacon attracting the community to actually meet under its roof and build together their own values and cultural statements, so they can be disseminated to the world. Therefore, the physical presence and the group recognition of the community inside the museum remain essential for the possibility of a fruitful virtual experience of "traditional" or "nontraditional" museums in contemporary contexts. It is my opinion, as an architect, all this is only going to be possible though a powerful architecture design.

The Covid-19 pandemic and the need of social distancing affecting us since March 2020 has challenged museums and cultural institutions from all over the world to enable multiple virtual experiences of its buildings, collections and exhibitions, posing an unavoidable question: what can and should remain virtual and what needs to come back to "normal". This fact calls for an urgent feedback on what museums are willing to stand for in a data informed virtual era that we're facing and what is architecture's role regarding it. Once museums allow virtual access to its exhibitions and contents, the physical presence of the visitor inside the museum gets a dramatic tone: why bother taking

one's time to go to the museum anyway? As a case study regarding the questions presented above, the Museum of Image and Sound of Rio de Janeiro presents an interesting proposal. It has gained new headquarters as the result of an international competition won by the New York architecture office Diller Scofidio+Renfro. It is an 8-story building located right on the famous Burle Marx Copacabana sidewalk, facing the sea. (Ill.7) According to the architects, "The promenade captures the key element of the beach—a space of the public in motion—on foot, bicycle and automobile. The building is conceived as an extension of the boulevard, stretched vertically into the museum. The "Vertical Boulevard" gestures toward inclusiveness: it gently traverses indoor and outdoor spaces and branches to make galleries, education programs, spaces of public leisure and entertainment."[5] The project is totally committed to the cultural and physical Carioca way of life, proposing the continuity of Burle Marx's sidewalk inside the building as a continuous walkthrough the facade up to the roof, an open-air theater. (Ill.8) The architectural promenade as proposed lead the public through a bottom up sequence of exhibitions and support programs enabled by generous steps that

Ill. 7. *MIS Rio de Janeiro by DS+R. External view Retrieved from https://cdn.sanity.io/images/q2tdbkqz/productiongTlW3NZ5rjvgzPFPtDN4z2xf-1375x1650.jpg?w=1000&fit=max&q=90*



Ill. 8. *MIS Rio de Janeiro by DS+R. Facade and main circulation. Retrieved from https://cdn.sanity.io/images/q2tdbkqz/production/BGOUe0yhzlC7NRzo9NJCAfhs-2200x4950.jpg?w=1500&fit=max*

[5] *The passage was quoted from Diller Scofidio + Renfro official website. Retrieved from: <https://dsrny.com/project/museum-of-image-and-sound?index=false&tags=cultural&section=projects> Consulted on September and October 2020.*

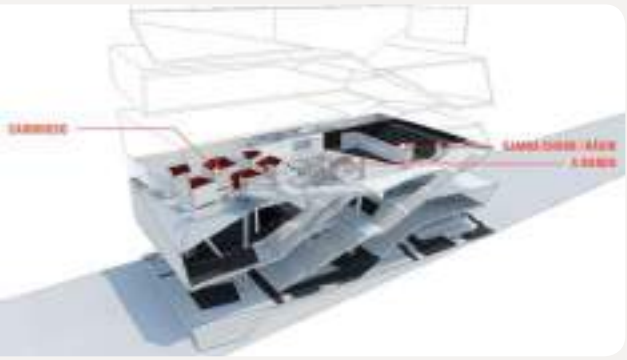
sews the facade, promoting an intense interaction between inside activities and the exterior landscape: the city, the beach, the sidewalk and the sea.[6]

The museography design by Daniella Thomas and Felipe Tassara has used many thematic rooms to show historical black and white images and films, and also music, through projections and interactive stations throughout the building. (Ill.9)

The closed exhibition rooms are strategically located within the architectonic design, building up the circuit, using transparences and suspended walls that, together with the complex spatial design, permits crossed views that superimposes different glimpses of different exhibitions, frequently reaching out the landscape outside trough the façade's aluminum cobogós. (Ills.10,11)

These spatial tools enhance the feeling of permanent awareness about the place one is in.

A simulated view of the "A Banda" exhibition (Ill.12), highlights the designs'



Ill. 9. *MIS Rio de Janeiro by DS+R. Museography by Daniella Thomas and Felipe Tassara. Retrieved from https://dsrny.com/project/museum-of-image-and-sound?index=false&tags=cultural&section=projects*

Ill. 10. *MIS Rio de Janeiro by DS+R. Museography by Daniella Thomas and Felipe Tassara: "Carmem Miranda" exhibition room. Retrieved from https://dsrny.com/project/museum-of-image-and-sound?index=false&tags=cultural&section=projects*

Ill. 11. *MIS Rio de Janeiro by DS+R. Museography by Daniella Thomas and Felipe Tassara: "Espírito Carioca" exhibition room. Retrieved from https://dsrny.com/project/museum-of-image-and-sound?index=false&tags=cultural&section=projects*

All the commentaries on the MIS Rio de Janeiro project were made possible through the material available at the Diller Scofidio + Renfro website: <https://dsrny.com/project/museum-of-image-and-sound?index=false&tags=cultural&section=projects> Consulted on September and October 2020.

spatial richness, allowing simultaneous views of different exhibitions and architecture's features that promote a lively conversation between what is happening inside and outside the museum.

Ill. 12. *MIS Rio de Janeiro by DS+R. Museography by Daniella Thomas and Felipe Tassara: "A Banda" exhibition room. Retrieved from https://dsrny.com/project/museum-of-image-and-sound?index=false&tags=culturale&section=projects*

To conclude, the Museum of Image and Sound of Rio de Janeiro offers us a valuable example of a contemporary museum that presents a bold statement: an architecture able to provide a state-of-the-art infrastructure for virtual and digital contents without neglecting the most important quality of a contemporary museum: to serve as a place open for all, where the community builds and fortifies its cultural values through collective experiences, and in so doing ensuring its own place in the global community.(Ill.13)

Ill. 13. *MIS Rio de Janeiro by DS+R. Open air theather. Retrieved from https://cdn.sanity.io/images/q2tdbkqz/production/Ahnsppez79hm3UP2oQrDqOMf-3000x2250.jpg?w=1000&fit=max&q=90*

From Revolution to Lyrical Paysage. The Experience of Reuse of the Exhibition Architecture in the Museum of Russian Impressionism

Yulia Petrova
Museum of Russian Impressionism, Moscow, Russia

Abstract

As a modern museum, we always appreciate the solutions which allow us to reuse some pieces of an exhibition architecture. It saves both money and the environment. But since the coronavirus changed the museum reality, the necessity to be creative and thrifty has become paramount, and now, more than ever, we are interested in keeping sources and sharing ideas among the colleagues around the world.

In the Museum of Russian Impressionism, we have only one space for temporary exhibitions, therefore the following exhibition replaces the previous one and it is always a challenge for us to make the same walls tell a different story for our visitors.

Due to the situation, we were forced to postpone the opening of a new exhibition and, moreover, to review the museum's expenses. In that case, we decided to keep the better half of the architecture and somehow integrate it into the new exhibition, which is, to be precise, extremely different from the previous one. Therefore, we will show you how the Museum of Russian Impressionism managed to make the new architecture design based on the constructions which we already had, and created its own identity for the new project.

Keywords

Museum
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Architecture
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Exhibition Design
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Reuse

The Museum of Russian Impressionism was opened in Moscow in 2016. It is a private museum, which is unusual for Russia, because most of the museums are state-owned. The size of our building is 2569,3 m², including 881,7 m² of exhibition spaces. Despite having a small building and permanent exhibition we remain competitive with the larger museums. We have 170 000 visitors annually and our permanent exhibitions

are always among the 30 most visited exhibitions of the year in Moscow and Saint-Petersburg.

Petrova_1 ©Museum of Russian Impressionism

The Museum of Russian Impressionism is based on the private collection of Russian businessman and philanthropist Boris Mints. Our permanent exhibition is dedicated to the Russian impressionism as a phenomenon.

But from the beginning the founder of the Museum Boris Mints and me as its Director have decided that our exhibitions will be more than that. We explore the art movements from the 1890s to the 1930s. This period is fascinating because there are several different art movements in Russia: Russian impressionism, Russian Avant-Garde and Soviet art.

Apart from that, we are interested in the examples of Impressionism from other countries, for instance, we have already had the exhibitions of Armenian and Spanish impressionism.

Now we negotiate with colleagues from Japan and hope to have an exhibition of Japan Impressionism. Also we hope to show American Impressionism at some point.

Another topic of our interest is to show Russian artists, who were admired and popular in their lifetime but afterwards became forgotten. The most common reason is the emigration from the USSR and, as a result, the exclusion from the national art history and the lack of awareness here. Many times we have heard that our exhibitions open new names for both amateurs and the professional community. Speaking about unknown masters is absolutely vital to create a distinctive character.

Petrova_2 ©Museum of Russian Impressionism

In order to create the atmosphere we use storytelling, metanarratives and deep emotional engagement for the visitors.

To achieve it we use the following methods:

- Music (contemporary to the artist, his favorite or somehow important in his life songs and compositions)
- Poetry reading
- Reading the authentic letters and memoirs
- Documentary recordings
- Feature films
- Or animated cartoons created by contemporary artists specially for this exhibition
- VR technologies
- Perfumes, created or selected for the exhibition

Speaking about perfumes, the smell could be a direct association to the painting like, for example, the smell of garden flowers or velour grasses. But also it is a wonderful process of creation or recreation, because, for example, for Annenkov exhibition our partner Nose perfumes recreated the favourite perfume of Russian Poetess Anna Akhmatova "Le Parfum Ideal" originally released by Houbigant in 1896.

Initially we added perfumes and music for our visually challenged visitors in order to broaden their impressions. But we noticed that it helps everyone and visitors love it, especially the youngest ones.

Nevertheless we believe that the most impressive tool is the architecture. The color palette, the lightning and design are key parts. But the challenge is that in the Museum of Russian Impressionism we have only one space for temporary exhibitions which floor space is 549 м², therefore the following exhibition replaces the previous one and it is always a question for us how to make the same walls tell a different story.

Just before the pandemic, we opened the exhibition of Russian-French artist Yuri Annenkov, whose life was dramatically changed by the Russian Revolution of 1917 and civil war. In this project, storytelling and museum scenography were key parts of the perception.

The exhibition was called "Revolution behind the door" and this title was polysemic. Firstly, it mirrors Yuri Annenkov's reality because revolutionary firefights and protests were literally near the painter's studio. And secondly when he immigrated in 1924 to France he figuratively closed the door and left Russia and the Revolution behind. In that case for this exhibition we built the additional wall in order to give the visitors a feeling that they are crossing the line along with the Artist.

Then according to our exhibition plan, we were going to open our next exhibition in June, but due to the situation we were forced to postpone the opening to September and, moreover, to review the museum's expenses. In that case we decided to keep the better half of the architecture and somehow integrate it into a new exhibition, which, to be frank, is extremely different from the previous one.

Instead of the revolutionary exhibition where several portraits of Lev Trotsky were displayed we were going to open the lyrical one by his contemporary Sergey Vinogradov, who avoided any mention of revolution and developed pleasant and peaceful themes in his art. One of his favourite subjects is life of country gentry. Our aim was to keep the expensive constructions and reuse them. We had the temporary wall made of medium-density fibreboard (MDF) and colored with water-based paint. We made a decision to transform and reuse it. Our permanent walls were also colored with water-based paint but the color was inspired by the paintings. The striped wallpapers like in Vinogradov's paintings are actually a colouring, which is cheaper and more usable than real custom or vintage wallpapers.

Bright stained-glass windows are also inspired by the paintings and made of plexiglass which is safer than glass and cheaper as well. The big showcase was likewise reused after the Annenkov's exhibition, we have just changed its color. After the graphic works, the postcards and magazines were displayed there. Consequently, through refurbishment we have managed to change the mood.

Petrova_4 ©Kaluga Museum of Fine Arts

Petrova_3 ©Museum of Russian Impressionism

Petrova_5 ©Museum of Russian Impressionism

Petrova_6 ©Museum of Russian Impressionism

New challenges forced us to find new solutions and we are capable of making the visitors' experience different and memorable using all available sources. Our case is an example of the possibility to reduce the initial budget without losing the quality of the exhibition.

The Conclusion

From ICAMT Online Conference 2020

Dear Members and Friends,

The first online conference in ICAMT's history finished and it was successful. I would love to thank so many people:

- ICOM president Mr. Alberto Garlandini, who found time and joined us as an invited speaker.
- The Conference organizing team – ICAMT board members.
- Our sponsor: "Imagemakers".
- Special thanks to the Conference participants – all panelists and, of course, the audience.

The Conference welcomed 18 panelists from 11 different countries. Around 90 to 100 attendees joined us each day: professionals, students, young people and new members from eight different countries. The publication (electronic proceedings of the conference, with all the presentations) is available on ICAMT's website.

The organizing group launched a survey that gave good feedback and insights of the Conference: 61% of the attendees found it very interesting, and 67% would highly recommend it to their friends. Most participants were happy to hear new voices from different regions of the world.

The survey results also showed that our audience is eager to know more about:

- Digital innovation
- Technical issues and materials for better and sustainable exhibitions
- Solutions for low-budget realities
- Post-pandemic approach case studies

All listed issues are useful tips for our next conference, which – we hope – will be held in usual, on-site format next year. Let's hope for better times together!

Nana Meparishvili
Chair of ICAMT

ICAMT ICOM international committee for architecture and museum techniques

ICOM international council of museums