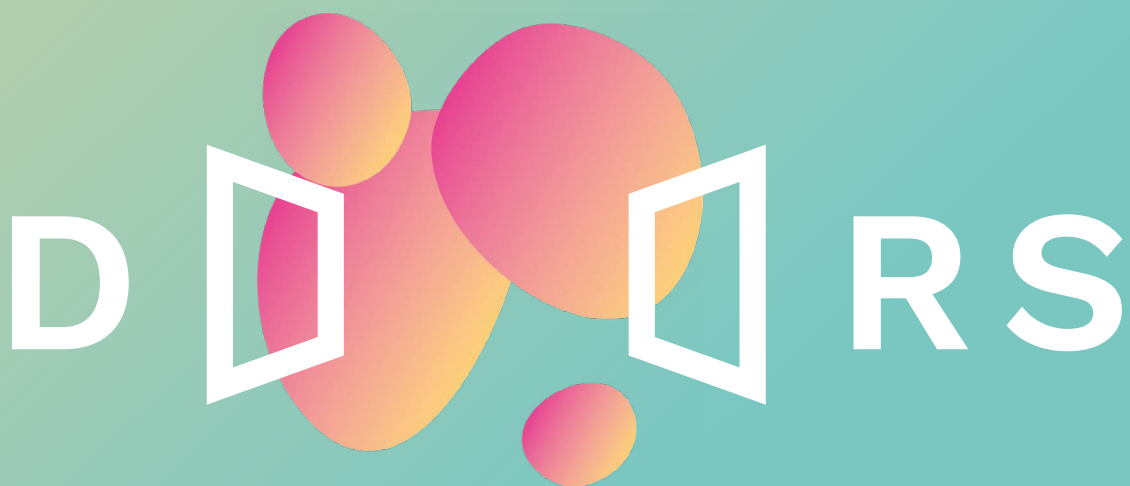


# SPARKLE

report II



Digital Incubator  
for Museums



# D **RS** Digital Incubator for Museums

[DOORS – Digital Incubator for Museums](#) was a project dedicated to digitalisation in small and medium-sized museums seen as a way for them to stay relevant and resilient in uncertain times. Initiated by partner organisations Ars Electronica, MUSEUM BOOSTER and ECSITE and funded by the European Union's Horizon 2020 research and innovation programme, DOORS ran for two years from October 2021 to September 2023.

The project was conceived as a support scaffolding for museums at a moment in which attitudes towards the digitalisation of the sector had been changing, amidst the pandemic. The accelerated pace of technological developments and the pressure coming from the competition with on-demand content created on one hand haunting insecurity, but on the other - a strong desire for change. Despite the urgency, digital strategies for the future can be neither makeshift nor standard. The challenges of digitalisation are disproportionately found within smaller museums where the technologies and expertise to launch and sustain digital strategies are oftentimes unattainable. DOORS has been aiming to approach and mitigate the digitalisation gap by creating the space for small and medium-sized institutions to both voice their needs and offering them access to knowledge, resources, expertise and community of peers.

The overarching mission of the DOORS Incubation Programme was to spark lasting changes in small and medium-sized museums. We hope these changes would outlive our programme and boost a sustainable digital transformation on the institutional and sectoral level. Our two-stage incubation programme focused as much on the projects as on the teams and practitioners behind them and their potential to continuously drive change.

A project initiated and run by:



Ars Electronica is a cultural institution, educational facility and R&D lab based in Linz, Austria. Since the Ars Electronica Festival first took place in 1979, Ars Electronica has developed a unique, comprehensive approach to techno-cultural phenomena and gained worldwide recognition. Ars Electronica now includes four divisions — the annual Ars Electronica Festival, the Prix Ars Electronica, the Ars Electronica Center, and the Ars Electronica FutureLab – that work in parallel yet inspire one another in a circuit of creativity. From the international, artistic experimentations celebrated with the Ars Electronica Festival and the Prix Ars Electronica, to the local educational and entertainment programme of the Ars Electronica Center and the ground-breaking research conducted in the FutureLab, their approach responds to the Zeitgeist and transgresses disciplinary boundaries to create a space of dialogue and inter-disciplinary translation.

#### **ROLE IN THE PROJECT**

##### **THE PRACTITIONERS & DIGITALISATION FORERUNNERS**

Since its opening in 1996, the Ars Electronica Center invited visitors of all ages to reflect on the effects of digitalisation on our society. In their role as coordinator of DOORS – Digital Incubator for Museums, Ars Electronica shared with those at the start of their digital transformation the expertise gathered from years of critical and artistic reflection on digital developments, digitalising their own content, as well as coordinating and participating in European projects.

MUSEUM BOOSTER is a Vienna-based research & consulting company committed to the strategic advancement of museums and cultural institutions through digital transformation and organisational innovation. MB focuses on audience intelligence, visitor experience, data management and organisational innovation, to help museums, science centres, cultural sectoral agencies evolve and enhance their relevance as society changes. They also advise policymakers, funders and investors on their projects and work with and for cultural institutions.

At the core of practice is research, collaboration & sharing. MUSEUM BOOSTER has developed and runs signature projects such as [Future Museum](#) and [Museum Leadership House](#), working with 70+ museums around the world. They partner with leading research organisations, including Fraunhofer IMW, the Institute of Digital Culture at the University of Leicester, Vienna University of Economics and The Audience Agency.

#### **ROLE IN THE PROJECT**

##### **THE RESEARCHERS**

Drawing from their experience in similar projects, and the ongoing extensive research and analysis of best practices within the cultural sector, MUSEUM BOOSTER built a comprehensive incubation programme intertwining knowledge sharing, training and mentoring formats, activities for community building and inspiration sessions.

Activating its global database of 5000 museums and an ever-expanding network of creative technologists, digital transformation leaders and experts in new revenue development, MUSEUM BOOSTER engaged external expertise and strengthened the DOORS network fostering collaborations and partnerships for future experiments.

Ecsite, the European Network for Science Centres & Museums, is the only Europe-wide network organisation linking science centres and museums, natural history museums, zoos, aquariums, universities, and research organisations. The common thread uniting these organisations is a commitment to public engagement: pursuing the vision of fostering creativity and critical thinking in European society and emboldening citizens to engage with science and technology. Ecsite facilitates co-operation among Europe's science centres and museums by establishing standards, sharing expertise, disseminating best practices, encouraging collaboration, and developing training programmes. The Ecsite Conference is Europe's most prominent meeting bringing together 1,200 science engagement professionals from around Europe and the world each spring.

#### **ROLE IN THE PROJECT**

##### **THE NETWORK MAKERS**

Ecsite used its experience working with and maintaining a unique network of 320+ science centres, museums, and partners to implement the DOORS' pilot programmes. In addition to that, Ecsite led the development of a [self-reflection tool](#) to help museums and other cultural institutions understand their digital maturity levels and needs. Alongside MUSEUM BOOSTER and Ars Electronica, Ecsite also had a key role in developing the incubation programme.

# Emphasis on Capability is Fundamental in Uncertain Times

Digital devices, technologies, and platforms are transforming how cultural content is created, distributed, and consumed. The digital nature of cultural offers in its turn imposes a change in the value chains and demands new value and business models. To quote Maaïke Verberk “many cultural organisations still consider digital transformation to be just the implementation of digital technologies. In reality, it means fundamentally changing your business model. It is human work that requires new conversations, new partnerships, new skills and new ways of working.”<sup>1</sup> The question with which we started developing DOORS as a Digital Incubator for small and medium-scale museums was how to create transformative processes, people, technology. Beyond increased access, enhanced engagement, and novel marketing applications, the integration of digital technologies and practices in the museum sector can and should have greater and more long-term impact. Our belief is that an emphasis on capability is fundamental in uncertain times.

Digital is multiple and taking this multiplicity seriously means carefully considering the different perceptions and mindsets with regard to digital potentialities that vary by region, field of expertise, organisational typologies and sizes. As Ross Parry put it, digital is not ‘about’ technology<sup>2</sup>, but about being ‘with’ technology.[2] Understanding digital as more than infrastructure or skills requires a substantial shift in thinking both about digital tools, their logics, and about ways of being and working together.

DOORS’ goal has been to refine and nurture context-sensitive inventive ideas and processes, support them along their way to implementation. As Lauren Vargas has put it, imagination is a vital tool in the incubation process where a shift in mindset is crucial, that allows failure to be recognized as an opportunity to learn and improve rather than a deterrent. Developing digital mindsets requires careful and strategic planning, the openness to re-assess and change course, as well as time and patience along this quite turbulent and oftentimes emotionally uncomfortable journey.

## Why a report?

A report is a format to document DOORS process and outcomes, and a familiar one to both museum practitioners and stakeholders in the sector.

As we believe in people-centred museology, recognising that communities and individuals critically shape how we create, collect, conserve and share collections and knowledge, we follow this approach in giving shape to this report. It offers a polyphony of voices from a diverse cohort of institutions, from peers and teams across geographies, fields of expertise and creative domains sharing their hands-on experience of developing pilots in small and medium scale museums and telling stories in an authentic and oftentimes emotional way.

<sup>1</sup> Carabelea, A.-M., Tykhonova O., Bes Alonso P. (2023) Breaking the Digital Ceiling. Key Insights from DOORS – Digital Incubator for Museums, <https://ars.electronica.art/doors/files/2023/09/breaking-the-digital-ceiling.pdf>

<sup>2</sup> Parry, R., Royston, C., James, D., Finnis., Dziekan, V. (2016). It’s all in the confidence: Co-designing the future of museum digital literacy. Proceedings of Museums and the Web 2016.



DOORS abolished the wording “best practise” and introduced a more metaphorical term. We were nourishing cases that offer “sparkles” of inspiration, courage, curiosity and learning. The first edition of the Sparkle report was published as an inspiration and invitation to start the conversation. But since the incubation programme has been inhabited by a cohort of 20 small- and medium-scale institutions, their digital pilots now form a second constellation of sparkle cases. With DOORS’ sparkles we aim to illustrate how digitalisation can be organically in-built in the general developmental strategy of institutions, instead of being consigned to isolated endeavours and investments.

All in all, we believe the success of the DOORs 20 sparkle cases is to be measured not only through launching their projects, but rather in time against the success of the teams’ journeys towards a digital transformation. Our sincere hope is that DOORs illustrates how cultural organizations of any size can achieve more through collaborative relationships built on principles of openness, shared reflection, and foresight. No single cultural organization can foresee or overcome today’s complex challenges alone. Curious times demand us to be more open to future collaborations, become braver and more curious ourselves, prepared to embrace change and become more adaptable.

## Format.

Aligning with the agile nature of DOORs as a project and in the spirit of the first edition of the Sparkle report, we allow form to follow content. Stories of experimentation inhabit a simple structure of case cards to talk about their teamwork, aspirations, collaborations, challenges and future perspectives in their own voice and style.

This edition of the Sparkle report is structured around four Innovation Areas that have been the backbone of the DOORs Incubation programme and piloting: **innovating audience analysis and engagement, new content distribution and revenue models, strategies for integrating infrastructures** and **experimental ICT programmes**<sup>3</sup>.

For each chapter we also invited a number of exquisite colleagues to contribute their unique voice, expertise and experience in the format of “Highlighted by” inserts.

With this report we invite you to get your inspiration, to find comrades and peers in efforts and courage and, hopefully, to leave with insights.

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<sup>3</sup> This innovation area was designed to encourage experimental pilots which change the use, application, or perception of ICT (Information and Communication Technologies) innovation in the museum sector and due to its collaborative nature, single-institution applications were not eligible.

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# Embrace Your Hidden Digital Labour!

From live treasure hunts and interactive fictional experiments at The Computer History Museum to Interactive Hubs at the Museum of Urban Wooden Architecture, all partners in the DOORS Digital Incubator programme have needed digital courage – and a lot of hidden digital labour – to ideate, design, and deliver their pilot projects. Staff have shown vulnerability, openness, honesty, and humility to acknowledge what digital skills and expertise they lack. They have adapted their ideas according to limitations placed upon them by external parties – funders, governing organisations, and other stakeholders – in terms of wider needs, timescales, bureaucracy, and staff changes. They have learnt that digital experimentation is messy, unpredictable, and always a victory only partially won. Programmes like DOORS show us how digital courage and hidden digital labour, its inevitable counterpart, typifies the future of all work in museums, not just digital work.

As I have stated elsewhere ([MuseWeb](#), 2021), my understanding of the term “digital courage” reclaims an idea of the radical, equalising role of technology in museums. It sees digital activity as a more collaborative and less individualistic process than “digital confidence, an activity that places equality at its core. It is a practice that depends on the workforce being enabled to experiment and play with digital; to tell their own stories with it, to plot their own paths. “Digital courage” asserts that acquiring new digital skills is an exercise in freedom where museum workforces adopt new technologies whilst at the same time acquiring the rights to reinvent them.

What we see through the experiences of the DOORS partners is a group of museums engaging in practices of “digital courage” to future-proof their collections and processes. I witnessed this myself in 2019 at Brighton & Hove Museums – a five-site museum service based on the south coast of England, UK. At that time the institution was changing its governance status – moving from the local council authority to independent Trust – and reflecting on its mission and purpose to re-model itself as an independent entity. This institutional soul-searching meant that internal policies on social media and online communication were being challenged, with different staff in different departments feeling by turns hopeful, frustrated, or reluctant about how the organisation was owning its presence on social media. It was clear that they needed a new vocabulary to understand the change they were undergoing, and digital technology was perceived as one way that the workforce might collectively (and effectively) transform their organisation.

Over four 90-minute workshops for those working at all levels of the museum regardless of skill or interest in social media, 40 staff contributed to the writing of a new social media blueprint for the organisation when it moved to Trust ([Frost](#), 2020). The workshops considered what kind of approaches to online communication were needed to capture the value of the organisation’s objects, stories, and communities. The current and potential role of social media was brainstormed, and we worked through a series of real-life scenarios where the organisation had been required to respond quickly and coherently to social media attention. Staff and volunteers mapped areas of digital expertise, skills, networks, and partnerships that may have been unknown to the rest of the organisation and, finally, a frank and critical discussion was had about the future role of social media. The overall process was consensus-led; it involved the courage of staff to invent their specific approach to online communication, shaping it to fit the values of the organisation within the communities of Brighton and Hove. As a result, the workforce decided they had three main requirements of social media. First, to be an active participant in different online communities, communicating the organisation’s relevance to society and the community whilst enabling dialogue with other networks. Second, to use social media to build audiences and to advertise and, third, to tell stories about the collection. Voice, audience, and storytelling: the three objectives of social media at Brighton & Hove Museums.

What was most inspiring about these museum staff was their creative agency, which I came to see as a phenomenon that comes about from striving to adopt digital in an alternative, less top-down kind of way. The term “agency” is synonymous with ideas of autonomy and freedom. Economicist and philosopher Amartya Sen summarises this when he recognises an “agent” as someone who acts and brings about change, whose

achievement can be valued in terms of his or her own goals (2001). Sharon Salzberg, renowned teacher of Buddhist meditation, takes this further when she describes agency “as that purposeful, embodied, heartfelt movement from deep within” which comes about in response to personal or societal striving for change (2020). Since the pandemic, the need for digital maturity in museums and heritage organisations has never been greater, surfacing as an issue experienced at both personal and collective level. Across the sector, we have striven – sometimes without reward – for greater creative agency to tackle chronic shortfalls in digital skills, maturity, and resources.

Creative agency is crucial to “digital courage”. Promoting the agency of staff members and volunteers in their own digital learning – encouraging the picking and choosing of skills and needs that they most wish for – is a form of “diversity work” as defined by activist academic Sara Ahmed in 2018. Developing diverse and distinctive levels of participation, thought, and action in the digital training of museum workforces bolsters institutional ambitions for diversity and empowerment. Practicing new digital skills empowers workforces to be agents of change and proponents of freedom. There is no one-size-fits-all approach to undertaking “digital courage.” Instead – and as we have seen throughout the DOORS initiative – it can be practiced in distinctive, idiosyncratic ways depending on the context and communities of a given museum. It is at one and the same time an ideology, a principle, a new vocabulary, and an action (or set of actions), which promote the use of technology in creating profound change in our attitudes towards and practices of equality.

*While it takes digital courage to iterate new museum futures, it also takes a lot of hidden digital labour.*

Working with technology in museums is an emergent form of work that needs deeper understanding. In sociologist Gina Neff’s words: it “doesn’t have the same settled social forms that factory labour or financial labour have had in the past” (2012). There has always been “hidden” labour in museums, in all cultural institutions; the ways they have historically been established means that certain voices have been prioritised, certain stories told, and certain workloads celebrated more than others. The task now is to uncover what kinds of labour have been hidden within *digital* activities in museums, so we can better understand all the forms of labour fundamental to our museum futures.

Artist, writer, and activist Gregory Sholette has described the secret glut of artists, cultural workers and producers that make up the art world. It was Sholette who introduced me to the idea of the “missing” and invisible mass of workers which make up the foundation of the cultural sector. He states that “the presence/absence of a vast zone of cultural activity can no longer be ignored” (2011). Applying Sholette’s ideas to the museum space helps us suggest that digital labour in museums can similarly be understood as carried out by a “shadow archive” of workers; the value of their labour needing further celebration and acknowledgement. When embedded at the Science Museum Group (another five-site museum service in England) in 2021 I met staff who undertook a lot of hidden digital labour to help it maintain its position as custodian of England’s technology, science, maths, and engineering history. It was the hidden digital labour of these museum workers (and volunteers) that ensured the institution’s mission to grow science capital, but this hidden digital expertise was often subject to different kinds of valuation in the museum complex. An Archive Manager at the National Railway Museum in York, for example, showed me how overlapping and complex areas of her work with the museum archive and its communities – the sheer abundance of objects and drawings in the collections she is responsible for, accompanied by an unwieldy computer legacy and competing digitisation agendas – led to a tremendous amount of invisible digital labour. Later I spent time with a Collections Data Officer, from whom I heard how daily tasks such as establishing suitable naming conventions, cleaning up and figuring out existing problems in the data, and dealing with the acquisition backlog require persistence, care, clarity, and impartiality to get the job done. I learnt how an alternative job specification for a Collections Data Officer might read: “requires a combination of intellectual labour, digital labour, emotional labour, and the ability to work laterally, collaboratively, across the museum.” You can hear these testimonies for yourself on *The Hidden Constellation* podcast (2022).

Rather than shy away from hidden digital labour however, staff at Science Museum Group showed me how to accept its challenges and use them as a form of “digital courage”. Here are some of the tips I learnt:

1. Don’t be afraid to restate the role and value of mindful, context-driven, person-centred digital practices for your institution to *anyone* who will listen, from leadership and trustees to volunteers and floor staff.
2. Make “innovation allies” in digital teams in galleries, libraries, archives, and museums elsewhere. Learn and share with them.
3. Adopt SMART (Specific, Measurable, Achievable, Relevant, Time-bound) principles in your approach to your own hidden digital labour.



4. Include everyone in your organisation in the conversation, even if they claim they have no digital smarts.
5. Self-care, self-care, self-care – whatever that means for you. Digital labour in museums is exhausting and never-ending. Try to keep it in perspective.

Hidden digital labour is inevitable for museum people, yes, but it is underpinned by an emotionality, a sensitivity, and a form of care that is of utmost importance if you want to take all your museum communities with you on a journey. Ultimately, *people* are fundamental to the success of any digital work in the museum. They know things the database can't. Here's to a future where digital courage and acknowledgement of the hidden digital labour involved in museum work reigns free.

## REFERENCES

- Ahmed, S. 2018. '[Facing Change: DEAI/AAM Working Group Report](#)', American Alliance of Museums
- Frost, S. 2020. '[Agree a Social Media Blueprint for Your Museum](#)', Culture24's Digital Pathways
- Frost, S. 2021. '[Learning "Digital Courage": Using Technology to Build Agency and Equality in the Museum Workforce](#)', Museweb
- Frost, S. 2022. [The Hidden Constellation podcast](#)
- Neff, G. 2012. *Venture Labor: Work and the Burden of Risk in Innovative Industries*
- Salzburg, S. 2020. *Real Change: Mindfulness to Heal Ourselves and the World*
- Sen, A. 2001. *Development as Freedom*
- Sholette, G. 2011. *Dark Matter: Art and Politics in the Age of Enterprise Culture*

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# Innovating Audience Analysis and Engagement

In this innovation area, some museums dive into audience analysis and understanding to improve their segmentation models, design more complex and personalised user journeys, services and cultural offers, or attract new, more diverse audiences. Others focus on engaging audiences by experimenting with the visitor experiences, whether by building bridges between the online and onsite, bringing collections outside out of the traditional museum space, or augmenting the exploration of onsite collections with digital content.

# NEO Collections and NEO Lab: How an Exploratory and Open Approach Helps Us to Understand Audiences and Engagement with Digital Collections in a New Way

In 2020 [Museum für Kunst und Gewerbe Hamburg](#) together with the [Nationalmuseum Stockholm](#) and the [Übersee-Museum Bremen](#) set out to explore innovative ways to engage with museum collections online and onsite and to reflect on their own museum practice. With the [NEO Collections](#) project - **N**: nutzerzentriert (user centered), **E**: explorativ (exploratory) and **O**: offen (open) - the three partners have been discovering new modes of working with other museums, critical friends and new communities. In this article I will share what the Museum für Kunst und Gewerbe Hamburg have discovered along this journey.

## The starting point

NEO Collections was consciously conceived with no specific pre-identified product in mind. It has been built through an iterative approach, i.e. working in cycles, co-creating and developing prototypes, together with colleagues from different departments, (not only digital) as well as with an external (so-called digital) partner. This gave the museums the opportunity to experiment, allowed us to really explore and understand the problem we wanted to solve.

With the launch of the [Collection Online](#) in 2015, the MK&G was the first art museum in Germany to implement an open access policy, which enables the subsequent use of the data and assets for learning, research, outreach, and creative purposes. In the course of this endeavour, machine-readable data was also made available and was further used in a variety of ways, e.g. in the cultural hackathon “Coding da Vinci”, Wikipedia editathons, creative and research projects as well as used by other national and European databases.

Despite these diverse explorations and experiments, the predominant format of how objects and their associated information are accessed and represented remains the search slot and the catalogue entry. We knew that our audiences liked to use it for inspiration. How? We ran a survey some years ago. But we also realised that we didn't know enough about the needs of our audiences using the [Collection Online](#). So where to start in order to find out more about such needs: looking at analytics ourselves or hiring someone to do so and translate it to us? It turned out that one of the most effective and surprising ways to get to know more about audiences is actually to use “digital” to invite people and to ensure we listen to them.

## Discovery mode: Heavy user conversations and experiments

In UX Design frequent users of a digital service are mostly referred to as “extreme users”. In our case we called them heavy users. They use a tool a lot more than “regular” ones and are able to point out possibilities of improvement, which then can also be helpful for a wider audience. We invited people who we knew were using our and other museums digital collections: a designer and an artist who have been reusing images for their own creative work, a creative entrepreneur who is using online collections as source of inspiration, teachers who use online collections in art education, a data scientist who analyses big data from online collections and an author who was inspired to write a bestselling novel about objects from the museum because she saw some of them online and also used the free-to-use images in the accompanying digital layout of the book.

Each of these users was paired with a couple of colleagues from different museum departments. The meetings were not planned as qualitative interviews but rather as mutual conversations that gave users the possibility to ask questions themselves and thus allowed the colleagues to get to know more about the creative and working processes that shaped the needs. So talking to people rather than looking at numbers actually helped us to better understand what the problems were. What is more, it was a genuinely rewarding experience.

In this discovery mode mindset we also carried out an experiment. We used an open source tool called [Collectionsope](#) developed by the [American Museum of Natural History's Science Visualization Group](#). The tool allows different visualisations of collections and we filled it with our published collections data. We wanted to try out how we could - based on our data - allow different entry points to the collection. It also gave us the opportunity to address another crucial issue that surfaced during the conversations: how to make an end visible? This experiment made our blind spots in digitization and documentation visible as well as mindfully acknowledge the limitations of these kinds of collection visualisations. These have fueled and informed our discussions with colleagues at MK&G.

We used the heavy user interviews and the data experiment to identify key questions and statements to guide the further development of the digital collections.

For example, how might we:

- A. Help someone discover the collection without any curatorial knowledge;
- B. Help users establish emotional connections as a starting point to smoothen access and discovery of our vast and at times overwhelming digital collections;
- C. Help users understand the collection without seeing it in full;
- D. Make the biases and blind spots visible and discoverable and thus open up discussion about the collection;
- E. Explore new, less obvious and/ or hidden connections between objects.

Instead of hiring an external agency to find solutions for the above-outlined challenges we refrained from setting out expected outcomes and deliverables and instead invited others to bring their interests and experiences to explore the questions collectively and collaboratively. We set up two different formats to help us. The first as an online fellowship for multidisciplinary practitioners mainly from outside the museum world to conceptualise ideas. The second one enabling exploration of the collections as data with experts in documentation, data and design. Establishing new formats we employed user-experience design methodologies and co-creation.

## Online Fellowships and Onsite Prototyping

Launching an open call and offering a paid fellowship we invited multidisciplinary teams to work with us on finding concepts or developing prototypes to address the key questions derived from the heavy user interviews. The fellowship was led by our digital partner Dr Abhay Adhikari ([Digital Identities](#)). We were surprised and overwhelmed by the international response to this open call (which has been downloaded over 1400 times). Many of the selected fellows came from outside the museum world, and we found ourselves, museum professionals, acting as critical friends for diverse teams of visual storytellers, filmmakers, graphic designers, and women rights activists. In order to get into an discovery mode the fellows were asked to have a playful open approach: not to think in end-results, but to explore. This was empowered by workshops about listening and trust as well as audiences and accessibility. In return it enabled us to acknowledge our blind spots, to avoid redundant discourse and to address different user groups in unexpected ways. The teams have been developing ideas and concepts around accessibility, marginalised groups, community building, visualisation of the collection and storytelling in ways we would have never imagined! The underscoring of all the concepts have been emotional language, connectivity and belonging.

Consequently, we organised an onsite prototyping sprint at MK&G for the two groups to work with creative technologists over the course of one week and turn their concepts into viable interactive prototypes.

One of the prototypes built by the fellow and creative technologist, called "Have a seat", enables users to explore objects of the collection, reflect on and question their own perception of design objects and their possible use in relation to their own gender identity. Such an approach explores pathways for emotional connections with museum collections, rather than just functional relationships. Using the example of seating furniture from the MK&G Collection, the web application poses questions to users and thus contributes to a gender-sensitive understanding of design. The prototype was developed by fellows Konstantina Bousmpoura und Antonia Stergiou together with Tanya Boyarkina and Oscar Cass-Derwisch and is currently being tested and further developed

for publication. In an [interview](#) about their experiences during the fellowship Konstantina and Tonia highlight “the crucial importance to offer points of contact to different user groups connecting their life experience to the historical objects and issues present in the museum’s collections”.

## Data Exploration Sprint

As other questions have surfaced within our data experiment, such as how to explore the collection without seeing it, we set up yet another format. A Data Exploration Sprint was designed and held for experts from different fields –scientists, designers and web-developers – to come together at MK&G for an intensive onsite data and coding workshop. Over the course of five days, we joined forces with MK&G staff to explore their entire collection data (usually hidden in collection management systems) using digital methods and research questions. The workshop was conducted in collaboration with the [Institute for Digital Heritage](#) and [Studio Calibro](#). The data needed to be prepared in different formats to allow for different approaches to its analysis and use. The teams encountered and found each other during the first day. Over the course of a week, the participants developed [software prototypes, data visualisations and explorations](#) that allow to recognise biases and blind spots in collection information but also new and hidden connections between objects.

One of the prototypes developed during the Data Exploration Sprint is “Objektforscher”, a web application that enables playful and intuitive discovery of the collection, requiring no prior knowledge and triggering the user’s curiosity. Employing artificial intelligence and metadata the collection objects are displayed based on similarities and thematic grouping. Michal Čudrnák, Igor Rjabinin and Philo van Kemenade collaboratively developed the prototype during the Data Exploration Sprint.

Currently we are working on developing the prototype into a web-application augmenting an upcoming exhibition by allowing the exploration of the vast digital archive.

## NEO Lab: A more holistic approach to audience engagement

The above outlined approach, framed as “[NEO Lab](#)”, enabled us to address engagement with digital collections in a new and different way. Instead of jumping to conclusions and making design decisions that become “straightjackets” for the online collection, the discovery mode and the two different methods led us to work in an explorative and more holistic manner ([Jiang 2022](#)). As we have been interacting with audiences directly and could better understand how they make meaning with and of the digital collections, our approach to engagement widened from purely quantitative metrics and functional needs to meaningful/intrinsic needs. Involving users as co-designers during the fellowship, and ensuring hands-on experience in a Data Sprint, a wider range of needs, such as social and emotional needs were uncovered and experimentation flourished.

NEO Collections is funded by the [Digital Culture Programme](#) of the [German Federal Cultural Foundation](#). Funded by [The Federal Government Commissioner for Culture and the Media](#). The project and also this article is a product of countless conversations with and contributions by great people who accompany us on our way, especially our project coordinator Marleen Grasse. To learn more about the NEO Collections project and to stay updated please have a look at the [NEO Collections Blog](#).

**Dr. Antje Schmidt**

is Head of Digital Strategy and Projects at the [Museum für Kunst und Gewerbe Hamburg](#) (MK&G). In her current role she is acting as a catalyst for the digital transformation of the MK&G. Together with her colleagues she aims at diversifying access to the collections, establishing a sustainable digital museum practice and finding new ways of working together — with communities, within the organisations, with interdisciplinary teams and across museums. Antje has been trained as an art historian and has been a lecturer on digital strategy and museum practice at the universities of Hamburg, Freiburg (DE) and Krems (AT).

## Rethinking Visitor Research in the Age of Digital

It is an exciting time to be in audience research in the museum sector. Visitation patterns have changed significantly in the last decade, and researchers focused on visitor attendance and evaluation can no longer rely on trends that the industry has consistently seen for decades. Museums have also really begun to push the boundaries of what it means to be a visitor - as many experiences now take place over digital and physical spaces (and sometimes not even within museum walls!). Further, traditional research methods - reliable for years - can now be supplemented with new forms of data collection to tell more meaningful stories about visitor behaviours and motivations.

When it comes to technology and innovation, museums are more and more frequently becoming the playgrounds for tech game changers - the kind of innovation that hasn't had wide adoption yet - so it is becoming increasingly important to understand how audiences engage with these new technologies and what impact they have on the visitor experience. Research then not only contributes to the evolution of these tech innovations but can help steer development in a way that makes sure technological interventions push the boundaries of the accessibility that public spaces such as museums can offer.

Finally, with so much data now available to museum professionals through digital and traditional means, it's important that researchers and museum professionals think about how and why data is collected within a digital intervention, what data is needed to understand behaviours and motivations, and how digital and traditional qualitative and quantitative research methods tell a more robust and meaningful story about the audiences' experience.

### What is different about audience evaluation for digital projects?

Evaluation is not a new concept for the cultural sector, and many museums and science centers of all sizes have established evaluation practices to understand audience engagement and visitation. From exit surveys to intercept interviews, we've come to rely on established research methods for basic evaluation of onsite experiences. Additionally, the increasing collection and ease of access to data (such as ticketing, sales, membership, and attendance data) has meant that many institutions have been able to start to use these types of quantitative data to incorporate more data driven decision making into their visitor experience practices.

But digital innovations such as digital interventions in physical spaces ask audiences to engage with museums in new ways, and therefore we must think about evaluation in new ways to understand the impact of those engagements.

Luckily, the nature of many digital interventions means we can actually start to collect and look at data in a different way. Passive data collected about a visitor's digital behaviours (such as analytics and usage data on an app or a website) means we now have a way of understanding actual real-time visitor behaviours and use of digital products, without relying on visitor recollection through exit surveys. And while digital analytics can now provide behavioural data, museum and research professionals should also rely on qualitative methods such as surveys and interviews to dive deeper into visitor motivations, expectations and learnings. The innovation in audience analysis comes in the ability to use different types of qualitative and quantitative data together to understand the audience experience through various perspectives, telling a more holistic story about the impact an experience has had on a visitor.

## What should practitioners think about when evaluating digital projects?

There are three key things that practitioners should keep in mind when designing and executing research and evaluation regarding digital projects:

1. the visitor journey often spans the digital and physical spaces;
2. research at every stage of the project (from inception to development to evaluation) will save time, money and help deliver targeted and effective visitor experiences; and
3. research can help make physical and digital visitor experiences more accessible.

As museums and science centers become more aware of the opportunities for digital interventions and explore the way that the digital and physical experiences can overlap, so too is it critical for museum professionals and researchers to design and deliver research and evaluation that consider the experience as a whole, and not think about digital and physical as two separate experiences. The difficulty - from a research perspective, is that research methodologies that evaluate purely digital experiences (such as looking at the performance of a website via analytics) and research methodologies that evaluate onsite visitor experiences (such as exit surveys) - are often seen as separate - with different proficiencies or performed in separate departments. Therefore, it is important to think about how researchers can take a mixed methods approach in order to understand the full extent of the visitor journey of an experience, as it spans both digital and physical spaces.

Secondly, while evaluation is a very accepted and standard practice in museums, the value of research during the development phase is often overlooked. When creating new types of experiences (especially those that ask visitors to engage in a way that's unfamiliar to them), one of the ways that research can become really valuable is to bring audience voices to the development process from the beginning. From co-creation to focus groups, getting audiences involved from the inception of the project means that (often costly) development doesn't go down a path that makes an experience unusable, ineffective, and/or inaccessible.

Finally, as museums and science centers learn more about how to create accessible experiences, audience research during the development phases of a project can provide a meaningful way to push beyond standardised access requirements and start to develop experiences that set new standards of accessibility within the sector and beyond. Involving participants with various access needs in the development process can create meaningful conversations that can lead to more accessible digital interventions and visitor experiences, allowing technology to facilitate new experiences for visitors previously left out of museum spaces and narratives.

**Casey Scott-Songin**

is an anthropologist and audience research specialist based in the UK. Having worked as a user researcher at the British Museum and Senior Manager: Data & Insight at the National Gallery, London, she now is the director of [The Creative Researcher](#), a research agency that helps museums of all sizes better understand their onsite and digital audiences so that they can develop meaningful audience experiences. She also provides interactive trainings that help museum professionals, who may not have access to trained researchers, learn how to conduct audience research in a cost and time effective way.





## Who | Institutional Profile

<b>Institution</b>	<u>Stiftung Neanderthal Museum</u>
<b>Location</b>	Mettmann, Germany
<b>Short Description</b>	The Neanderthal Museum (NM) was opened in 1996 at the world-famous site where the first identified Neanderthal was found. The high standard of self-financing and visitor orientation is firmly embedded in the mission of the museum. The museum is an extracurricular place of learning and a particularly well-recognised national venue for an eventful excursion; it also functions as a place of specialist information on Neanderthal research and human evolution. The museum's core topic, human evolution, highlights humanity as a diverse community that is subject to constant change. In order to do justice to this claim, the museum's offerings range from layperson-level to scientific, and from analogue to digital.
<b>Ownership</b>	Foundation under public law (with the city of Mettmann as guarantor)
<b>Size</b>	Ca. 170,000 visitors a year

### Approach to Digital

*Input by Rick Springer and Anna Riethus*

#### **Part I**

#### ***The Mystery of the Visitors' Motivation***

***A reprint from the Reminiscences of R. M. Springer, late of the NM's Research Department***

The use of the digital has always been a matter of course in all departments of the NM and is constantly being adapted and expanded according to staffing and infrastructural possibilities. For larger projects within the framework of the digital transition, however, the NM is dependent on third-party funding.

#### **Exhibition management**

The concept of our media offerings in the exhibitions is to provide different media for different types of learners. The NM uses as many different formats as possible to address its target groups in as focused a way as possible:

- Audio narratives as well as short informative films are available as part of the exhibits.
- In 2021, the project [NMsee](#) created an inclusive museum experience for the blind and visually impaired via a mobile game and a corresponding infrastructure.
- In 2023, the mobile game [Eiszeitwelten/ Ice Age Worlds](#) was launched, which was developed with participation of pupils to create low-threshold, playable stories relating to the exhibition's topics in the digital space and outside of the museum.

#### **Communication & Marketing**

Digital media are an integral part of our communication. The NM is represented online on Facebook, Twitter, YouTube, Instagram and with an online blog. The content focus is set differently in the various channels, e.g.:

- blog: staff members from all departments provide insight into the museum's work;
- Facebook: promotion of exhibitions and events;
- Twitter: news from the world of science;
- Instagram: attractive photos highlighting events and exhibitions.

## Education

The museum's education program uses digital formats in various areas, e.g.:

- tablets available for school classes as part of workshops;
- GPS geocaching as a digital treasure hunt for various groups and families;
- live online workshops and guided tours.

## Research

The development and expansion of databases and 3D databases has always been an important pillar of our externally funded research, including:

- the development of the [NESPOS database](#);
- the development of the [Digital Archive](#);
- the digitisation of collections such as [DISAPALE](#) and [Sammlung Wendel](#).

Since 2020, in addition to archaeological research projects, the NM conducts third-party funded projects with a museological focus on the topics of inclusion, participation, diversity and visitor research. Also, a regular structure for audience surveys is to be established in order to best employ the financial and human resources in future. Increasing the range of the museum offerings and their quality in line with the requirements and wishes of the public is a goal for the upcoming months and years.

## What | Case

<b>Project Title</b>	<b>Digital Audience Analysis – Audience Segmentation Based on User Motivation</b>
<b>Timeframe</b>	November 2022 - June 2023

<b>Concept &amp; Approach</b>	<p><b>Part II</b> <b>A Digital Study in (all but) Scarlet Back in November 2020...</b></p> <p>It was one of those rainy Thursdays. The Covid-19 pandemic had the world and so also the Neanderthal Museum firmly in its grip. The new special exhibition had opened the previous week. Without any visitors. And there was no prospect of an imminent improvement.</p> <p>15:31. An email from the management. <i>“Dear Team, I started an ideas list on our Design Thinking Mood Board: Making money during Corona. I am certain you have many great Ideas. Please write them down. If you are working from your home office, please send us your contributions via E-Mail. Let's do It!”</i></p> <p>This email summarised in a few lines how non-publicly funded museums tried to resist the acute difficulties of the pandemic.</p> <p><b>A Cold Case - October 2022</b></p> <p>2 years later, living in the 'new normal' with Corona, visitor numbers have somewhat recovered. Like many other cultural institutions, however, the Neanderthal Museum has continued to face many questions: What remains of almost 3 years of pandemic? What impact did the many projects, communication campaigns and endeavors of museums and cultural institutions have? How is 'digital' integrated into our everyday work? And what do we actually know about the 'new' target group, which was only called the 'digital visitors' in the museum bubble? Basically: what drives our (digital) audience to visit us? Onsite and online?</p>
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Rick Springer conducting the onsite survey in front of the Neanderthal Museum, Stiftung Neanderthal Museum

### **Concept, idea & implementation – winter & spring 22/23**

A few large museums and consultancy agencies had started to address these questions, in some cases long before the pandemic, and found differing solutions for their specific cases. The Neanderthal Museum, however, was largely lacking data, especially in regard to the motivation of its digital visitors. The need for a structured survey and analysis of the motivation of analogue and digital museum audiences was all the greater. With the help of the DOORS Digital Incubator for Museums funding programme, the pilot project ‘Digital Audience Analysis - Segmentation based on Motivation’ was launched at the Neanderthal Museum. For the period of the project, an in-house visitor research ‘detective agency’ was established with a half-time position for the project period from November 2022 - June 2023.

The case ‘Digital Audience Analysis’ was not going to be an easy one. Within a little more than half a year, the “detective” hired for the case had to deliver results. Not only did the case have to be closed by July 2023. Rather, it had to be clear who visited the Neanderthal Museum and its website and why. Time was passing swiftly, and the team needed a clear battle plan.

The following goals were defined for the project:

1. analysis of the museum website and digital offerings using existing data from tracking and booking systems;
2. online and onsite surveys to explore the motivation of the museum audience;
3. segmentation of the audience based on visit motivations.

The following Key Performance Indicators (KPIs) had to be achieved within the project period:

1. Review available data on the use of digital content and services and formulate hypotheses on the following questions:
  - What motives drive visitors to visit the NM and Neandertal?
  - What motives drive users to visit the NM website?
  - Which of the digital offerings provided by the NM are used by visitors and non-visitors?
2. Segmentation of the NM’s audience based on existing knowledge:
  - 1-2 workshops with The Audience Agency on audience segmentation;
  - 1 internal workshop with NM staff (including representatives from different departments);
  - creation of at least 5 audience segments in terms of motivation.

### 3. Conducting onsite and online surveys

- development of a questionnaire asking about the motivation to visit the Neanderthal Museum, the Neandertal and the motives for using the NM's digital content and services (max. 20 items).

The onsite survey was to be conducted inside the NM, in the Neandertal (between playground, hiking trail, game reserve) and at a public place (Düsseldorf, Schadowstraße). It was to address at least one person for two days at each location and aimed at at least 150 responses.

The online survey was designed to be conducted via the NM website, newsletters (cooperating schools, Friends of the Museum, general) and social media channels (Facebook, Instagram, Twitter). It had to last at least two weeks (depending on feedback, extension to four weeks) and was aimed at at least 150 responses.

### 4. Evaluation of gathered data and dissemination of results implied

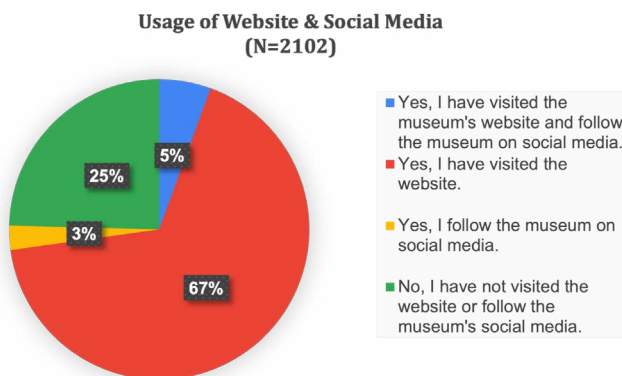
- presentation of the project at Ecsite 2023;
- summary and dissemination via e-publication.

### June 2023...

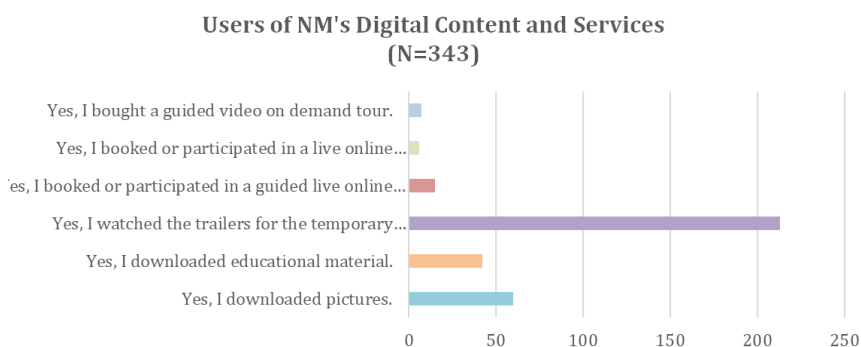
The complicated case is almost closed, although there are still pieces of the puzzle missing. Fortunately, the gathered information has lifted the fog surrounding the motivation of the visitors. The work on this case has produced some successful outcomes.

### The output in short

- digital audit of website, including visitor mapping and visit cycles
- in total 2,112 (!) responses to surveys (124 onsite; 1,988 online)
- in total 823 responses to surveys of non-visitors of the NM
- 3 consecutive segmentation workshops, including representatives from all departments
- 8 segments for the NM's audience in regard to motivation

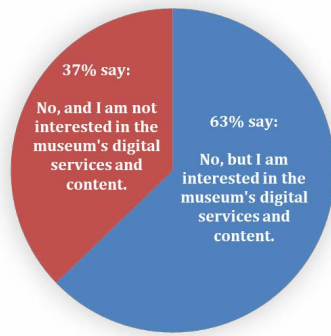


Usage of NM's website and social media channels, Stiftung Neanderthal Museum



Usage of different digital content provided by the NM, Stiftung Neanderthal Museum

### Interest in Digital Content & Services (N=1723)



Interest in digital content and services provided by the NM, Stiftung Neanderthal Museum

## Benefits & Impact

### Part III

#### *The Science of drawing information from data*

The work on the Digital Audience Analysis case has used existing and newly acquired data to create a basis for further research and for the general strategic direction of the museum in the digital realm.

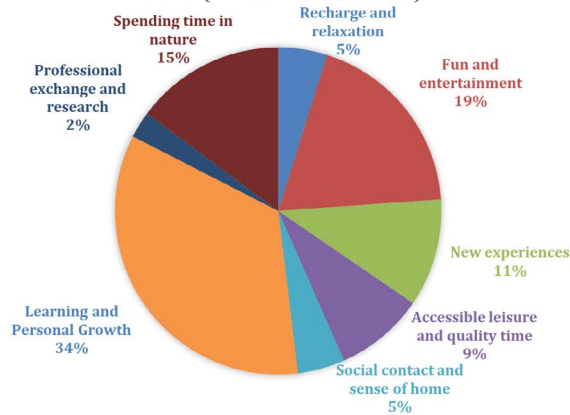
#### Short-term impact

- Website  
Since the museum has its own servers, it was possible to work with representative data in the first place. Nevertheless, a digital audit of our actions was necessary to illustrate that our website is not user-friendly in many respects, especially for users of mobile devices. The audit revealed that about 60% of all digital visitors access the website via smartphone. Tracking visit cycles and user journeys helped to determine which are the most popular and most visited subpages and which information is most relevant to our visitors. Specifically, these findings will flow into the medium-term development of a new website, which will be created under the motto 'mobile first'.
- Analysis of tracked data  
Concerning the data that is already passively collected on the use of the NM website, new methods have been found, as part of the project, to help us understand the visit motivation of digital visitors. For example, segments were created within the tracking software [Matomo](#), which can automatically divide the digital audience into specific segments. Although the definition of these segments is still incomplete, the prototypes are already helping to retrieve information on specific audience segments, for example, which subpages are particularly helpful for teachers.

#### Long-term impact

- Digital Strategy  
For the NM and the Neandertal, but also for its visitors, the museum's website is the beacon in the digital realm. Therefore, the constant development of the website is essential for the NM and for the Neandertal. To this end, digital visitor research, as conducted within this project, will be repeated on an adapted scale annually. Existing motivation segments may be built upon. 5 segments in particular have proven to be especially relevant for the organisation.  
Learning and Personal Growth (34%)  
Fun and Entertainment (19%)  
Spending Time in Nature (15%)  
New Experiences (11%)  
Accessible Leisure and Quality Time (9%)

#### MAIN MOTIVATION FOR VISITING THE NM AND THE NEANDER VALLEY (VISITORS ONLY, N=1219)



Main motivations from visitors of the NM or the Neander valley, Stiftung Neanderthal Museum

#### Digital literacy

The knowledge gained through the DOORS project was shared within the team through workshops and joint meetings and served to increase digital competence within the entire institution, but especially within the research department and the marketing and communication department.

#### Limits & Drawbacks

#### Part IV The Hound of Dataville

The work on the Digital Audience Analysis case has used existing and newly acquired data to create a basis for further research and for the general strategic direction of the museum in the digital realm.

#### Short-term impact

Within its short timeframe, the project had the task of revealing which motives are decisive for an analogue and digital visit to the NM on the basis of available and newly collected data. The results should therefore always be seen in the context of the framework conditions that were available to the project management:

- project period for segmentation, data collection and analysis (January - June 2023);
- 1/2 FTE for project management and communication.

For the execution and the quality management of the project, the greatest challenge was time. Especially for the preparation and reflection of the different project steps, time was scarce, even though we did follow a strict work plan. With additional time (and budget) the implementation of the surveys and the evaluation could have helped to create an even clearer image of our audience and the reasons that keep them from using our digital offers.

Since within this project, we have explored only the surface of what is possible in terms of user data, there are some challenges to be mentioned that affect all institutions that do not employ their own data analysts:

- In most cases, an overwhelming amount of data is available and it has to be decided which data is relevant for the respective institution.
- Data (especially tracking data) is collected with the aim of knowing as much as possible about users. The relevant software was developed to recognise and, if possible, guide users' actions to buy certain products.
- Data can represent many things. Therefore, the research question must be unambiguous.

It is important to point out the difficulty of working with data in cultural organisations. Its very abundance makes it easy to get lost in it. In most cases, data is collected for a specific reason. It is never completely objective and so inevitably subject to contextual interpretation.



These being challenges faced by almost every cultural Institution, the project will serve as fertile ground from which new digital endeavors can flourish.

## Future Prospects

### **Part V** ***The Memoirs of an Audience Researcher***

#### **Digital audience analysis**

Digital Audience Research helps us to get to know the people behind the screen. The fact that the image of our users derives partially from stereotypes and assumed knowledge has been shown to us not only by analysing our website and our user data, but also by the onsite and online surveys. In particular, sending out digital questionnaires via existing channels turned out to be highly efficient. The results revised our assumptions considerably in some cases. The NM thus intends to make more use of this in future.

#### **Segmentation**

The segmentation approach helped us think differently about our onsite and online visitors. Not thinking in simple demographic groups defined by age, gender and income helped us find visitor groups that otherwise stay under the radar. When we talk about motivation, we immediately think more complexly: what about single parents, neurodiverse people or families with two same-sex parents? Beyond identifying potential new target groups, this method has significantly broadened our view of our audience.

## Key Take-Aways

### **Part VI** ***The Final Problem***

The biggest take-away is that there is a great need for data analysts and digital project managers in the museum sector - in the short and especially in the long term. If museums wish to reach out and engage with their digital audience, knowing what drives the people to their website is the foundation for all future endeavours. Knowledge alone of the performance of a webpage in terms of visitor numbers and online ticket purchases will leave a museum unequipped for the digital future.

The Case 'Digital Audience Analysis' is by no means closed for the NM. In fact, investigations will continue, carried out by the research department. The DOORS Digital Incubator for Museums, has helped the NM to achieve greater, more comprehensive digital competency. Hopefully, more museums will manage this in future, too.

## Involved Parties

- Neanderthal Museum (project team)
- [Fondazione Fitzcarraldo](#), Alessandra Gariboldi (mentorship)
- [The Audience Agency](#), Adam Koszary and Jonathan Goodacre (consultancy)



## Who | Institutional Profile

<b>Institution</b>	<u>Museo Civico Augusta Redorici Roffi</u>
<b>Location</b>	Vignola, Italy
<b>Short Description</b>	<p>It all began in the seventies, with a group of enthusiasts who, wandering along the banks of the Panaro river, found minerals and fossils that testified to an ancient past and decided to share experiences and materials with the other citizens of Vignola and neighbouring areas, above all school pupils. One such enthusiast was a primary school teacher, Augusta. A first temporary site for the museum was a classroom where a corner with fossils and minerals was set up. Gradually the objects found home in the rooms of the castle of Vignola and further in other makeshift places (such as rooms in the former high school provided by the Municipality), up to the current site that was inaugurated in 2010. In 2011 the museum announced its dedication to the teacher Augusta Redorici Roffi.</p> <p>Every year, the museum hosts dozens of guided tours for elementary and middle school classes and workshops for both children and adults. An important stage of these visits is the outcrop of the Panaro river, where the most precious fossils were found and where it is still possible to find little treasures of nature among the mud, fossil shells of various types and history.</p> <p>The main mission of the museum can be found in some sheets written by Augusta herself in graceful calligraphy. It can be summarized in the following statements:</p> <ul style="list-style-type: none"> <li>● sharing the knowledge (and passion) of enthusiasts;</li> <li>● conveying knowledge of the territory and respect towards it on the part of citizens through the fossils collection;</li> <li>● making the museum a learning tool and support for teachers to the benefit of pupils of all schools.</li> </ul> <p>These values are still cherished and inspire the volunteers who welcome visitors every year, and develop in-house games to get the kids curious and involved.</p>
<b>Ownership</b>	The institution is publicly owned. Property: Comune di Vignola.
<b>Size</b>	4,000 visitors a year   2 employees working part-time and 19 volunteers of Gruppo Vignolese Ricerche

<b>Approach to Digital</b>	<p><b>Input by Laura Corsini and Cristina Serafini</b></p> <p>One of the museum's early endeavors connected to the digital realm was the development of computer games aimed at helping schoolchildren better learn and know the museum collections. These games, while well built at their time, are fading in light of the accelerated pace of both digital technologies and ludic design and can nowadays be considered a little outdated. Let's say it this way, digital technology used since 1990 to bring children closer to knowledge of the museum, has not been adapted to the latest technological developments. Many things are still done on paper; there are no computerised reservation systems or website, as it is currently under construction. Promotional flyers are created with the help of outdated tools, such as MsWord.</p>
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Since we started DOORS, we realised the need for a unique and contextually strong digital strategy. But it has not always been easy to involve everyone in these innovations. Communication across the institution has not been treated in a unified manner as there are oftentimes issues that proved to require more urgent attention (e.g., duplication of Facebook page, presence of different email addresses or uncoordinated information provided on different pages in the web).

In recent months we were able to experiment with various technologies together with our cohort of volunteers. The result is the DOORS WebApp. The work involved creating videos and selecting suitable texts to be made available online across selected platforms and resources. With determination and patience, we are learning how to use some simple programs and training the volunteers to acquire necessary skills. At the same time, things that require greater digital skills, such as social media management and website updating, will be carried out and supported by municipal employees.

The digitisation of the museum is a broad project that will be realized in the upcoming years. It will enable our small museum that lacks space and resources to gradually but gracefully enhance its offering to the public.

## What | Case

<b>Project Title</b>	The Open Air Museum
<b>Timeframe</b>	2022-2023

### Concept & Approach

Museo Civico Augusta Redorici Roffi is seen as an important point of reference for the city of Vignola. It actively engages with local schools, inviting schoolchildren to learn more about the museum and its collection. The classes are invited to:

- have a lesson/visit to the museum;
- take a guided tour of the paleontological site downstream of the Vignola bridge;
- participate in cleaning and classification of the fossils at school.

The museum also offers visits to individuals and groups upon reservation, hosts various initiatives such as theme nights, travel stories and book presentations.

In 2019, 40 classes visited the museum. However, we were also tracing the weakening of the link with the local population, the connection was fading. The reasons vary from a space itself (as not all the pieces can be exhibited) to the actual capacity for hosting the visits (available either by reservation only, or during the school year on Sunday mornings).

Solutions needed to be found to involve more people and find new enthusiasts to care for the museum. During lockdown we had the opportunity to view many virtual exhibitions organised by other museums in light of closures. We imagined such a tool for ourselves, too – a museum that is always open, continuously exhibiting the fossils that usually remain closed in drawers.

As we were participating in the DOORS' Incubation programme Stage I, we also worked on making a list of the museum's primary needs: a website, effective and unified communication, a network with other neighbouring museums and at a regional level, identifying relevant digital booking system and unifying single point of access online to request information.

We worked together with some of the volunteers - Renato, Mariangela, Pia and Angela-, who helped us to reconstruct the museum's past, its history starting from the foundation and to imagine a digital museum that would boost and revitalise the physical one.

The news of having been selected for the second stage of the incubation filled us with joy and trepidation. We had made it into the next stage, but that is exactly where the hard work

began. It was not easy to consolidate volunteers, pupils, professionals and teachers to form the team, involve and keep them involved, i.e. active and enthusiastic. The theory learned in the workshops helped us to better understand the potential of our museum and its originality. We worked hard and passionately to create a digital tool that would be useful, sustainable and with characteristics discussed and agreed upon with the group. In the meantime, we were carrying out other projects related to digitisation and communication, constantly reflecting on how important our learning and implementation journey is for bringing the museum back to being loved and cared for as in Augusta's days. The journey is indeed long and demanding, perhaps it is an ever ongoing one, but definitely the one in which the old and the new must always coexist.

Augusta taught us to love our ancient history and to teach it with passion to the youngest. Many of her teaching methods are still valid and can acquire a digital shell to be carried further. How wonderful our fossils are!



Fossil collection, Museo Civico Augusta Redorici Roffi

## Tools

To define the target audiences we used the user/buyer personas tabs.

Intesys [www.intesys.it](http://www.intesys.it)

**SCHEDA ESEMPIO**  
**Buyer Persona**

In questa scheda prendiamo come esempio di Buyer Persona una **HR Manager**, Laura, che deve acquistare da un'azienda di Recruitment un **servizio per l'identificazione e l'assunzione di risorse umane** ad alto potenziale sui canali digitali.

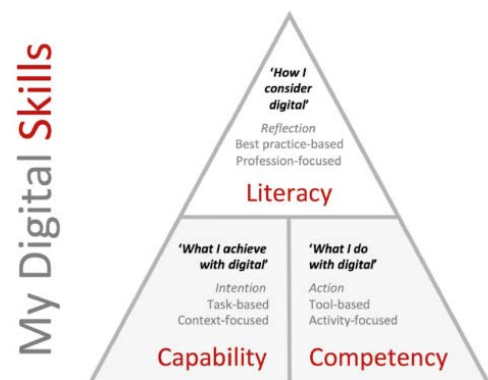


**Dati anagrafici**  
Nome: Laura  
Sesso: Donna  
Età: 35-50 anni  
Lavora in aziende B2B di dimensioni medie (50 - 200 dipendenti)  
Influencer: Direzione/proprietà

<p><b>Contesto</b></p> <p>Laura è un'HR manager laureata e con più di cinque anni di esperienza nell'area HR. Si occupa di assumere persone di talento, prevedere il rendimento sul lavoro e migliorare l'employee engagement. Fuori dal lavoro è anche volontaria per l'associazione di difesa dei diritti umani ed è appassionata di cinema, di cucine e di natura.</p>	<p><b>Comportamento</b></p> <p>Nel suo lavoro Laura è affiancata dal team HR e risponde direttamente alla direzione dell'azienda, che le lasciano una buona autonomia decisionale, a fronte del fatto che l'operato HR produce <b>risultati misurabili</b> per la crescita dell'azienda.</p> <p>Le sue principali responsabilità sono:</p> <ul style="list-style-type: none"> <li>Assumere persone di talento</li> <li>Prevedere il rendimento sul lavoro</li> <li>Migliorare l'employee engagement</li> </ul>	<p><b>Obiettivi</b></p> <ul style="list-style-type: none"> <li>Assumere risorse umane di qualità</li> <li>Employee retention</li> <li>Ispirare i collaboratori</li> <li>Ridurre le procedure amministrative superflue</li> <li>Recruitment</li> <li>Migliorare gli obiettivi HR in modo più efficiente</li> </ul>
<p><b>Sfide</b></p> <ul style="list-style-type: none"> <li>Troppe cose da fare</li> <li>Risorse insufficienti</li> <li>Tempo insufficiente</li> <li>Numero insufficiente di collaboratori/dipendenti</li> <li>Poco budget</li> <li>Senior management che si chiede sempre perché c'è bisogno dell'HR</li> <li>Fare recruiting di top talent nel nuovo ecosistema digitale</li> </ul>	<p><b>Cosa possiamo fare per loro</b></p> <ul style="list-style-type: none"> <li>Assistenza per l'identificazione di risorse ad alto potenziale sui canali digitali</li> <li>Servizio personalizzato in base alle esigenze di Laura e alle caratteristiche della sua azienda.</li> <li>Efficientamento dei tempi e delle risorse impiegate per il recruiting</li> <li>Ottimizzazione del budget a disposizione dell'HR</li> </ul>	<p><b>Obiezioni comuni alle nostre proposte</b></p> <ul style="list-style-type: none"> <li>Costo</li> <li>Comprensione del mercato e delle specifiche esigenze dell'azienda.</li> <li>Delega del processo di selezione</li> <li>Aggiunta di step burocratici</li> </ul>
<p><b>Messaggi chiave</b></p> <ul style="list-style-type: none"> <li>Flexibilità rispetto ai suoi bisogni</li> <li>Ottimizzazione di tempi e costi</li> <li>Delegare per avere più tempo</li> <li>Recruiting professionale e su misura</li> <li>Digital expertise</li> </ul>	<p><b>Come si informa</b></p> <p>Si educa online e si confronta con i suoi colleghi in merito alle best practices. Non ha la possibilità di partecipare a molte conferenze, ma segue volentieri i <b>blog di settore</b> e le <b>riviste online specializzate</b>.</p>	<p><b>Implicazioni in caso di inattività</b></p> <ul style="list-style-type: none"> <li>Impiego inefficiente del budget già limitato</li> <li>Minore efficacia dell'operato HR</li> <li>Perdita di talenti sul mercato per l'azienda</li> </ul>

Example of buyer personas, Intesys

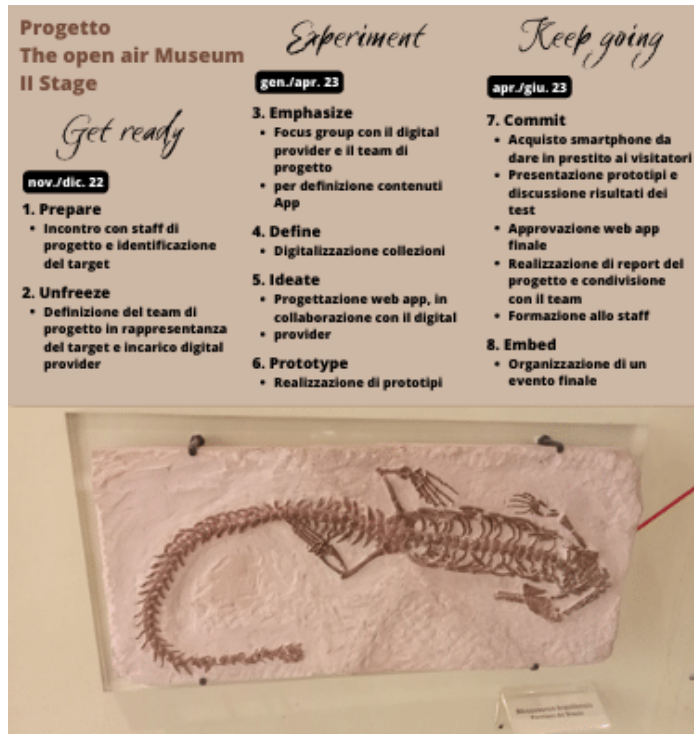
When it comes to measurement of digital maturity, Lauren Vargas came to our rescue with her CARE/ CALM Approach.



CARE/ CALM Approach, Lauren Vargas

It was very interesting and insightful to follow the experience of the [One by One project](#), particularly how to put citizens at the centre of museum operation and service design.

It has become an interesting challenge to define the design phases to be carried out with the newly assembled team. Not every phase was always respected in time and order; however, it was useful to have a track to follow in order not to lose our bearings.



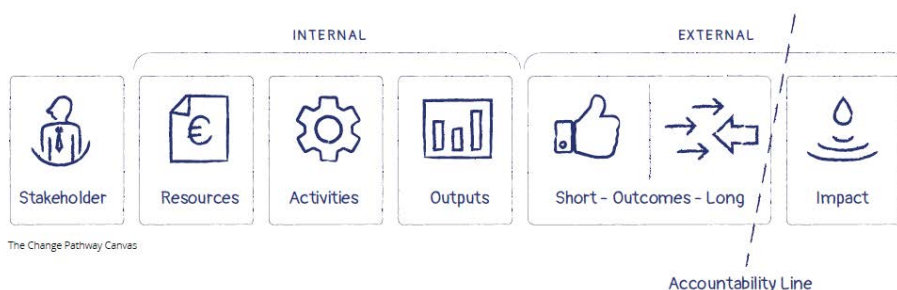
Il Museo Civico "Augusta Redorici Roffi" fa parte del network di DOORS, Digital Incubator of Museums DOORS ha ricevuto finanziamenti dall' European Union's Horizon 2020 research and innovation programme



Digital Incubator for Museums

Action plan as part of the DOORS project, Museo Civico Augusta Redorici Roffi

We can admit that we found [Europeana Impact Playbook](#) too difficult and complex for our very small set-up. Still we obtained core ideas on how to define the impact of our project, analyse the available resources, organise activities that can bring people to the museum and imagine the short and long-term outcomes.



The Impact playbook, Europeana

Our USP: "Using digital, the project creates new ways to involve people and allow them to enjoy the exhibition rooms through a rich and attractive connection with open-air spaces where fossils can be found". This set our museum on a continuous search for connections between the present and the past, how the old didactic materials can be reworked towards a meaningful digital format.

The digitally enabled visit will include, first and foremost the fossils and minerals that can be viewed in the showcases, but enhanced through didactic materials assembled through the years, revised with care and modernised suitably. When digital technology is applied carefully and meaningfully, it can increase visibility and disseminate the values of the museum, enable and support a better organisation, create passion and fine-tune emotional approaches. It will allow people who live far away to still get a glimpse of the museum (including the open-air section) if not visit.

### **The webapp**

The webapp that we are realising in collaboration with our technological partner digital provider will be useful at various levels, and connected to the upcoming website. It includes a virtual tour of the rooms of the museum, with some points where, with a click, you can access educational videos and materials, updated news and curiosities.

Upon virtually leaving the museum and undertaking a short walk, indeed virtual too, through the ancient streets of the city, you can reach the river and therefore the outcrop where most of the fossils were found and some are yet longing to be discovered. Here, in the virtual world, we invite visitors to look for some hidden curiosities that, once found, will talk about themselves and will be further used in games and quizzes.

We have gathered a focus group that represents the potential users and visitors to the museum. These include young students from different classes, teachers, representatives of universities, associations and volunteers who have been taking care of the museum since 1978 and up till now. This approach was preferred after a study on user personas. The group has jointly created video materials, made a careful selection of the fossil and mineral finds to be 3D scanned and the mascot, and have been involved in the testing phase of the prototype for the WebApp.

We looked for a partner who was an expert in museums and we found [TuoMuseo](#) thanks to Fabio Viola. As a specialist in gamification, he was already known by us for his participation in conferences and seminars and as a book author.

To acquire the web domain hosting the WebApp we approached [Aitec](#), a local company that is also working on the museum's website.

The core team, Cristina and Laura, had no significant previous experience in managing museums. Cristina is a cultural operator and Laura is a librarian. They had to study and work hard supporting the volunteers who had more experience with the museum collections of fossils and minerals, but not in managing digital projects. We had a shared aim and worked all together to strengthen the museum by digital means and pooled our skills and mutual support to allow everyone to grow.

## **Benefits & Impact**

### **Short term impact**

Quantitative:

- increase in number of visitors, part. schools visiting the museum
- increase in number of interactions in Social Media.

Qualitative:

- Providing visitors with accurate and coordinated information on museum's accessibility. They can reach the outcrop and join the virtual visit, encountering our fossils and minerals and listening to their stories. Nowadays we have pointed the attention to the museum and we want to bring people in to organise events.



**GAME TIME**  
al #MUSEOCIVICO  
Momenti con giochi da tavolo  
per famiglie in biblioteca

A cura dei ludologi di  
**PLAYRES**

Una tranquilla giornata di  
primavera di molto...  
molto... mooolto tempo fa  
**28 maggio**  
ore 10:00-12:30

Progetto di  
contrasto al gioco  
d'azzardo  
patologico (GAP)  
Distretto di Vignola

Cimentati in una inebriante  
avventura dal sapore antico  
attraverso il gioco di ruolo Troika  
al Museo Civico  
"Augusta Redorici Roffi"  
Via Cantelli 4 - Vignola

per bambini dai 9 anni in su  
iscrizione obbligatoria  
Info e iscrizioni: Biblioteca F.Selmi - Auris  
tel. 059/771093  
mail: biblioteca@comune.vignola.mo.it



Event at the museum, Museo Civico Augusta Redorici Roffi

- Enhanced involvement of the community in the activities is a priority. This is possible provided there is strong and consistent communication. We post every step of the pilot on social media channels of the museum, so people can follow the growth of the project.

#SITEINSPECTIONSHOES  
#SCARPEDASOPRALLUOGO  
#STORIEDIFOSSILI

Museo Civico "Augusta Redorici Roffi"  
fa parte del network di DOORS Digital Incubator of Museums  
DOORS ha ricevuto finanziamenti dall' European Union's Horizon 2020  
research and innovation programme.

EUROPEAN UNION  
DOORS Digital Incubator  
for Museums

Social media post about a site inspection on February 17th, Museo Civico Augusta Redorici Roffi

With the aim to maintain community engagement:

- We have planned and prepared the promotion of the WebApp, incl. special visits to schools, engaging teachers and students to try it.
- The WebApp will be shown and onboarding offered to all museum visitors by the respectively trained volunteers.
- A board with the picture of the mascot (tapir) and a QR code will be placed along the river, so that people going for a walk and curious to know about it will be enticed to try the virtual visit.
- The WebApp will be promoted on the new website of the museum.



A meeting with the DP in the museum,  
Museo Civico Augusta Redorici Roffi



A meeting with DOORS' team,  
Museo Civico Augusta Redorici Roffi

## Long term impact

### 1. Dissemination

- talking about the pilot and making a report to other small museums and cultural institutions in our region, with the aim of sharing knowledge and expertise gained in the incubation programme;
- arranging meetings with the municipality officials to present and promote the pilot and inform them about the opportunities that digital offers and support it needs
- if needed, we can help other museums to realise their own WebApp, sharing with them all the DOORS processes and supporting them along the steps of their project.

In the coming years we expect to increase awareness of the Museum and of its role in the community of Vignola and to foster ever greater involvement. The aim is to recruit new volunteers as well, who will support openings and guided tours.

### 2. Share knowledge and skills

- In the recent past, new connections have been created between the volunteers (who have always managed the Museum and are its embodied memory, some of them since the very foundation in 1978) and the employees of the Municipality of Vignola, Cultural Services. These relationships will be maintained after the launch of the pilot and will ensure continued work together.
- The experience acquired during the DOORS sessions has established important skills that will be useful in and across our cultural institutions. We will use the approaches provided to us during the workshops and acquired digital literacy in our public library, eg. community involvement, internal buy-in enhancement, understanding of how to enhance engagement with collections and storytelling..
- These skills will be shared with other colleagues, interns and volunteers.

### 3. Valorisation of the museum

The pilot is included in a wider programme of valorization of the Museo Civico. While working on DOORS pilot we are realising the following

- museum's website being updated,
- museum's social media (Facebook and Instagram) being frequently updated;
- creation of informative signs and micro exposures along the Panaro river;
- accreditation to Google Arts and Culture or/ and to Wikimedia GLAM project;
- training of employees on the subject of digital museums.

The results of the DOORS pilot will be a strong motivation for the city administration to pay greater attention to that worthy museum and the role it has played and can play in the community.



## Limits & Drawbacks

Limits we faced (and are still facing):

- lack of dedicated staff members (museum is largely managed by volunteers, who are in great part elderly, and by two part-time employees);
- lack of experience: neither volunteers nor employees are experts in museum management and are being trained only now;
- difficulties in managing the pilot-dedicated team, that is composed of diverse people (children, grandparents, teachers, university students) and ensuring everyone's involvement during the meetings;
- exposure to weather conditions (we had to postpone the 3D scans);
- inability to predict how the technology will evolve and if our virtual visit will be appreciated by people tomorrow given the pace of digital evolution;
- lack of time.

## Future Prospects

With the launch of the DOORS 'pilot we will continue working on creating a small museum network. We find the findings and outcomes of the project could be useful to many more similar small museums in our area (for example, a few kilometres away there is the "Elephant Museum" with the bones of a mammoth). Sharing the experience through meetings with the peers will allow us to create a network, promote and support each other, offer and expand thematic virtual visits bringing together digitised assets and stories of the various museums.

We are currently training in the Wikimedia GLAM project to combine all the Wiki resources and share our digitalized items, to enable us to enter a wider digital community.

## Key Take-Aways

Talking to people about the ancient past of the land makes them more aware and responsible towards it. People are curious to discover what they do not know and have not experienced, and with digital technology we can make them re-live exciting and unique moments such as the discovery of a fossil. We do not want to erase the past with digital technology, but we want to enhance it.

## Involved Parties

- [Associazione TuoMuseo](#)
- [Aitec](#)
- [Regione Emilia Romagna](#)
- [Associazione Gruppo Vignolese Ricerche](#)
- Schools
- [University of Modena UNIMORE](#)
- Citizens



The museum 's team, Museo Civico Augusta Redorici Roffi



The museum 's team, Museo Civico Augusta Redorici Roffi



DOORS 'team during a Focus Group in the library, Museo Civico Augusta Redorici Roffi

## Who | Institutional Profile

<b>Institution</b>	<u>Goriški muzej Kromberk – Nova Gorica</u>
<b>Location</b>	Nova Gorica, Slovenia
<b>Short Description</b>	<p>The Goriški muzej, located in Nova Gorica, Slovenia, is a cherished institution devoted to preserving and sharing the cultural heritage of the former Goriška region. With a rich history spanning over seven decades, the museum showcases a diverse range of exhibitions and educational programmes. From temporary exhibits to permanent collections, the Goriški muzej presents a captivating journey through the region's past. These exhibitions shed light on significant historical events, cultural practices and artistic expressions, providing a comprehensive understanding of the Goriška region's identity.</p> <p>The museum also actively engages in educational initiatives, offering workshops, lectures and guided tours for all ages. By collaborating with schools and the local community, the Goriški muzej fosters a sense of ownership and appreciation for the cultural heritage, nurturing a new generation of culturally aware individuals. As a guardian of the Goriška region's cultural heritage, the Goriški muzej is dedicated to the preservation, promotion and dissemination of its rich history. By inviting visitors to explore and connect with the past, the museum celebrates the enduring legacy that defines the Gorizia region's cultural identity.</p>
<b>Ownership</b>	The museum is established by the Municipality of Nova Gorica and financed jointly by the Ministry of culture and other municipalities.
<b>Size</b>	25 FTEs

<b>Approach to Digital</b>	<p><b>Input by David Kožuh and Rok Bavčar</b></p> <p>Until this decade, our digital approach consisted of two main areas: digitising inventory books and ongoing efforts to digitise archive photos, which we manage internally. Regarding visitor engagement, our use of digital tools in exhibitions was mostly limited to video or audio, with minimal visitor interaction. However, we did incorporate interactive stations, such as maps, in some past exhibitions.</p> <p>In the current decade, our digital integration has evolved significantly. We remain committed to digitalisation by transforming inventory books and archive photos into user-friendly electronic formats. Additionally, we have transformed our approach to exhibition production, embracing interactivity and deeper visitor engagement.</p> <p>Attitudes toward digital transformation vary within our organisation. While some enthusiastically embrace change, recognising its potential for growth and efficiency, others may initially have concerns about it.</p> <p>While embracing digital transformation, we maintain a balanced approach, recognising the importance of the human touch. We continuously strive to find the optimal balance between digital solutions and human interaction to deliver personalised, empathetic and meaningful experiences.</p> <p>In summary, our organisation considers digital integration integral to our overall strategy. We foster innovation, address concerns through transparent communication, and strive to meet stakeholder expectations. By leveraging technology while maintaining a human-centric approach, we aim to advance our mission and provide exceptional experiences.</p>
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# What | Case

<b>Project Title</b>	<b>Awakening Memories – Leaving Traces (shortened to MALT)</b>
<b>Timeframe</b>	February 2022 - September 2023

## Concept & Approach

### Origin and scope of the concept

The concept of our pilot project was born from the recognition that museums continue to fulfil their historical role of preserving our tangible cultural heritage, including a vast collection of objects and old photographs that depict the city's development and everyday life. However, access to these collections is often limited, with most available to the public only by appointment or within temporary exhibitions. Therefore, our goal is to provide locals and visitors with a new opportunity to explore the city's evolution over time.

To achieve this, we conceived the idea of a web-based augmented reality (AR) application that offers three distinct options. Firstly, users can view historical photographs of our city dating back to its early years (starting from 1948) using their smartphones. For locals, this feature aims to evoke memories and nostalgia. Secondly, we encourage users to contribute to our archive by sharing their own photographs, thereby expanding the collection and making it more comprehensive. Lastly, users can leave comments within the application, visible to other users after confirmation by our curators, creating a platform for interactive engagement and sharing of insights.

Furthermore, considering the proximity to the Italian border and the upcoming designation of Nova Gorica, along with Gorizia, as the European Capital of Culture in 2025, we translated the application into English and Italian. The app will include a navigational map of the city, and when users reach specific locations, current surroundings will be superimposed with old photos in augmented reality, providing a captivating visual experience.

### Technological approach

To ensure user-friendly accessibility despite the advanced technology involved, we have chosen to utilise web-based augmented reality (webAR). This relatively new technology eliminates the need for a separate mobile application. Instead, users can access AR experiences directly through their smartphones' native cameras and web browsers. Notably, webAR experiences can be accessed directly from a browser, reaching a wider audience compared to traditional AR apps, and they can be easily shared via URLs and QR codes, facilitating viral distribution.

The decision to implement webAR is particularly advantageous considering that Nova Gorica is a modern city with free wireless internet available throughout the city centre. This approach allows for a seamless integration of the webAR solution into a progressive web app, eliminating the need for downloads while providing additional non-spatial information and enabling two-way communication for viewing and contributing content, including textual comments.

We believe that webAR technology is highly suitable for our target user groups due to its ease of use and frictionless experience. By leveraging this technology, we can significantly expand the accessibility of our collections to larger audiences, while also establishing a structured mechanism for gathering textual feedback and comments. All data will be handled in accordance with national regulations and collected for further research at our institution.

## Benefits & Impact

### Expected impact and engagement

By providing locals and visitors with a new way to explore the city through augmented reality, we aim to bridge the gap between museums and the younger generation. Our project will expose a wider audience to our collections and break down barriers that may hinder engagement with museums. We envision a more inclusive and interactive experience that

fosters dialogue and fosters a sense of connection to our cultural heritage.

The implementation of this project will yield both short-term and long-term impacts and benefits for our organisation. In the short term, we anticipate an increase in visitors to our collections as a direct result of the project's introduction of innovative technologies and engaging content. We expect to see a surge in website traffic and heightened engagement on our social media platforms, capturing the interest of a larger audience.

Looking ahead, we foresee numerous long-term benefits for our organisation. Collaborating with related institutions during the project will allow us to establish valuable partnerships that will prove beneficial in the future. These partnerships will create opportunities for joint initiatives, knowledge sharing, and mutually beneficial collaborations, expanding our reach and impact in the long run.

Moreover, the project will have a positive impact on our internal team dynamics. The collaborative nature of the project, coupled with shared vision and successful outcomes, will foster a more cohesive and efficient working environment. We anticipate that teamwork and camaraderie among our staff will be strengthened, creating a solid foundation for future projects and endeavours.

Additionally, our collaboration with the digital solutions provider (DSP) will be instrumental in expanding our understanding of effective technology utilisation. Through this partnership, we will gain valuable insights into bringing exhibits and experiences closer to our visitors, fostering greater engagement and interaction. The knowledge and expertise acquired from this collaboration will continue to benefit us in future endeavours, ensuring a progressive approach to engaging with our visitors.

In summary, the project will yield both short-term and long-term impacts and benefits for our organisation. From the anticipated increase in website visitors and financial resources to the establishment of valuable collaborations, a cohesive team, and valuable lessons learned from our collaboration with the DSP, we will be better equipped to engage visitors and sustain our impact in the long run.

### Limits & Drawbacks

The implementation of this project has encountered several limitations and drawbacks that have posed challenges for the museum.

Firstly, time management becomes a critical issue as everyone in the museum is involved in multiple projects simultaneously. The juggling of various responsibilities necessitates careful planning and prioritisation to ensure sufficient attention and resources are allocated to the project at hand.

In addition, bureaucratic problems in obtaining permits from the Municipality have presented obstacles. The administrative procedures and potential delays involved in securing the necessary permits can impede progress and disrupt the project's timeline. Navigating through these bureaucratic hurdles requires patience, persistence and effective communication with the relevant authorities.

Moreover, the development of the web application has faced specific challenges. The process entails finding compromises between ideas and implementation options. It is crucial to strike a balance between ambitious visions and practical feasibility, considering technical limitations, budget constraints and the desired user experience. This requires careful evaluation and decision-making to ensure the final product aligns with the project's goals and objectives.

### Future Prospects

The future prospects of our project hold great potential for expansion and collaboration. During discussions with our mentor, Inês Camara, we explored the possibility of utilising our pilot idea to apply for a creative European project. We firmly believe that our project can serve as an exemplary model for other small cities across Europe. Inês has already encouraged us to seek potential partners who share our vision and goals. Building partnerships with like-minded organisations will enable us to enhance the impact of our project on a broader scale.

As our museum gears up for the European Capital of Culture in 2025, we have identified a pivotal opportunity to present our project to [MINOM](#), one of ICOM's affiliated organisations. This presentation is scheduled for September 2023. We anticipate that showcasing our project's potential to this audience will generate further interest and support from our municipality and the public institution GO2025. Securing additional funding in the coming year will enable us to explore the possibility of expanding our project across the border to Gorizia, our sister city. While this remains a wish at present, it is a goal that we will actively pursue and keep at the forefront of our minds.

In terms of engaging children and school groups, we have considered incorporating another popular app, such as [Actionbound](#), into our project. This would allow us to create quizzes or treasure hunts in the city centre, providing an interactive and educational experience for small groups of school kids. By combining our web app for data collection with Actionbound or a similar platform for the quiz or treasure hunt, we can cater to the diverse interests and engagement levels of young learners.

## Key Take-Aways

One of the highlights of our project was the photo collecting day we organised in January. We invited locals to come and share their photos and memories with us, and the response was overwhelming. We received over 500 photos on that occasion, some of which were directly incorporated into our web app, while others will be utilised for future projects. The collection of photos we gathered along the way has already enriched an existing exhibition called GO\*S50-60, titled 'The City and Its Inhabitants in the 50s and 60s'. This collaboration allowed us to showcase the city's history through the lens of its residents, offering a unique perspective to visitors.

Another positive outcome of our project has been the establishment of strong collaborations. We forged valuable partnerships with key stakeholders, such as the urbanist of Nova Gorica, Tomaž Vuga, and the Society of Architects. As a result of these collaborations, we have agreed to provide our photo archive for their upcoming book on the architectural development of our city. This exchange of resources and expertise ensures that our project's impact extends beyond the digital realm and contributes to the broader cultural documentation of Nova Gorica. Furthermore, we engaged with a society dedicated to auto-moto sports, inviting them to showcase some of their objects in the museum. Their participation not only enriched our exhibition but also allowed us to delve into the history of this sport in Nova Gorica. The collaborative effort culminated in a successful exhibition opening on the Summer Museum Night, with their valuable assistance and insights.

While developing our project, one major challenge we faced was the implementation of geolocation functionality. We had envisioned using geolocation to enhance the augmented reality (AR) experience and provide a more automated and immersive user interaction. However, during the testing phase, we discovered that smartphones and tablets varied significantly in their geolocation capabilities, presenting a significant obstacle to overcome. Despite this setback, we found a solution by utilising projected AR. By adapting our approach, we were able to ensure a satisfactory user experience while mitigating the technical challenges associated with device-specific geolocation.

In conclusion, our project has witnessed significant achievements and encountered challenges along the way. The overwhelming response from the community during the photo collecting day, the fruitful collaborations with esteemed professionals and the successful integration of augmented reality into our exhibits have all contributed to the project's success. Despite the setback in geolocation implementation, our ability to adapt and find alternative solutions demonstrates our commitment to delivering a high-quality and immersive experience for our users. Moving forward, we will continue to build upon these successes and learn from the challenges, further refining and expanding our project to make a lasting impact on the cultural landscape of Nova Gorica.

## Involved Parties

- [Arctur](#) (DSP)
- [ProductionLair](#) (video production)





Presenting DOORS project, The Goriški muzej



Photo collecting days, The Goriški muzej



Promo video, production Lair, The Goriški muzej







Promo video, production Lair, The Goriški muzej




# MALT

Enter and take an interactive, interesting and educational walk through the history of Nova Gorica.

For a perfect experience, scan the QR code below with a smartphone or tablet.



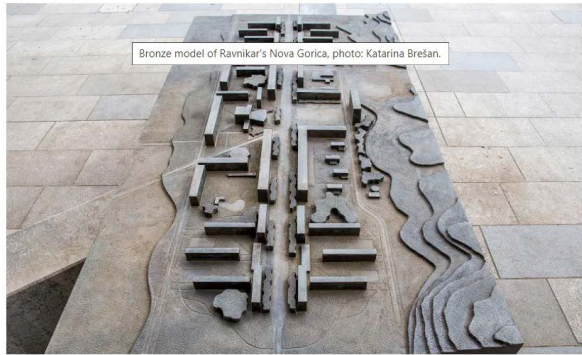
\*The application works only on mobile devices in the area of Nova Gorica.




Test view of the webpage, The Goriški muzej

### Nova Gorica, a phenomenon by the border

“I would like to build something big, beautiful and proud, something that would shine across the border,” said Prof. Edvard Ravnikar, creator of the first urban plan of Nova Gorica. However, in the end, the town was built according to the abilities of the people living in this part of Slovenia. A town which reflects the true image of its three-quarters-of-a-century: a town which is not a monument, but a vital and never completed town with a set of projects that need completion, upgrading, continuation and new ideas.



## Who | Institutional Profile

<b>Institution</b>	<u>Estonian War Museum</u> – General Laidoner Museum
<b>Location</b>	Viimsi, Estonia
<b>Short Description</b>	<p>The Museum of the Estonian War of Independence (EWM) was established in 1919 and restored in 2001 under the name of the Estonian War Museum – General Laidoner Museum. According to the museum’s statutes, its tasks include locating, collecting, preserving, researching and disseminating objects and materials related to Estonian military history as well as researching military history and developing international relations with other relevant institutions. The permanent exhibition and temporary exhibitions of the War Museum tell stories about wars fought in Estonia, the service of the Estonian people in the militaries of other countries and wars fought elsewhere in the world with the participation of the Estonian people.</p> <p>Viimsi municipality near Tallinn, Estonia. The museum is located in an old manor house. The museum underlines their aspiration that “the whole of Estonia is a military museum” due to the rich and manifold military past of the country.</p>
<b>Ownership</b>	Public
<b>Size</b>	The museum staff amounts to 17 FTEs (apart from the Military Orchestra, which is also a branch of the museum). Last year the museum’s number of visitors reached a record level of 33,000.

<b>Approach to Digital</b>	<p><b>Input by Patrick Rang, Tanel Mätlik, Eli Pilve, Marti Taru</b></p> <p>We are a small museum and we do not have an ICT department or even an ICT specialist (the technical maintenance of computers and other devices is outsourced). Thus we are a bit unsure concerning the possibilities and deployment of ICT. On the other hand, Estonia is an advanced country in terms of ICT use and penetration on the state and organisational level. Several services are available only online and electronic use of the rest is highly recommended. This applies also for museums and memory institutions. And, of course, we see how the world around us is becoming more and more digital. But a museum should retain its core – the authenticity of the exhibits cannot be expressed only through digital means. The ‘feeling’ in the museum (whatever it may contain – to see, hear, touch, smell, taste, experience and take part etc.) is key to providing visitors with a worthy and fun experience, but it can be complemented by ICT.</p> <p>Our approach and attitude is to stand in the middle ground: not to rush foolishly to implement all fashionable innovations, but combine the best possibilities the digital and ‘traditional’ solutions provide, comply with the national rules and regulations of digitising our collections and making them publicly available and in a way that would make our visitors happy.</p>
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# What | Case

<b>Project Title</b>	<b>Innovation in Audience Analysis and Engagement in Estonian War Museum</b>
<b>Timeframe</b>	November 2022 – June 2023

## Concept & Approach

Estonian War Museum (EWM) is in a unique position compared to other Estonian museums. Our aim and role is not only to exhibit and promote Estonian military heritage, but to effectively contribute to achieving the objectives in the Estonian National Defence Development Plan (ENDDP) that stresses the conception of comprehensive national defence. The objectives of ENDDP foresee the active role of youngsters in the comprehensive national defence prior, during and after the conscription service – and as foreseen in ENDDP – visit to EWM helps you to be better prepared for protecting your homeland, if needed.

The starting point was: how to achieve it? How to attract more youngsters to the museum and make the visiting experience a case of edutainment? Should we focus more on ICT? If so, then what and how?

The way to find out – according to our hypothesis – was to analyse the relevant audience (youth and children) in EWM, their experience, their attitude, their expectations and wishes in the given context. And based on the analysis, to describe new participation formats and platforms to be implemented post-project.

Today, EWM and its position in the society is not what it used to be. The war in Ukraine has changed the scenery: and we have become an institution constantly in the highlight and even headlines, which creates even higher and greater requirements.

As part of the project, we organised a web-based survey and focus-group interviews with children and youngsters. In the course of the project we decided to expand the scope of the survey to include also the target group members who have not visited EWM and to widen the focus also to youngsters from abroad. Altogether we had 449 responses (285 from Estonia and 164 from various foreign countries).

The main findings were:

- Museums have a future! We are not ‘dinosaurs’, youngsters are interested in museums, and they visit them more often than initially assumed. EWM is not an exception.
- A positive museum experience is based on how the ‘point’ is expressed. Even if the topic / museum covers an area that seems less interesting, the exhibition, its delivery, guide, accompanying possibilities in the museum etc. may change the visitor’s attitude.
- A positive museum experience must be edutaining, combining both fun and knowledge (and practical aspects, if possible). The practical aspects could be either DIY approaches or simulations (ICT).
- Somewhat surprisingly, the youngsters are not that keen on ICT to be used in the exhibition and service delivery. It seems that we, the older generation, pay too much attention and focus on the ICT devices that the youngsters use constantly. For them this is just ‘something’ that has been present almost always (and the more advanced possibilities are just technical improvements, nothing more), just like we are used to, say, washing machines. The youngsters expect that the exhibitions in museums are mainly traditional and static, with digital and interactive solutions complementing them. The role of the latter is rather confined to the possibilities they contain to enlarge (or alternatively, to simplify) and enhance / differentiate the message the exhibition carries.
- Nothing replaces the professional personal touch and the feeling that you are welcome and awaited.

## Benefits & Impact

We now know better what youngsters think and feel about a museum (not only us, but in general) and can design future exhibitions, exposition development and service delivery better. We should not be afraid and worried that the digital component in our museum is not that prevalent. Instead, we should focus on specific aspects in the exhibition development (ICT as means to enlarge / simplify the content; simulations).

## Limits & Drawbacks

- First and foremost, staff available. We are a small museum, where ‘everyone does everything’ and we are continuously multi-tasking. The war in Ukraine put us under specific pressure and additional workload, but this was a force majeure that could not be anticipated or risk managed.
- Internal fears and unreasonable assumptions, for example, the youngsters care only about ICT and everything we have developed needs to be redone.

## Future Prospects

- Quite a clear overview on the direction we shall develop EWM – specific project ideas
- Repeat the survey in 3-4 years – what has changed? Taking also into consideration the improvements we shall be making meanwhile.

## Key Take-Aways

EWM specific:

- More practical solutions to the museum, from DIY to ICT-based simulations.
- Combine DIY with museum education, widen the latter to also older target groups (12+)
- Pay more attention to our outdoor area.

General (and EWM specific)

- ICT is just means, not an objective.
- ICT is not everything.

## Involved Parties

- Püünsi School (test-group)
- Viimsi Gymnasium (test-group)



Test groups, Estonian War Museum





Test groups, Estonian War Museum

## Who | Institutional Profile

<b>Institution</b>	<u>Arboretum Volčji Potok</u>
<b>Location</b>	Volčji Potok, Slovenija
<b>Short Description</b>	<p>Arboretum Volčji Potok is the most visited botanical institution in Slovenia. With its 85 ha large estate, it offers peace and tranquillity to everyone who enjoys spending time in nature. Over 3,500 different sorts of plants and trees are planted in Arboretum Volčji Potok.</p> <p>Arboretum Volčji Potok is a cultural monument of national importance, due to its outstanding garden architectural heritage and its collection of trees and shrubs – an arboretum in the basic sense of the word.</p> <p>Most visitors visit Arboretum during the spring flower shows, where they can walk among millions of daffodils, tulips and other spring flowers. But the park also offers a wonderful experience all year-round with exhibitions in greenhouses, art exhibitions and different seasonal exhibitions. Arboretum therefore has many points of interest and a long history. There are castle ruins that provide interesting historical facts. Five different ponds inside the park, streams, different sorts of trees, shrubs, perennials and annuals provide habitat for free-living animals - forest animals, birds, amphibians, reptiles and insects.</p> <p>Arboretum Volčji Potok's mission is a permanent and uninterrupted management of a cultural monument of national importance and the presentation of its cultural values. It is a curator of the collection of trees and shrubs, providing educational programmes for children in kindergartens, primary schools and high schools. Presenting the park to the public and stakeholders is one of the organisation's constant priority activities.</p>
<b>Ownership</b>	Arboretum Volčji Potok is publicly owned.
<b>Size</b>	95.0 FTEs   305,197 yearly visitors

<b>Approach to Digital</b>	<p><b>Input by Klara Raković</b></p> <p>Arboretum Volčji Potok utilises digital tools to:</p> <ul style="list-style-type: none"> <li>● inform and educate the public and create possibilities for the public to communicate with it and to participate (website, social media, e-park guide);</li> <li>● digitalise and therefore improve visitor experience (e-ticketing, e-commerce, e-feedback survey);</li> <li>● collect and analyse data about its collection of trees (digital cadastre, digital collection of plants in the park).</li> </ul> <p>Digitalisation in Arboretum Volčji Potok is happening in different areas of the organisation, the goal being ultimately to digitally connect different areas in order to improve visitor experience and gather better data. In turn, this will improve how Arboretum Volčji Potok operates and delivers value to its customers.</p> <p>Arboretum Volčji Potok is focused on digitalising and connecting all the steps of the customer experience, such as e-ticketing and e-commerce, encouraging visitors to give feedback about their satisfaction and staying connected with them after the visit via social media.</p>
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Arboretum Volčji Potok is also digitalising information about its collection of plants via digital list of plants and photographs of distinguishing characteristics of all its varieties of plants and roses. Arboretum Volčji Potok is also inventorying the plant collection and managing green areas via digital cadastre of trees. The digital cadastre will be integrated with a digital collection of photographs of distinguishing characteristics of the trees. Visitors will be able to access the digital cadastre with their smartphones as well as the map and inventory of the trees.

Arboretum Volčji Potok is also digitalising a lot of its exhibitions – creating digital photos and videos of the exhibitions and uploading them on its website and Youtube channel while also uploading live videos and virtual live guide tours in foreign languages.

Arboretum Volčji Potok recognises and understands the power and benefits of digital technology and believes in its continuous exponential potential to capture creativity, save time, improve visitor experience and reach more people. One hurdle is the rigidity of the organisation’s employee structure, so there are limitations on hiring more experts with skills in digital technology. Therefore, existing employees must incorporate more digital tools into their work process as a result of the organisation’s developing digital strategy.

Our expectation is that using more digital technology in different areas and connecting digital processes will steadily imprint the use of technology in the mind of every employee. This will therefore make it easier to introduce digital tools in other work processes, with employees feeling more comfortable with working with them.

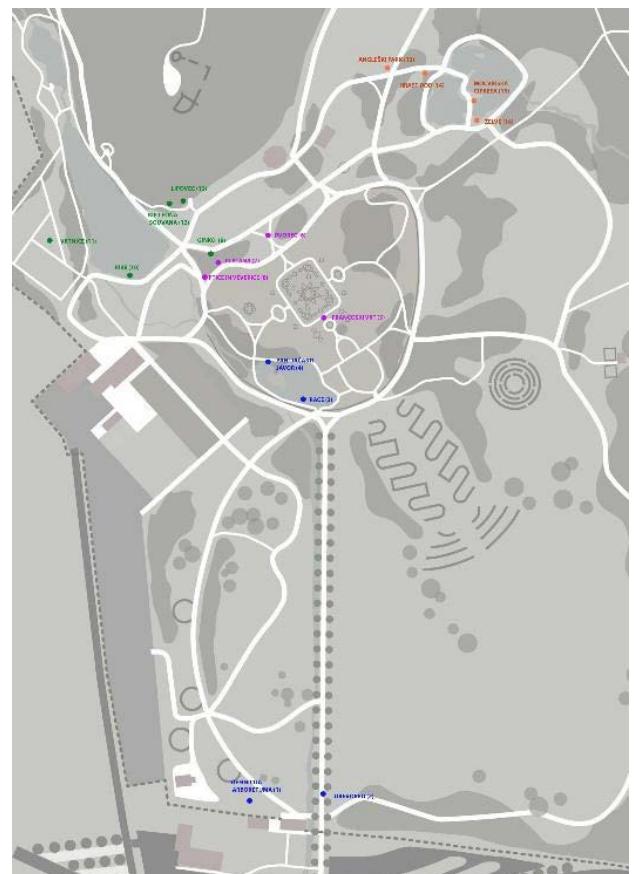
## What | Case

<b>Project Title</b>	Creating an E-park Guide with Gamification Elements to Boost Visitor Participation
<b>Timeframe</b>	November 2022 – September 2023

### Concept & Approach

We approached the creation of the concept by having in mind what our goal for the e-park guide is - to educate children about plants and animals that can be found in the park.

We first made a list of animals, interesting trees in the park and facts about the landscape architecture that we wanted to present to children/families. Because of the results of the visitor survey, which showed a shorter attention span than we initially anticipated, we divided the e-park guide’s tour into four different phases. For each phase we chose four interest points (below is a map we created to pinpoint where and in which phase (different colours) the interest points are).



Arboretum Volčji Potok

Because this e-park guide is geared towards children, we felt that the story would be most appealing to children if it was also told from a child's point of view.

The park where Arboretum Volčji Potok is now located was first a private property and the owner of the property created the landscape that Arboretum Volčji Potok is most known for (the French garden and two English parks). He lived in the park with his three children. For that reason, the story in the e-park guide is told by them – the father and his three children. Each of them takes the visitors through their favourite part (phase in e-park guide) of the park and presents them with the most interesting animals, trees and historical facts about the park. If they don't complete the entire e-park tour in one go, they can continue the tour the next time they come to the park.

The e-park guide is accompanied by historical photographs from the time the family lived in the park. There are also photos of particular trees and spots in the park the visitors must find, based on clues provided to them.

They learn about interesting animals and plants through narration of the four characters and different games and riddles. They navigate through the park with the help of written directions, photos and riddles within each phase and with Google map to get from the location of one phase of the e-tour guide to the other.

When completing each phase they get rewarded with a special IG filters which they can post to their social media and after completing all the phases they can enjoy a free ride with an electric train through the park.

## Benefits & Impact

This project connected different departments within the organisation and created a new workflow. The team working on the project established communication with different departments and learned new things about the organisation. For example, employees working in the EU projects learned interesting facts about the park by joining a tour guide on a school tour through the park.

This project connected us to other organisations, too – other museums and companies also creating new networking channels. It also established new communication channels with our visitors as the e-tour guide provides another option for our visitors to connect with our organisation and give their feedback.

This project has also made a lasting impact on our organisation. It has taught us a lot about understanding our visitors and how we should expand our thinking about them. It has made us take a closer look at the data we are currently gathering about them and how we use it. This project and the mentors involved with the DOORS project has taught us a lot about segmentation and personification of visitors and presented good practices of visitor research. All this knowledge and food for thought will definitely have a long-term impact on our future thinking about our visitors.

This project also taught us about taking a more holistic approach when planning a project – to take into consideration possible impacts of the project on different departments; to take a closer look for possible improvements of the work process, to think long term when planning a project...

## Limits & Drawbacks

Despite the fact that creating an e-tour guide with gamification elements seems pretty straightforward and easy, it turned out it is not quite as simple as initially thought.

Because this was a one-off project for a lot of the departments included (experts on trees, historical facts and landscape architecture), it was a struggle for them to allocate time for it.

Since developers of the application have specific knowledge and skills and our experts have specific knowledge about the topic of the application it has proven quite difficult – especially as not all parties involved were in-house - to combine the knowledge of all of them, while also challenging them and motivating them to think creatively as the application was developing.

As the project was coordinated by the project manager, who doesn't have the knowledge which the experts and the developers have, it was hard to do quality control during development – especially when wanting to include creative ideas about the gamification elements. These ranged from brainstorming ideas with experts to getting feedback from developers as to what works and what doesn't in practice and what is better accepted by general users of applications and e-tour guides. It also slowed down the process, when every little change had to be checked and approved by our experts, who also had a hard time allocating time to do so.

Additionally, what wasn't taken into account at the start, was that a wonderfully written scenario that best explains things doesn't translate smoothly when put to the test in the field – as during the tour there may be something else that catches the eye of most visitors first or there might be some other question arising during the presentation and explanation of certain things. Furthermore, some visitors take a longer look at a particular object than others – which also needs to be taken into account. Therefore, the scenario had to be changed several times.

The application had to be tested many more times than initially expected, because employees who planned the route and wrote directions of the route found a lot of things self-explanatory and immediately knew where to go, while those who have never been to Arboretum Volčji Potok found directions confusing. Testing the application revealed this problem, which also had to be improved.

## Future Prospects

After presentations of ideas during DOORS workshops, we have expanded our idea of the application from looking at it as implementing digital solutions to looking at it as part of the whole customer experience. We recognised the possibility of upgrading the user experience of the e-park guide into a comprehensive family experience. This starts at home on the sofa, where it is possible to buy an e-ticket online, and receive an e-mail with an e-ticket accompanying a link to a free e-park guide application, all this before visiting the park.

We have also expanded our idea so that the e-park guide can be used as a tool for audience analysis and creating a new communication channel, through which visitors can give their feedback. Users at the end of using the application will be invited to follow us on Facebook and Instagram. With this, we want to extend the experience of the park and improve and encourage the Arboretum's two-way communication with visitors, so that the experience does not end when the visit is over. The idea of an e-park guide has also expanded to marketing, as posting stories on social media will create a user-generated promotion.

As we have now prioritised generating content for families, who represent a big percentage of the park's visitors, we will at a later date provide an e-park guide customised to other target groups. As two people or even the same person can be at the same location but within a different context (with a different companion, different motivations for using the e-park guide), to effectively support the visitor, the location-based application will provide information and services adapted not only to the user's location, but also her/his other context-related information. Later on, visitors will be able to choose whether they want content for families, adults or other e-park guides based on the preferences.

## Key Take-Aways

- Have a meeting before choosing your developer and let them explain to you how they will bring your vision to life.
- Really take time to predict everything that could possibly go wrong in the project and make arrangements accordingly.
- Determine all the stages of the project and the outcomes of every stage.
- Determine very specifically everyone's roles and responsibilities.
- Determine who needs to approve the work during the project.

## Involved Parties

[Nexto](#) (app development)



E-park guide, Arboretum Volčji Potok

12:54 4G 79% 12:52 4G 80%

< Nazaj 1. Leon < Nazaj 3. Ferry >

Hvala 😊

Arboretum  
Odpri

Leon Souvan

Sprehodite se z menoj, ravno se odpravljam proti dvorcu. Moj oče, ki je prvi kupil dvorec in okoliško posest, je na poti do tja posadil ta čudovit drevored divjih kostanjev.

Pot nadaljujte skozi drevored.

3. Ferry

Živjo. Ozrite se naokrog in poiščite enaki drevesi, ki rasteta vsak na svoji strani poti in prepletata svoji krošnji. Tu se začne moj najljubši del parka.

Začni znova

Zaključ

Zemljevid Postaje

Stari grad

Volčji Potok

Arboretum Volčji Potok

Priljubljena cesta

Google

1. Leon  
Drevored Arboretuma.

E-park guide, Arboretum Volčji Potok



## Who | Institutional Profile

<b>Institution</b>	<u>Museum Arbeitswelt</u> (MAW) / Museum of the Working World
<b>Location</b>	Steyr, Austria
<b>Short Description</b>	<p>The Museum Arbeitswelt (Museum of the Working World) was opened in 1987. The institution preserves, shows and maintains the cultural memory of working people – from the beginning of the Industrial Revolution to digitalisation and beyond. For over 30 years, the Museum Arbeitswelt has been the only museum in Austria with this perspective. Housed in two former factory buildings dating back to the 19th century, the museum is not only the first museum of labour but has also gained international recognition as an exhibition and event centre since its inception.</p> <p>The museum eagerly interacts with its visitors and invites them to participate, think, reflect, discover and discuss its programme. In this way, visitors learn about the topics related to the museum together with the educational team. The offer is methodically diverse and is always adapted to the group. The museum is unique for every age group, type of education and school. According to the museum’s team, places of action are museum’s exhibitions, the workshop room (Politikwerkstatt) – dedicated to the topic of the work on Democracy, the Tunnel of Remembrance – a local learning site about forced labour and the Steyr concentration camp, and the historical environment around the museum. As an industrial jewel located on the Steyr River, the museum offers a unique ambience that makes history tangible and creates space for working, reflecting, celebrating and exchanging all kinds of ideas.</p>
<b>Ownership</b>	The Museum Arbeitswelt is owned by the Association Museum Arbeitswelt.
<b>Size</b>	12 FTEs   26,000 visitors a year

<b>Approach to Digital</b>	<p><b>Input by Martin Hagmayr, Maria Vogeser-Kalt, and Philip Templ</b></p> <p>Our principal mindset is being open. We are very much interested in how our society changes over the years, how people live, work and learn. The digital transformation in a museum starts with people. Whenever a museum uses technologically enhanced tools and data, there are always humans at ‘the other end of it’, trying to make sense and use using these offers – e.g., digital workplaces, digital tours, digital archives.</p> <p>Our digital strategy process in the Museum of the Working World is dynamic. We aim to adapt to the changes in our environment, we cooperate with partners, we are open to learn from others, and we set an ambition to develop exhibitions and other formats that are state-of-the-art.</p> <p>Digital is embedded in how we work and has several functions – e.g., we want to be ‘reachable’, even if people who are interested in our offer are not able to travel to the museum. Secondly, we want to design a complementary offer employing and inhabiting digital. New technologies can help our museum team to react faster and to engage with (potential) visitors.</p> <p>Our concerns are availability of funding to ensure and sustain necessary technical equipment and availability of time enough to enhance existing and acquire new skills. We want to decide</p>
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on investments that are meaningful and sustainable and keep on maintaining mindfully and expanding meaningfully our structure. The focus is both on the experience of museum visitors, and on our entire team.

## What | Case

<b>Project Title</b>	<b>Be A Part - Encourage Engagement in Digital Education</b>
<b>Timeframe</b>	November 2022 – September 2023

### Concept & Approach

Two main factors sparked our project:

- On one hand, the Corona pandemic. Many museums shifted their programmes to digital almost in a wink, whereas we realised that transferring what worked onsite into the online was not so easy for us. We wanted to find a solution that would connect analogue and digital realms of the museum.
- On the other hand, our target audience wanted offers available online. Schools are looking for something that could better prepare for and follow up after a museum visit. But what they need is definitely more than just a PDF with a copy template. Fortunately, our tech partner had a smart idea of how to work around that.

The concept of the project was born during a strategic workshop of the team and our focused inquiry into some common questions:

- How can we better prepare students and pupils from schools before they visit the museum?
- How can we work together with schools to co-create our offers?
- How can we link the digital with the analogue world?

To approach these questions in practice, we used brainstorming, interviews, and good old analysing of feedback forms. We asked students from one of our partner schools to support and join us in designing a game. They became our partners in testing the concept behind it, the questions and the “length” of the e-learning platform which formed the core of the project. This was a bright start, and we further plan tests with a broader audience.

The game idea and design are based on retro games adventures. The gamer ‘walks’ through the museum and the exhibition and has to collect ‘cards’. The cards contain information, links to videos, pictures etc. and also requests to do something that can be brought and add to the museum, for example questions. When certain cards are collected, a gamer reaches the next room and thus can move briskly through the whole exhibition. This way the students gain knowledge of the museum and the subject of the exhibition while engaged in a ludic experience, or to put it in other words - while playing. We support teachers and provide tips and ideas on how to use this platform in class.



The first steps for users look as follows:

- Landing page.



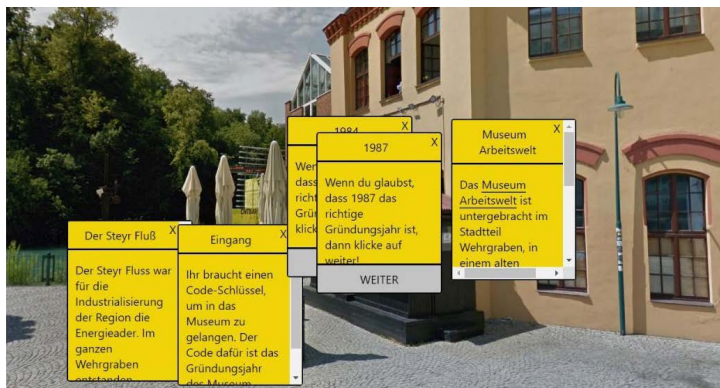
Screenshot, Mathias Spanring

- Start of the educational game in front of the museum.



Screenshot, Mathias Spanring

- Finding keys to 'open' the museum by finding right answers to the opening questions.



Screenshot, Mathias Spanring

## Benefits & Impact

- Gaining new skills and knowledge about educational games.
- Enabling development of new educational games with the knowledge gained through onsite workshops.
- Engaging students and working with them consistently on the project, giving them the opportunity to create something in class that can be further used by and in the museum by others.
- Gaining new online visitors that can become onsite visitors in the future..
- expanding and strengthening the audience of teachers and students through the carefully targeted design of the educational game.
- Becoming part of a community of museums that develop and use online educational games.

Overall the project has already received some positive feedback.

Ute Wiesmayr, Director HAK Steyr:

*'The educational partnership with the Museum Arbeitswelt is a valuable enrichment of our teaching offer for the HAK. The participation of our students from the branch 'IT and Digital Business' in the EU project DOORS helps them to gain practical experience and implement ideas. Together with their teacher Mathias Spanring and the museum team, the young people are working on a pilot project for the design of a museum-related computer game. As director of the school, I am very pleased that the educational partnership only exists on paper, but is actively realised, bringing benefits and opportunities to both partners.'*

Dr. Christoph Jungwirth, board member of the 'Association Museum Arbeitswelt' and CEO of the BBRZ group:

*'Digital offerings in a museum are crucial to ensure a strong recovery from the COVID-19 pandemic. Thanks to support from DOORS the Museum of the Working World is furthermore able to build a sustainable future partnership with schools. The new project network ensures that the museum team gets the chance to learn from best practices all over Europe.'*

Felix Fröschl, guide at the Museum of the Working World:

*'The project "Be A Part" is an important step for the museum's online presence. It is a means of tackling entrance barriers and making our younger visitors curious about the museum and our exhibition. The decision to create a template that combines both gaming and knowledge generation is a smart choice that has the potential to reach students even outside of school situations. Also, I want to mention the many contacts and the various ideas that the museum has made throughout the project. Having regular exchange with museum professionals from all over Europe inspired our team and will have a lasting positive effect on our future work.'*

A student from HAK Steyr:

*'Helping with this project has been a valuable learning experience and we had a lot of fun working on it. We got an interesting look behind the scenes of a museum and are thankful that we got the opportunity to work together.'*

*As students, we are grateful for the chance to work together with the Museum Arbeitswelt on this project. It was an enriching experience, and we learned a lot from this collaboration.'*

### Limits & Drawbacks

The main limit was time. We received the approval for the project two months later than the other institutions. These two months have significantly affected the realisation of the project, as the actual launch of the working process coincided with the most intensive period in both the museum and our partner schools. Therefore time for reflection and exchange internally and externally has compressed.

### Future Prospects

The game design is created in a way that it can be easily modified as necessary by the employees of the museum, for example when something in the exhibition is changed or when a new exhibition is opened at large.

We conceived and designed the project with sensitivity towards the needs and capacities of smaller museums. The game as a tool can be implemented and adapted to different locations at low cost.

### Key Take-Aways

- Working together with students on a project over a longer period is great, productive and exciting.
- However, working together with students on a project over a longer period needs time and resources.
- An open mindset is crucial to let the process flow and flourish.
- Some things can't be planned or foreseen, but still have a great outcome.
- Working together as a team on one project is inspiring and bonding, BUT needs a lot of coordination.
- It is still worth identifying several core team-members as it helps to consolidate different approaches to one challenge.

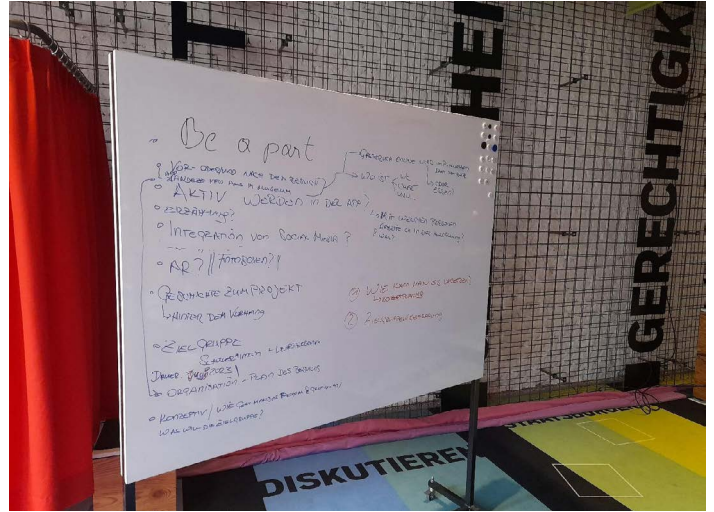


## Involved Parties

The project was discussed with our board members (see quote of Dr. Jungwirth below). A school, the [HAK Steyr](#), and a company, [Reload Media](#), were also valuable partners, supporting us with their experience gained in other similar projects.



Meeting with students from 'HAK Steyr' who work on 'Be A Part' with the museum team, Museum Arbeitswelt, photo by Philip Templ



Finishing the concept of 'Be A Part', Museum Arbeitswelt, photo by Philip Templ



Meeting between Tech Partner and Museum Team, Museum Arbeitswelt, photo by Martin Hagmayr



Students taking pictures for the learning platform in the museum, Museum Arbeitswelt, photo by Philip Templ



Meeting between Tech Partner and Museum Team, Museum Arbeitswelt, photo by Martin Hagmayr



Students taking pictures for the learning platform in the museum, Museum Arbeitswelt, photo by Philip Templ

## Who | Institutional Profile

<b>Institution</b>	<u>Domain &amp; Royal Museum of Mariemont</u>
<b>Location</b>	Morlanwelz, Belgium
<b>Short Description</b>	<p>The Domain &amp; Royal Museum of Mariemont is an important European ‘lieu de mémoire’ boasting a rich history which dates back to the mid-16th century.</p> <p>Classified as an exceptional heritage site of Wallonia in 2003, Mariemont has two levels of heritage importance: the domain itself, related to the major events, cultural trends and personalities of European history of the last 500 years; and the museum collections of world heritage artefacts, initiated by a visionary businessman and philanthropist connected to the European industrial revolution, including rare works of the level only found in top world museums. At the heart of the domain lie the ruins of a Neoclassical princely castle built atop the foundations of previous governing residencies, soon to be accessible as an archaeological garden.</p> <p>The Museum is today the property of the French Community of Belgium and its sole research institution.</p>
<b>Ownership</b>	Public
<b>Size</b>	95 FTEs   50,000 visitors a year

<b>Approach to Digital</b>	<p><b>Input by Kathleen Louw</b></p> <p>Our museum’s essential IT needs (computer hardware, basic operational software, maintenance, training, helpdesk) are met by the IT department of our tutelage organisation, the French Community of Belgium (Fédération-Wallonie Bruxelles or FWB), an administration overseeing a network of schools, universities, cultural centres, sports centres, research centres, justice houses and our museum, in the entire Francophone Belgium. One FTE in our museum is an IT specialist, who acts in liaison with the FWB and assists with daily IT issues. Our operational budget is also almost entirely dependent on this authority.</p> <p>The Museum’s 7 conservators, several administrators, mediation and IT staff had developed, starting 2004, a working group ‘numérisation’. They lobbied for investment in objects digitalisation, internet site development, collections management tools, innovative communication. The group existed off and on, depending on successive leadership’s support, the digital initiatives undertaken, or not, and the hopes for budgets raised, or dashed. Indeed, past museum leadership tended to be in favour of more digital as long as it did not cost anything. This made it difficult for the group members to stay motivated. None of them had time to look for funding.</p> <p>With this rather unfocused digital approach, the museum experimented in a haphazard way and according to various opportunities presented: digital mapping, interactive videos, VR, basic tour applications, 3D scanning, tactile tables, as part of collections management, cultural mediation or temporary exhibitions.</p> <p>As of today, the museum does not have a digital strategy, nor a specific digital innovation budget, nor an innovation space, nor a defined link with the long-term strategy, priorities</p>
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and values of the Institution, which are just now to be discussed internally, starting from an institutional SWOT analysis. This is what the DOORS pilot project hoped to advance a little.

Digital priorities in the institution today manifest in these forms: conservators, when developing the annual temporary exhibitions, are expected to dedicate some exhibition budget to the inclusion of interactive digital tools inside the exhibition, but a target budget or percentage is not defined; camera equipment is purchased for 3D exhibition filming, but there is no discussion as to whether this will generate the most optimal digital products, experience and for whom; a new website is being developed by the FWB IT department since 2021, which should include CRM capabilities for automated features currently performed manually, but there has been no exercise of defining the institutional values and priorities which will anchor the website content and the request for an independent CRM than that of the FWB is causing delays.

The fears of the digital vary greatly within the institution: some conservators and image specialists (audiovisual, photography) are open and interested in the power of digital technologies. Our communication staff is not up to date on the latest audience segmentation techniques or social media language developments. Our administrative and logistical staff tend to still work using archaic document management methodologies; some are reluctant to introduce new digital platforms, scared that this represents a multiplication of interfaces to deal with. Our cultural mediation department, after expressing fears about the invasive and overpowering nature of the digital vis à vis objects, is now more ready to envision trilingual labels made easier with digital solutions, and the presence of sound and image inside the permanent collections.

The museum is well aware of the need, and challenge, to advance equally and in tandem the internal digital maturity and sophistication of the digital experience offered to visitors.

The immediate expectations after the completion of the DOORS pilot are: an approved benchmark annual budget for digital innovation and development expenses not covered by the IT department of our tutelage organisation; the future hire of an in-house junior digitally-savvy and flexible specialist who can problem-solve, help raise the level of work processes in all departments (accounting to registrar to fundraising), and ably and technically engage external digital service providers; and the establishment of a physical innovation space or bubble within the office building.

The long-term dream is to launch coherent immersive stories – digital and physical – anchored in the 7 collections and powerfully recounting the 500 years of history of the Mariemont domain; to engage ecosystemic, national and worldwide audiences in an efficient digital manner; and to co-create at the museum and in the domain a setting of needed low and high tech for learning, sharing, contemplation and play.

## What | Case

<b>Project Title</b>	<b>Mariemont 3D: A New User Approach and Visitor Experience</b>
<b>Timeframe</b>	January 2023 - July 2023

<b>Concept &amp; Approach</b>	<p>The project started from both a fact – several disks of objects' 3D scans sitting on a shelf since 2017 – and a long-known problem – little interest on the part of park visitors and youth to enter our museum (a space not for them?) or our exhibitions, often criticised as too static.</p> <p>A cross-department team imagined inventing a new creative and interactive experience prototype starting from our set of 20 3D scans of the museum's most emblematic objects, to attract new audiences to the permanent collections displays.</p>
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Finally, because our institution is large, complex, dependant on FWB, and has been playing with digital technologies without a long-term vision for a while, we added a basic, forward-thinking exercise of institutional reflexion on how to develop a sound long term institutional digital strategy in the future, with business architecture analysis, brainstorming on Mariemont digital storytelling ideas for the future, and setting benchmark digital budget and staffing figures.

The first brainstorming with the museum conservators on digital storytelling for the 7 collection resulted in tangible and creative ideas, with suggestions on possible coherent linking narratives, or starting points (notably the place/weight to give to the founder of the museum, 19th century collector Raoul Warocqué). This is to be built on with later successive discussions integrated into the major collections revamping effort (starting next year thanks to the 3 m EUR donation).

## Benefits & Impact

### Short-term impact

- 15 internal staff engaged, out of 70 (not counting our 25 guards), from the three poles of the institution (research, public, logistics)
- 6 external digital service providers engaged ([Hovertone](#), [Metamorphosis Consulting](#))
- 5 Brussels authority (FWB) experts mobilised for advice, analysis, support, who now see Mariemont in a very favourable light, as welcoming innovation and digital technologies, and who helped solve a blocked particular situation vis à vis the new CRM to come with our new website.
- One new 3D experience prototype developed: 'Portes du Passé: Les Objets révèlent leur histoire' ('Doors of the Past: Objects reveal their Stories'), engaging 3 out of 7 Museum collections.
- 7 central Belgium museums were invited on July 5 to test the application prototype and comment on it.
- The project leads to a future quantitative study of non-audiences, i.e. Mariemont domain audiences who do not enter the museum.
- Dozens of visitor responses to the survey included in the application Portes du Passé, with elements informing the museum on visitor's digital expectations.
- A final report centralising the museum past digital initiatives and presenting the DOORS project – and recommendations for a future digital strategy. The idea is that this report is a future reference source and log book for the continuation of the digital transition strategy.

### Long-term impact

- Realisation that the museum communication has not been working for our proximity audiences, since the ecosystem audiences say they are aware of programming and cultural initiatives designed by the museum after the facts, or not at all. This will lead to revised methods of communication, hopefully using digital technologies, applications etc.
- Appreciation of and future recourse to design thinking methodologies and the collective intelligence of transversal teams when developing a new project, not used at Mariemont before
- Improved relations with ecosystem audiences
- Improved knowledge on who are our audiences, for more targeted communication and programming
- Greater readiness to establish the desired permanent citizen committee and an efficient digital communication method to reach them
- Understanding of the need to integrate digital technologies AS PART OF collections scenography revamping
- Increased acceptance of videos in the collections. Independently but during this project, Mariemont installed a video and sound installation of Ukrainian artists, on the looting of the Kherson regional museum.
- Less fear of the digital on the part of the cultural mediation team (responsible for guiding and labels)
- Understanding of the 4 pillars of our strategy: data, resources, users, collaborators; of the need to build business capabilities, and of the necessary shift to Mode 2 of working (exponential, light, cooperative, value creation, trial/error, small teams)

## Limits & Drawbacks

- Language barriers  
Francophone Belgium does not evolve well in Anglophone networks. This has resulted in the unwillingness (or discouragement) on the part Mariemont staff, except for myself, to take part in the numerous webinars offered by DOORS or engage with fellow DOORS projects directly.
- Time availability  
The DOORS project has regularly been singled out for taking too much of people's time, because in essence it was a project added to their already heavy workload. This is the problem with EU projects in general within institutions. The relatively short period of Stage 2 likely has something to do with this. There was a sense DOORS imposed too much (deliverables, deadlines) on the institution. Therefore at this time, the idea of dedicating staff time (a % of monthly hours) to innovation is not something the leadership endorses as feasible.
- Institutional resistance to a dedicated digital budget  
Our 2024 budget does not foresee the finalisation of the prototype nor a small margin for other digital improvements, unless unspent resources appear at a later stage of the year. Reducing standard expenses to prioritise a new digital budget line did not seem possible. The new website in development and the digital included in temporary exhibitions has been referred to as evidence that Mariemont does invest in the digital annually, although such investments have no figures attached/committed.
- Difficulty imagining what a prototype would look like until we see it, therefore difficulty calibrating the press release communication (not overdoing it or making it too short).
- Our DSP's ultimate inability to implement the full digital prototype as envisioned in the design thinking sessions, due to time and budget limitations on their end, and our inability to foresee this. The application development, scannable imagery and the extent of content development (across three collections) took too much DSP development time (while its lead was Covid-absent for a month). The regrettable aspect of this is that the element of the prototype supposed to attract audiences from the park (through creative window animation), was dropped, and so the objective of attracting park visitors to the museum was missed.
- The complexity of working with applications: issues of compatibility with various smartphones and playstores, the time needed for validation of applications.
- Continuing the momentum  
In Mariemont's case there is the 3 m EUR donation for collections revamping which will cover digital technologies, but this will not start till 2025 at earliest and no % budget set. There is a fear of losing the momentum and motivation of the team until then, to keep fighting for innovation, new ideas, unless this grant is publicly announced soon, and the planning and research work can start. Furthermore, there needs to be a digital champion in the institution, to keep that agenda going.

## Future Prospects

The project sparked other digital improvements in the museum, such as the evident understanding of and willingness to employ digital labelling to accommodate trilingual objects descriptions.

Our photographer was trained in photogrammetry as part of this project and will start designing new exclusive imagery using 3D objects, for communication support such as posters, announcements, teasers etc.

Cultural mediation staff enrolled in new training on how to co-programme with proximity audiences.

Mariemont has recently been designated the beneficiary of a private 3 m EUR donation destined to be invested in the restaging of its collections. Digital technologies can therefore be invested in as part of this grant, which is great news. And digital storytelling brainstorming started under DOORS will continue and lead to concrete implementations. Thanks to DOORS, Mariemont knows the importance of incorporating digital technologies as part of this scenography renewal, and not after.

In parallel to the expected visitor experience improvements, Mariemont will need to focus on the digital for its internal functioning and processes. This is heavy work and requires an inhouse motivated digital champion.

## Key Take-Aways

- Wondering if we chose the right focus to spend our grant on. Some staff (not involved in the project) question the development of an app for use in the collections. And from the feedback from ecosystem audiences, gained later in the project, it is clear that investing in better communication methods with the ecosystem would have been a very useful pilot project too.... This is the next development to tackle!
- Not waiting “to be institutionally ready” to start taking on digital technologies. Once in a project, and despite time and other constraints, concepts do become clearer, interest sparks, allies appear, situations unlock, colleagues involved outdo themselves, change happens, even seamlessly.
- The importance of staying connected to a network and building a pool of interesting potential digital service providers. We will miss the regular webinar offerings and patient attention of DOORS. It is important to stay connected on a regular basis to other museums’ digital developments and to be inspired by other museums’ work, by connecting to a network. Either NEMO or in our case, France-based CLIC, which provide news, webinars, museum visits, all in French. And finding one expert person as reference for advice when needed.
- Working with digital service providers who know your museum, language, culture, and setting clear deliverable parameters
- Having one innovation-minded ‘champion’ on your team with the energy to keep the digital momentum going, for visitors and staff alike
- Investing in agile methodology training
- Focusing on ‘business capabilities’: the institutional capacity to reach objectives via a combination of staff, processes and technologies
- Balancing the high tech and low tech needs. From our ecosystem consultations, Mariemont observed the significance of needs for lowtech, calm, zen, space to reconnect with one’s self. We also know that Generation Z does not want to pay for/ invest financially in digital experiences. Therefore a future challenge, and interesting topic, may be the quest for subtle, calming, non-invasive, yet attractive digital technologies in the museum spaces. This happens to correspond well with the desires of the conservators to not let the digital overpower the objects. Achieving this delicate balance in a sustainable form, in the collections spaces and in other public spaces of the museum, and in the domain, will be an interesting exercise, to be conceived holistically. Already, realising that we need not replicate exactly what others do and can aim our own solutions is a powerful perspective.

In hindsight, and in an ideal world, Mariemont would have loved a one-year DOORS project (perhaps phase 1-2 combined) including the possibility of hosting a DOORS digital advocate inhouse for personalised support.

## Involved Parties

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>● <a href="#">Hovertone</a> (app and digital content design and installation)</li> <li>● <a href="#">Metamorphosis Consulting</a> (collective intelligence sessions with ecosystem)</li> <li>● Oliver Schneider, Innovation &amp; Transversal, <a href="#">FWB, Belgium</a> (digital strategy advice)</li> <li>● Kellyn Salles, 3Dscans, <a href="#">FWB, Belgium</a> (participant in design thinking sessions)</li> </ul> | <ul style="list-style-type: none"> <li>● Eric Trillet, Business architecture, <a href="#">FWB, Belgium</a> (mapping Mariemont architecture of skills and IT gaps)</li> <li>● Christophe Malfroid, Innovation, <a href="#">FWB, Belgium</a> (innovation advice)</li> </ul> <p>Our cross-department core team of 12 committed staff members of the Mariemont Museum</p> |
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## Who | Institutional Profile

<b>Institution</b>	<u><a href="#">Urajärven kartanon ystävät ry</a></u>
<b>Location</b>	Asikkala, Finland
<b>Short Description</b>	<p>Urajärven kartanomuseo is one of the oldest historical site museums in Finland. It was opened in 1928 and since then has served the local community. The museum is located on the peninsula of the lake Urajärvi. The main building and surrounding outbuildings serve as an exhibition, showcasing the life of the last owners -Lilly and Hugo von Heideman.</p> <p>Urajärven kartanomuseo and the surrounding English-style garden and park, called the culture park, is managed by an association - Urajärven kartanon ystävät ry, and supervised by the Finnish Heritage Agency. It was carefully renovated from 2008 to 2013. The museum's main building and two closest outbuildings are the place of permanent exhibition, which is open during the summer from May to September. Sightseeing is organised in small groups with a guide. Different events like the summer theatre, children's days at the museum, opera concerts and other activities are held in the park and the garden. Both are open throughout the year.</p> <p>In 2015 the museum was to be closed down, but the local community established the association to keep the museum open. Urajärven kartanon ystävät ry is a non-governmental organisation that was established by the local community in 2016 to ensure that the Urajärvi kartanomuseo remains open to the public. We strive to develop the museum's operations, which are increasingly diverse, with thematic guides focusing on different topics and activities designed for various target groups. Most of the work is done by members of the association as volunteer work. In summertime part-time workers are employed as guides.</p>
<b>Ownership</b>	Urajärven Kartanomuseo is a non-governmental organisation
<b>Size</b>	The museum is visited by 4,000 people yearly, led by volunteers and part-time employees

<b>Approach to Digital</b>	<p><b>Input by Justyna Neuvonen</b></p> <p>The Urajärven kartanon ystävät ry understood from the beginning that there is a need and space for a change inside the association and museum operation through use of digital technology. Although our team was lacking skills and knowledge about digital tools, we were trying to showcase ourselves on different social media platforms. We had even managed to create a mobile game about our museum!</p> <p>We are now in a process of creating our own strategy, where digitisation occupies a very important place. We are learning new solutions, some of which turn out to be a perfect match, other of which work less well, and we let them go. Currently we have one person doing most of the admin work, but slowly we are giving more tasks to our team members. Our digital skills are slowly growing. We try to find better ways to communicate with our audience throughout the whole year. Our goal is to be attractive to younger people so they can work with us and generate more ideas. We would like to answer the needs of the new young generation both locally and internationally.</p>
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Digitisation is creating challenges and opportunities for our small association and the museum. We believe that we can become a better organisation and the museum's stories will be enjoyed by many more visitors in future.

## What | Case

### Project Title

AR Quest: Urajärvi Manor

### Timeframe

November 2022 – September 2023

### Concept & Approach

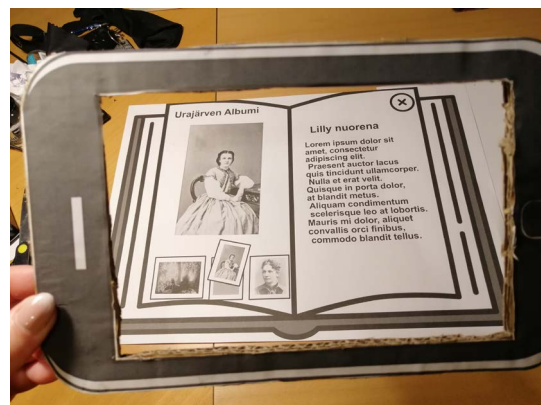
The Urajärvi Manor Museum is a little historical site museum which is hard to spot on the map. What is unique about it is that it is the oldest historical site museum in Finland, and it is operated by a local association. The last owners, the siblings Hugo and Lilly, wanted to give their home to the state for museum purposes and they prepared for this. Even now the museum interior looks as if they had just gone away for a minute and will come back soon. It is easy to move back in time with the help of our guides who tell stories of the von Heideman family. What stories those are! Love, hate, tragedies, happiness, misery and joy. With a bit of imagination, you can feel it. The problem is that the museum is open only through the summer season and even then, it is hard to reach. Also, the building is not suitable for all types of wheelchairs and people with disabilities might need assistance.



The museum in the old picture, The Urajärvi Manor Museum

Our road to the DOORS Digital Incubator for museums started about two years before the application to the first stage. Two students of Game Design from the South-Eastern Finland University of Applied Sciences made a mobile game for us. One of them was living close to the museum and also had an archaeological background. When we heard about the first stage of the application, we decided to go for it, as we had one more tech-savvy person on board.

It was obvious to all of us that we have quite a few problems at the museum. First and foremost is the opening time and smaller number of visitors every year. We had to find different solutions to expand the time our visitors could interact with the history of the place and our collection. To be able to do that, we had to change our old and dated website. We had been thinking about how to present our collection so it would be scientific, yet also fun and creative. Augmented Reality seemed to be a good choice, as there have already been applications where users could check how a furniture piece would look in their home. We had not seen such a solution at any museum website ever before and thought that this might be it.



Screenshots of a new website, The Urajärvi Manor Museum

We wanted to raise interest in the museum for people who are coming to the culture park, but not to the museum. So, we thought of using a rather different approach to those AR experiences. We assumed that people who will use this solution will come to the museum or have already been there and their motivations are somewhat different. Our target group here are young adults, as well as older adults coming to the park for a walk, either alone or with families. Those people are interested in resting, relaxing and spending time with their loved ones. They are not interested in downloading an application if they are to use it just once. Space on their phone is valuable. Web-based AR with fun and concise information could meet their needs. Later on we have made a survey which has proven that our assumptions were right. Some of our visitors had already been familiar with the museum and just wanted to relax. This is how we have managed to create a set of different experiences where Hugo, Lilly and their friends, through different quotes, letters, diaries and postcards, speak about their life and opinions. The design includes 2D graphics to ensure that the experiences will not look dated in a year or two.

We believe that by using open-source libraries and other solutions and plugins, we can create something fun and meaningful for other museums, too. Through the development of this *project*, we have been cooperating with Lahti University of Applied Sciences. Students helped us to make 3D scans of the objects, a cooperation that warmed our hearts. We have created personas to better understand who could be using our solutions, and a game design canvas to understand better as a group what we have been doing and why. The cooperation resulted in the layout of pages with objects and an AR solution. It was a fun journey where students said that they had a feeling of making something for the greater good. We hope to continue the cooperation next school year as well.



Students 3D scanning at the museum, The Urajärvi Manor Museum



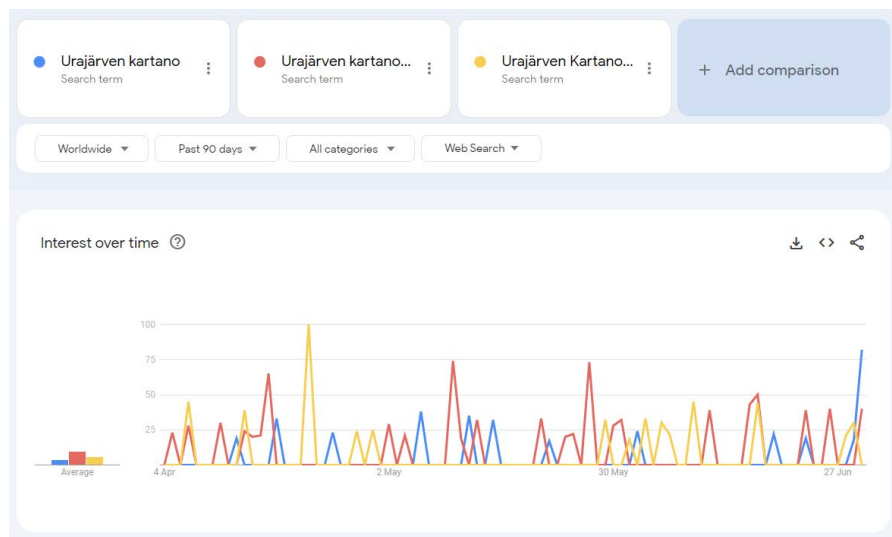
Side-by-side view of the real object and the AR experience, The Urajärvi Manor Museum

The municipality of Asikkala granted us with a small grant for renewing our information boards. This helped us to create new coherent visual identification. We were able to showcase our project in one exhibition in Päijanne Talo that allows us to communicate with a wider audience about this project. The summer theatre has returned after the pandemic. We are now having a renovation of toilets in one of our outbuildings and we received preliminary approval for using free space there to create a digital exhibition about our local history. It seems that the DOORS Digital Incubator for Museums sparked a big change. The Urajärvi Mansion Museum is getting its first facelift since 2013, when major renovation was carried out by the Finnish Heritage Agency. We are grateful to be able to work with the whole Doors Team and hope to create more projects in the future with innovative technologies.

## Benefits & Impact

The most significant short-term impact is the amount of publicity the project gained in the media. Special programmes and interviews have been made. The information has been showcased on news, the radio, the national broadcast website [YLE](#), the free local newspaper, and the regional newspaper, a full article.

Our website has gained a lot of traffic. Now the website is visited over 500 times weekly, and the average stay at the site is 1.32 seconds. Google trends confirms that when features about the museum had aired on TV, the museum had been searched more times. The picture shows three main keywords - Urajärvi Manor (blue), Urajärvi Manor Museum (red) and Urajärvi Manor Theatre (yellow).



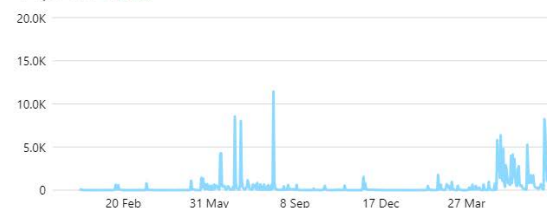
The Urajärvi Manor Museum

The increased interest in and searching for the museum usually starts around May. The end of the month marks the holiday season in Finland. The traditional holiday is Midsummer when most people search for the nearest events. Facebook and Instagram also show this trend, and this year increased interest started already in February when we announced 3D scanning with LAB. The first announcement post gained the biggest peak in December on Facebook.

### Reach

Facebook reach

41,961 ↑ 57.5%



Instagram reach

1,535 ↑ 95.5%



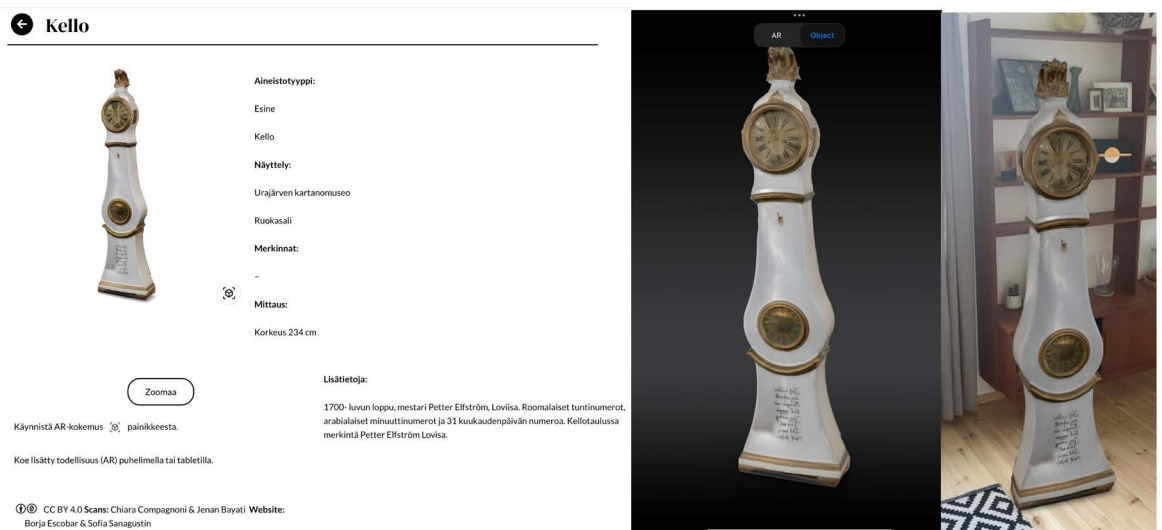
The Urajärvi Manor Museum

A bachelor thesis has also been written using knowledge and data gained through the project. Justyna Neuvonen wrote '[Game development for museums](#)'. The thesis is available online.

As the project proceeded, Urajärven kartanon ystävät ry decided that there is a need to create a digital exhibition and activity space in our outbuilding. We got preliminary approval for the use of the space. This idea will be developed further this year.

## Limits & Drawbacks

Web-based AR solutions seem to be very popular nowadays, making people think it is a simple task to create such a thing. The biggest problem in this case was to choose a technology which would support different devices like phones, tablets, computers, and would be cost free and with low maintenance time required in the long run. The idea was to search for an open-source technology that would not generate additional cost, but would suit most different devices, depending on what AR experience we needed. That is why for 3D models, published on our website, we have used the <model-viewer> library and plugins for Word Press.



Objects seen on website on tablet view, AR object view on tablet and object in space, The Urajärvi Manor Museum

This allowed us to showcase the models on computers and scrollable objects and access AR when the user is using a tablet or smartphone. Unfortunately, this solution does not work on all devices - smartphones without gyroscopes will not be able to access the AR solution, but it is still possible to see the object on the monitor. For the other AR solutions, we have been using the MindAR library, and for blocking and basic first testing the Adobe Aero. This has allowed us to design different triggers and experiences for visitors.

## Future Prospects

The DOORS Digital Incubator for Museums was a great opportunity for us to open ourselves up to new technologies. We are trying to think about how to develop different ideas and we are creating new collaborative partnerships. This project has made us think in three different ways.

First reflections concerned us as an organisation, who we are, where we stand in a digital world, and who we would like to attract to join us. We are now creating a new strategy and we are trying to answer those questions and create an expansion plan. Strategy writing will help us understand our needs, coordinate tasks, and aim at goals. This part will be expanded after the end of the project as well.

The second way of thinking was how we expand as a museum. The experiences which we gained while 3D scanning, and development of the experiments, showed us that there is interest in showcasing our collection online in different ways. With the help of Lahti University of Applied Sciences, we can do scientific projects and showcase them in a fun way to the audience. We hope to develop more ideas together and create a relationship of long lasting cooperation.



The third way of thinking is how we can help other museums in our municipality and region. We wanted to test how we can use open-source libraries and tools to improve visitor experience. The work of micro museums, run by associations, is very important for local people. Such museums count every euro and sometimes even the smallest amount of money could be a problem. The DOORS Digital Incubator for Museums could also expand into creating an open-source database of good practices and solutions in a form of do-it-yourself. Small museums and local companies could then continue the digitalisation process based on free tools and solutions.

### Key Take-Aways

- Testing is the most important element in creating digital solutions. Even well designed and tested solutions might need some redesign now or in the future.
- Understanding your audience is crucial. For whom the solution is designed? This question and various needs were taken into consideration at every stage of the design process. Did we succeed? Probably not, but we are for sure closer to the ideal scenario!
- Communication, communication, communication... There were better and worse moments, but overall we have improved communication inside the association, both with visitors and our stakeholders.
- Strategies, digital solution canvasses, game design documents, personas etc. Those tools all help to communicate, and it is worth using them and changing them to fit our needs.

### Involved Parties

- [Ometta Softworks](#) (DSP)
- [Municipality of Asikkala](#) (funding)
- [LAB University of Applied Science](#) (3d scans)
- [Museovirasto](#)



## Who | Institutional Profile

<b>Institution</b>	<u>Pro Terra Sancta</u> for Terra Sancta Museum
<b>Location</b>	Jerusalem, Old City, Israel
<b>Short Description</b>	<p>The Pro Terra Sancta Association specialises in the implementation of projects for the conservation and enhancement of cultural heritage. These aim to increase awareness of common roots in local communities and represent opportunities for sustainable development. The Association also promotes projects in the educational and social fields and intervenes in support of humanitarian emergencies.</p> <p>Since 2012 the Association has been collaborating with the Franciscans of the Holy Land to develop the Terra Sancta Museum (TSM). This has involved spearheading fundraising initiatives to establish the first sections of the museum, overseeing the project of the new permanent exhibition, and crafting a specialised program tailored for schools in Jerusalem. This programme aims to provide students with an opportunity to rediscover the profound wealth of the cultural and religious heritage throughout the Holy Land.</p>
<b>Ownership</b>	Both the museum and association are private institutions.
<b>Size</b>	The Pro Terra Sancta Association has 40 employees worldwide, and the team dedicated to the Terra Sancta Museum is composed of 7 people. The Terra Sancta Museum has an average of 30,000 visitors per year.

<b>Approach to Digital</b>	<p><b>Input by Sara Cibin</b></p> <p>The Pro Terra Sancta approach to its digital strategy is open and supportive of pilot projects when it comes to developing interactive multimedia tools to better engage with the public. Although regarded as an opportunity, digital projects are usually linked to some fear relating to the size of investment they require and their sustainability in the long term. Many issues arise with the use of technology, from the initial investment to the cost of maintenance and licences.</p> <p>Digital tools are mostly used in the field of cultural heritage, but at the same time, the organisation makes use of certain tools for internal collaboration and management.</p> <p>The organisation leverages social media platforms and a website as the primary channels for sharing information and promoting its projects. It maintains an active presence on various social media platforms, such as Facebook, Instagram, and LinkedIn. These platforms enable the organisation to connect with a wide range of individuals, including supporters, volunteers, and potential partners. Regular updates are posted to share information about the NGO's mission, ongoing projects, upcoming events, and success stories. Engaging content, including photos, videos and infographics, is created to attract and retain followers.</p> <p>Pro Terra Sancta has a well-designed website that serves as a central hub for information about the organisation and its activities. The website showcases the NGO's mission, values and objectives, along with detailed descriptions of ongoing and completed projects. It also provides comprehensive information about the team, partners and ways to get involved.</p>
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Terra Sancta Museum has a small staff, and their approach to technology is highly diverse; the front of house is not adequately trained to use digital tools, and they show some resistance. The curatorial and management areas are more sophisticated in the use of technology, but they do not experiment or propose a digital transformation. For this reason, all digital tools that are at present integrated into the museum were developed in-house by Pro Terra Sancta.

Their lack of motivation, more than a true objection or fear of new technologies, is what slows these projects down, making them harder to tackle.

The Director of Terra Sancta Museum, Fr. Eugenio Alliata, states: *'As far as new technologies are concerned, I think the response of the public is very varied. Certainly, it is likely that the response of the younger generations may be more favourable... However, there is a risk that what we come up with is practically already outdated or the users are already saturated with it.'*

## What | Case

<b>Project Title</b>	<b>Digital Storytelling and Gaming App: The TSM Quest!</b>
<b>Timeframe</b>	November 2022 – September 2023

### Concept & Approach

#### Where it started

After two years of designing educational resources and welcoming kids at the museum, we realised that it was very difficult to attract a certain age range and interact with them. So what was attracting them all the time? And what was becoming more and more relevant, especially after the lockdowns of the pandemic? Smartphones and digital content. We thought that if they were not coming to the museum, we had to go to them, on their smartphone and provide some enjoyable digital content.

#### How it started

##### **The first attempt at developing a gamified digital experience for the Terra Sancta Museum**

The initial plan was bigger and more complex, but at the same time, less focused because the development of a game app was something completely new to our team, so we had no previous experience. This was probably the main reason that drove us to this pilot project: we wanted to gain skills, knowledge and experience in a field that has gained a significant impact on our sector and cannot be overlooked.

The concept of the pilot was born by looking for a tool that could foster meaningful and fun interaction through a hybrid reality experience that tapped the historical knowledge the Terra Sancta Museum offers.

New technologies are appealing to the young public, but we wanted them to be at the service of the cultural heritage (its physical evidence) and not distract our visitors from it. Having done some research and studied other cases around the world, we found that gamification and storytelling could be the path to follow.

The tool is a gaming app that follows a storyline. It includes interactive features that are developed in a participatory manner with the target group of the project, the marginalised Arab community living in the catchment area of the museum. In this sense, the digital solution does not entirely replace the physical experience, it rather enhances it.

Our focus for the game app was to highlight the connection between the museum's collection and its surroundings; we identified this as a focal point because we wanted to promote a sense of belonging and ownership among the young Palestinians living in Jerusalem.

## How it was along the way

We started by harnessing the data we already had, creating a list of objects from the museum's collection with a meaningful connection to an outside location in the surroundings. The first matrix looked like an extensive collection of information; the scope of it was to record all the layers of information and content that we already had of a selected item. The challenge of this pilot was to convey several layers of knowledge in an easy-to-understand way.

1	ID object	Title	Description	Dates	Discovery / Collection	Location	Type of connection	Object of connection	Place of connection	HR
2	DB number if present					room/ showcase in the museum	historical, iconography, place of finding, presence of similar object, etc.	description of the object or detail we connect with the museum	geographical point in the city	yes if y be in c shc r.i.
3										
	CTS-SB-09410	decoration	slab, probably wa	mamluk period	n.d.	SBF 9.9 H1b	presence of similar c	decoration wall entrance	Aqbat e-Taqiya Ma	yes
4	CTS-SB-03506	"pilgrim" flask	flask with globula	early roman	Abu Dis (tomb)	SBF 2.6 O2.4	use of the vase to co	fountain / water	Siloam pool because	yes
5	CTS-SB-03526	stone vessels	early roman			SBF 2.6 N2	use of water for spir	roman pools / ritual baths	Probatic pool (saint	yes
6		mosaic	floral geometric p	byzantine per	dominus flevit		place of discovery	floor	Dominus Flevit Mon	yes
7		ossuaries	stone boxes vario	early roman	dominus flevit		place of discovery	cave with second burials	Dominus Flevit Mon	yes
8		corinthian capital	corinthian capital	early roman	sa called tomb of Herod's family	SBF 2.3	place of discovery	the place of the tomb, in t	sa called Herod's far	yes
								some of the stones decorating the entrances		

The first matrix, Terra Sancta Museum

After completing the matrix, we realised we needed some guidance on the process of developing a digital game, and this led us to our search for a suitable digital provider. We had a reality check at this point, realising our budget, internal resources, and timeframe were all very much limited compared to the standards of the game app industry. Luckily we timely received a straightforward advice, making us realise that we had to reshape the project according to those limitations we had.

After some meetings and a lot of internal debate, we chose a company – [Locatify](#) – that offers a platform for developing location-based guides and game apps with an affordable yearly subscription plan. In this way, we were able to invest part of our budget to contract a graphic designer and pay for other content creation services.

We had another offer for a more artistic and tailor-made product, but the price this company requested, even though with a considerable discount in consideration of us being not-for-profit, was almost the whole budget we had for the pilot. It would have meant that we had no money left for contingencies or any other expenses.

In parallel with the search for a partner, we were planning to do field research by organising a focus group with children and educators in our area. Unfortunately, the museum is located in a very special place, in the heart of Jerusalem and at the very centre of the conflict. A period of unrest in the Old City means that children, schools, and families will avoid the area, and so we couldn't hold the focus group in person at our premises. We resorted to an online survey that we distributed through our database of contacts. While it was not the same, we got some interesting results. The survey was both in English and Arabic.

The survey, Terra Sancta Museum

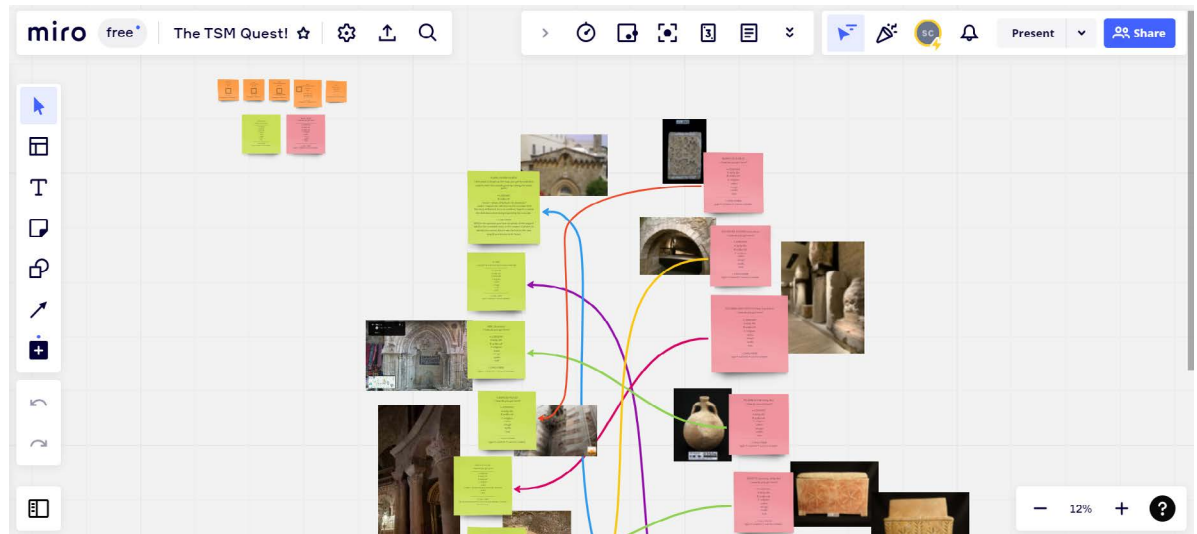
The survey, Terra Sancta Museum

## The learning phase

After collecting all the information (about the content, our public needs and technical requirements), we started the learning phase, which was very valuable but also very difficult.

Using a standardised tool means that a lot of game and usage dynamics are fixed, and you have to find your way to create what you need for your project. Also, the company offers technical support, but it is not carrying out the designing or thinking process behind the structure of the game. Conceptualising a game app when you are not a digital game designer is not easy. It took us a moment to understand how to make our project work in the digital environment. The first step was to use a template for a fairly common tool that is used in the game sector: a game design document; this gave us direction and helped structure our efforts. In the second step, to help us visualise the game, we used a shared visualisation tool where we put together the pieces of our puzzle.

Our board at an early stage:



Miro board, Terra Sancta Museum

## The testing phase

We are planning on a soft launch with a game app that is 80% complete because we believe the testing will be the most relevant stage of the pilot. It will allow us to understand if the story, the content and the gameplay are working together and if they are enjoyable to our target group. The next and final launch will complete the game app, and will incorporate the changes we will need to make based on feedback.

## The launch

The last step of the pilot will be the launch of the app. It will be done through social media and by inviting different groups to create teams and participate in a simultaneous challenge with prizes for the best team. After this launch day, every child who comes to the museum and completes the game will receive a small gadget from our bookshop.

## Benefits & Impact

The main goal of this project is to develop a tool for the Educational Department of the museum to expand its outreach toward the youth in our local community, with particular attention to the Arabic-speaking one. This segment of our public is the most distant and least served in the area, with scarce to no access to quality cultural offerings. Our aim is to catch the interest of these young people and encourage them to investigate and discover the art and history of their city and museums.

A secondary goal of the project is to create a tool that can inform us about the needs and behaviour of the targeted public through collecting and analysing data on the usage of the app.

The Terra Sancta Museum is part of a museum network in East Jerusalem, where on a regular basis it implements joint activities and capacity-building workshops with the network's

museums. The TSM team intends to transfer the knowledge it gained during the project development to other colleagues in East Jerusalem museums.

My friend, a resident of the Old City of Jerusalem, once told me, ‘When I was a child, I was curious to know what’s behind the eye-catching blue door of Terra Sancta Museum, but I thought that only tourists are allowed into this place, as I never saw Arabs visiting it.’ My friend’s words resonated with me. They made me think that one of the core objectives of the newly established educational department should be to show the connection between the places familiar to locals and what the museum offers. Also, the geo-political situation in Jerusalem and the systematic violence the Arab youth are experiencing negatively impact their identity construction and sense of belonging. The ‘TSM Quest’ is helping the department expand its outreach towards the Arabic-speaking youth in our local community and contribute to enhancing their access to quality cultural offerings. Our aim is to capture the interest of these young people and encourage them to search out and discover the art and history of their city and museums, which foster their identity construction.

Additionally, the project will serve as a tool that can inform us about the needs and behaviour of the targeted public through the collection and analysis of data on the usage of the app. This will influence the overall strategic direction of the educational department.

Working as an educator over the past 8 years, I have noticed that the fine motor skills of the new generation are being affected by their prolonged exposure to the 2D screens of their phones and tablets, conversely, they spend less time experiencing the 3D real-world and creating with their own hands. As the digital transformation of the world is inevitable, our hybrid reality solution shows how the digital complement the physical experience rather than entirely replacing it.

As our project will be the first of its kind in the museum network in East Jerusalem, the gaming app will serve as a model to advocate for integrating the digital into museum learning. The knowledge we gained during the project development will be transferred to other colleagues in East Jerusalem museums.

### Limits & Drawbacks

- Limited financial resources to develop a game app
- Limited time and human resources
- Difficult context (political and social tension, conflict, and unrest in the area), giving limited access to the museum
- Huge amount of information to be transformed into digital content suitable for the target group

### Future Prospects

The Terra Sancta Museum is part of a museum network in East Jerusalem, where it implements joint activities and capacity-building workshops with the network’s museums on a regular basis. The pilot team will transfer the knowledge it gained during the project development to other colleagues in East Jerusalem museums. It will also promote the gaming app as a model for a successful digital transformation so that it encourages other museums to integrate digital approaches into their strategic plans.

In the context of Pro Terra Sancta, the way we developed the app, by using a platform that offers multiple projects under one licence, is opening the door to future use of the same system for other cultural heritage-related projects that are being implemented in Palestine and other Arabic-speaking countries. The team involved in the pilot will share their experience and acquired expertise with colleagues operating in projects with similar contexts and missions. The intended result is that they can evaluate the solutions we found and the possible applications to their projects.

### Key Take-Aways

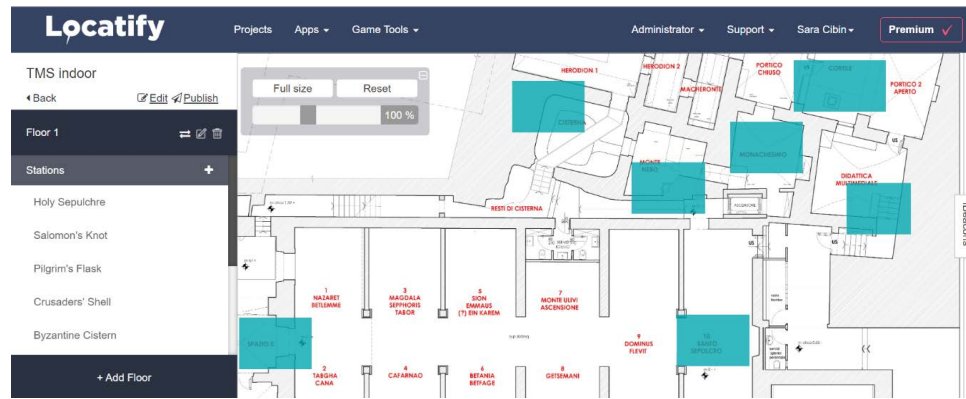
- When approaching a new tool or solution, be at peace with the idea that it will be, more than anything else, a learning experience and a valuable one.
- The learning curve is high if it is your first project of this kind and especially if your budget is limited.
- You need to do a lot of testing, and soft launches are your friends.



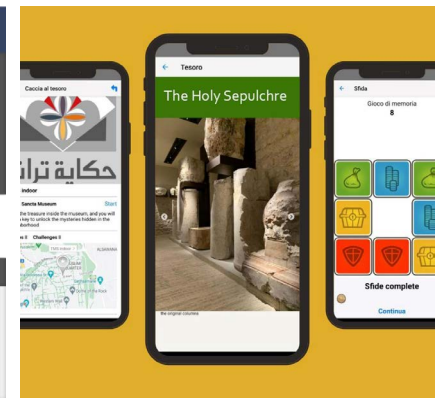
- Changing and reshaping the project as it moves forward is acceptable.
- Honest and open conversations with suppliers were very useful, so don't be afraid to share the details and constraints of your project.

## Involved Parties

Locatify (app development)



Terra Sancta Museum and Locatify



Terra Sancta Museum

## Who | Institutional Profile

<b>Institution</b>	<u>Istanbul Dialogue Museum</u>
<b>Location</b>	Istanbul, Turkey
<b>Short Description</b>	<p>The Dialogue Museum was established by the Dialogue Social Enterprise Association, hosted by Istanbul Metropolitan Municipality and Metro Istanbul AŞ.</p> <p>Istanbul Dialogue Museum is an interactive and immersive museum that is delivered and performed in collaboration with people from disadvantaged and socially excluded backgrounds. The project explores universal questions around isolation, access, creativity and human connection. The experience seeks to create tolerance and awareness about disability and difference. By bringing people together around arts and culture, creating dialogue and sharing experiences the museum aims to create a more inclusive society. The museum hosts a four-pillar experience:</p> <ul style="list-style-type: none"> <li>● <i>Dialogue in the Dark</i> is equipped with exhibitions and events in total darkness where blind facilitators moderate the experiences of visitors.</li> <li>● <i>Dialogue in Silence</i> is an exhibition about non-verbal communication, where participants discover a repertoire of expressive possibilities with the help of deaf and hearing-impaired guides and trainers.</li> <li>● <i>Dialogue Café</i> employs and trains deaf and hearing-impaired people to become baristas. This enables the public to have dialogue with deaf people as they visit the café and order drinks in Turkish Sign Language (TSL), assisted by the unique assets and signage around them.</li> <li>● Dialogue Art enables a place for artists from marginalised communities to share their stories through artistic expression. The museum collaborates with artists in creating an intimate forum for people of all walks of life to engage in thought-provoking conversations.</li> </ul>
<b>Ownership</b>	Diyalog Sosyal Girişimcilik Derneği (Dialogue Social Enterprise Association) is a non-profit organisation
<b>Size</b>	33 employees (30 of them people with disabilities)   2013 – 2023 +500,000 visitors

<b>Approach to Digital</b>	<p><b>Input by Faruk Ertürk</b></p> <p>We acknowledge the potential benefits and opportunities that digital technologies can offer in terms of improving accessibility, reaching wider audiences, and enhancing visitor experiences. By leveraging digital tools and platforms, we have created a more inclusive and interactive environment for our visitors.</p> <p>However, it is important to note that digital transformation initiatives also surface certain attitudes, fears and expectations within our organisation. Some of us may have reservations or concerns about the adoption of new technologies that could disrupt established processes. Others may have limited digital literacy skills or be unfamiliar with digital tools, which could create a learning curve.</p> <p>To address these challenges, we have been investing in fostering digital literacy providing training and support to our staff members. It was also important to create an environment</p>
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where everyone feels safe to embrace digital technologies and invited to contribute to our organisation's digital strategy.

Our organisation's expectations regarding digital transformation are centred around enhancing accessibility, increasing visitor engagement, and improving the overall visitor experience. We have been leveraging digital tools and platforms to create new opportunities for interaction, storytelling, and knowledge-sharing. To measure the impact of our digital initiatives we used metrics such as visitor feedback, engagement rates and analysing recurring visits.

Approaching digital as a means to enhance our mission and values, rather than seeing it as a separate entity, we challenge ourselves to develop a seamless and immersive experience for our visitors. In line with our approach, we have implemented the following:

1. developed and activated a loyalty application to provide added value to our committed visitors.
2. increased our social media activity, actively involving our guides and visitors in developing the museum's online presence.
3. implemented digital donation channels to facilitate convenient and secure contributions.
4. Established regular communication with visitors through monthly and special day newsletters and podcasts, gradually nurturing the bond between us.
5. improved our sustainability efforts based on visitor feedback, ensuring that their input shapes our actions.
6. continuously work on making our digitisation efforts more meaningful and enabling with the contributions of our visually and hearing impaired employees.

## What | Case

<b>Project Title</b>	<b>The Only Way to Learn is Through Encounter!</b>
<b>Timeframe</b>	November 2022 – June 2023

### Concept & Approach

The concept of our museum is rooted in the desire to develop and offer inclusive and immersive experiences for the visitors. As a team we acknowledge the digital divide faced by individuals with disabilities. So here is an overview of how it all started.

#### Concept birth

The idea of the museum was born out of the vision to provide a transformative experience for the visitors that would promote empathy, enhance understanding and inclusivity. As founders, we recognised the power of dialogue and storytelling in breaking down barriers and fostering connections between people with different abilities.

#### Scope

The scope of the museum's concept is to create a space where visitors can engage in meaningful conversations and gain insights into the experiences of individuals with disabilities. We aim to challenge stereotypes, dismantle prejudices and create a more inclusive society.

#### Tools used

The digital transformation journey plays a crucial role in achieving our goals. We utilise various digital tools and platforms to open up the space for accessibility and engagement.

These tools include:

- Website  
We have developed and designed the website that is accessible, user-friendly and serves as a central hub for information about our museum, its exhibits, and events.

It includes detailed information on museum's accessibility features and online ticket booking alongside interactive content.

- Digital Storytelling  
We employ digital storytelling techniques, such as videos, podcasts and interactive multimedia to convey the experiences and perspectives of individuals with disabilities. These tools facilitate a deeper understanding and emotional connection with the stories being shared. We also actively employ social media platforms like Instagram, Facebook and Twitter to connect with our audience, share stories, engage in dialogue and for promotion purposes.
- Assistive Technology  
We incorporate assistive technologies, such as captioning, audio descriptions and sign language interpretation to ensure that our digital content and platforms are accessible to individuals with diverse needs.
- Digital Feedback and Evaluation  
We utilise digital feedback systems to collect visitor testimonials, measure engagement rates and gather data on visitor experiences. This information helps us evaluate the effectiveness of our initiatives and make improvements.

## Benefits & Impact

The holistic approach towards the project **The only way to learn is through encounter!** and mindful step-by-step integration of interactive digital solutions has significantly improved visitor experience. Visitors have expressed positive feedback about the use of assistive technologies, emotional design of personalised stories and the opportunity to connect with staff members.

- Sustainable Employment  
The project has contributed to the sustainable employment of disabled individuals within our organisation. By providing training and employment opportunities, we have empowered individuals with disabilities and supported their integration into the workforce.
- Increased Awareness and Empathy  
The project has raised awareness and found resonating ways to foster empathy among the visitors towards the challenges faced by people with disabilities. It has challenged preconceived notions and stereotypes, through powerful emotional experience.
- Knowledge and Expertise  
We gathered valuable knowledge and expertise in the field of digital accessibility and inclusion with the project. This knowledge can be applied in future projects and shared with other organisations, contributing to the advancement of accessibility practices in the museum sector.

In addition to these tangible impacts, the project has also had intangible benefits such as increased motivation and pride among staff members, improved morale and a sense of fulfillment in making a positive impact on the lives of individuals with disabilities.

## Limits & Drawbacks

During the implementation of the project, there were several internal and external limitations and challenges that we faced.

### Internal challenges

- Limited Resources  
The organisation had limited financial resources, which posed challenges in terms of implementing and sustaining the digital initiatives. It required careful budgeting and prioritization of activities.
- Technical Expertise  
Developing and implementing digital solutions required technical expertise that was not readily available within the organization. We had to either upskill existing staff members, which demands time and consistent investment, or collaborate with external partners to fill the knowledge gaps, which implies costs.

## External challenges

- Digital Accessibility  
Ensuring the accessibility of digital content for individuals with disabilities is challenging. Investments in assistive technologies are significant, and we had to conduct accessibility audits and make continuous improvements to meet the diverse and now better acknowledged needs of our visitors. Keeping up with evolving accessibility regulations and standards is an ongoing challenge. We have to regularly review and update our digital practices to ensure compliance
- Connectivity and Infrastructure  
In some cases, limited internet connectivity or infrastructure posed challenges, especially when implementing online platforms or relying on digital tools.

We managed to cope with these challenges through collaboration, continuous improvement and a strong belief in the project's mission. We sought external expertise, formed partnerships and maintained open lines of communication within the team and with stakeholders to address the limitations and navigate the complexities of the process.

## Future Prospects

Our project has sparked several areas and aspects that can be further expanded and translated into other contexts within the museum sector.

- Digital Accessibility  
The inclusive digital solutions and assistive technologies we developed can be expanded to other museums and cultural institutions, allowing them to enhance accessibility and provide equal opportunities for all visitors.
- Storytelling and Visitor Engagement  
The use of personal stories and testimonials from staff members and visitors has proven to be a powerful tool for engagement. This approach can be further expanded to create interactive and immersive storytelling experiences in other museum contexts, fostering a deeper connection between visitors and the exhibits.
- Loyalty and Reward Systems  
The implementation of loyalty and reward systems can be adopted by other museums to encourage recurring visits and increase visitor engagement. By offering incentives, such as exclusive content or special offers, museums can foster a sense of appreciation and enhance loyalty in a long run among their visitors.
- Digital Transformation and Innovation  
The overall digital transformation process we have been undergoing as a team and organisation can serve as a roadmap for other museums seeking to embrace digital technologies and innovation. From developing digital platforms to integrating new tools and technologies, museums can follow a similar approach to enhance their operations and visitor experiences.

## Key Take-Aways

The podcast series has been highly successful for our institution, offering a simple but impactful platform for storytelling and raising awareness about the experiences of disabled individuals. Here are some factors that made it special and the experiences we have had:

- Amplifying voices  
The podcast series provided a powerful medium for influencers and disabled individuals, including our museum staff, to share their stories and perspectives. It gave them a platform to be heard and hopefully understood by a wide audience.
- Emotional connection  
The podcast episodes were designed to evoke emotions and create a deep connection with listeners. By sharing personal stories, challenges and triumphs, the series helped to break down barriers and nurture empathy.
- Educational and informative  
The podcast episodes delved into various aspects of disability, accessibility and inclusion. They provided educational insights, challenged misconceptions, and offered practical tips for creating more inclusive spaces and milieus.

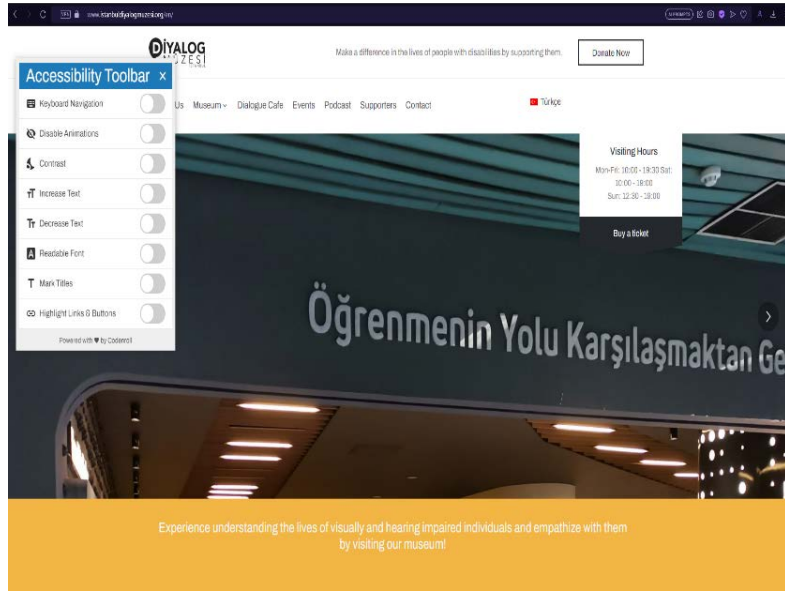
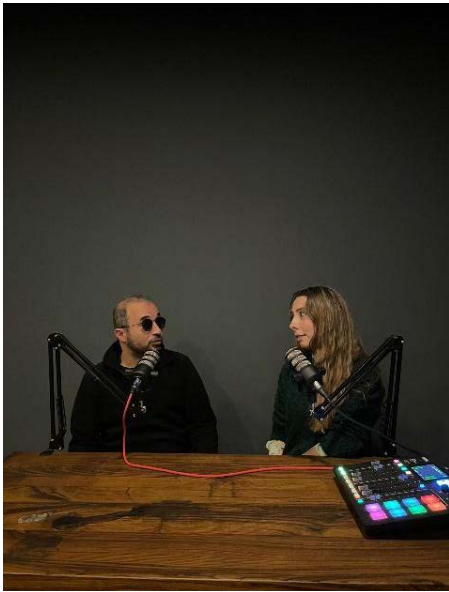


- Diverse perspectives  
Featuring a range of guests - including disabled staff, experts, and advocates - added depth and richness to the conversations, providing a wider coverage of disability issues.
- Expanding reach and influence  
The podcast series enabled us to reach a wider audience beyond our physical capture area, extending our influence and message to people who may not have otherwise engaged with our institution.

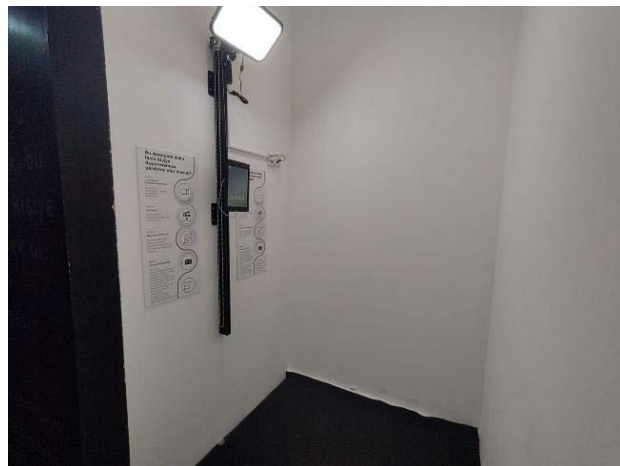
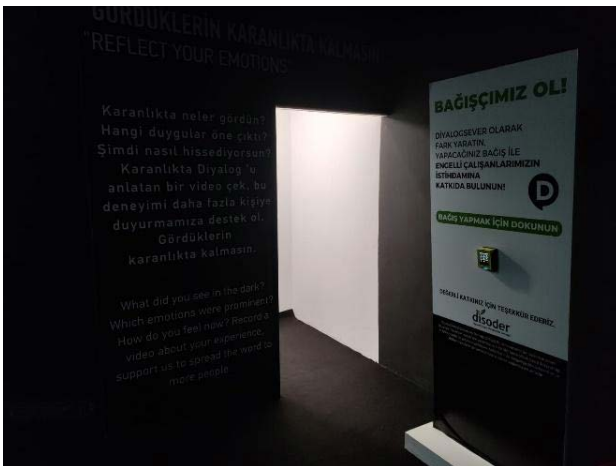
Overall, the podcast series have been instrumental in raising awareness, fostering empathy and creating a positive impact both within our institution and the wider community. It has given voice to disabled individuals, challenged societal perceptions and informed about possible actions and more ethical practices, thus contributed to our mission of promoting inclusion and understanding.

## Involved Parties

- Multiligo Reklam Bilişim Pazarlama ve Danışmanlık LTD. ŞTİ. (digital solution partner)
- BD İç Mimarlık İnşaat Sanayi Ve Ticaret Limited Şirketi (construction process of the video feedback areas)
- Mimeray Grafik Ürünler Basım Tesisleri Ticaret Ve Sanayi Anonim Şirketi (design of the guide for the video feedback area)
- İstanbul Büyükşehir Belediyesi (Istanbul Metropolitan Municipality) (the owner of the public space where the museum is located is a public institution)
- Metro İstanbul A.Ş



Istanbul Dialogue Museum's feedback areas, website and Podcast in the Dark, Istanbul Dialogue Museum



Istanbul Dialogue Museum's feedback areas, website and Podcast in the Dark, Istanbul Dialogue Museum

## Who | Institutional Profile

<b>Institution</b>	<b>IMPAKT</b> [Centre for Media Culture]
<b>Location</b>	Utrecht, the Netherlands
<b>Short Description</b>	IMPAKT [Centre for Media Culture] is a critical art platform that focuses explicitly on media art and culture. Starting from contemporary art and digital culture, IMPAKT looks at the influence of technology and media (social media, mass media) on our lives, our society and our democratic rule of law. Throughout the year, IMPAKT organises events, exhibitions, performances and more, including our yearly IMPAKT Festival: a five-day multimedia event that takes place in Utrecht and online. In its programmes, IMPAKT aims to provide space for a broad spectrum of views on the topics that are important to us, around technology, media, art and society. IMPAKT takes a critical look at the dogmas and power structures in our society and aims to provide space for dissenting voices.
<b>Ownership</b>	IMPAKT is privately owned.
<b>Size</b>	In 2022 IMPAKT had 6.32 FTEs employees and 10.16 FTEs in total (freelancers, interns and volunteers included).

<b>Approach to Digital</b>	<p><b>Input by Esther van Zoelen and Thomas van't Groenewout</b></p> <p>IMPAKT sets out to be at the forefront of technological advancements, and it is crucial for us to keep evolving and developing new formats that use and showcase new technology.</p> <p>As part of this mission, IMPAKT has been successfully experimenting with online and hybrid formats for two years now. The IMPAKT Festival 2020, for example, took place entirely online, with 5,592 online visitors from all over the world, and the 2021 festival had a hybrid format. At IMPAKT we believe in the great added value of digital and hybrid formats, yet we are also conscious that it is not yet ideal in terms of audience engagement, especially when it comes to interaction and participation across the online/onsite boundaries.</p> <p>Through our approach to digital, we want to create more value for people as they become able to actively participate in our programmes in new ways, lowering the threshold for online participation and interaction. Our focus on the creation of online and hybrid programming is also made with the values of inclusion, diversity and equality in mind. These are reflected both in the themes we discuss as well as the speakers, artists and other participants we invite for our events. Sustainability and climate change is another important issue we try to address with these new formats. Our focus on digital programming partly started due to the wish to reduce our carbon emissions and make our events more sustainable.</p>
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## What | Case

<b>Project Title</b>	<b>Innovating Audience Engagement for Hybrid Events</b>
<b>Timeframe</b>	November 2022 - July 2023

## Concept & Approach

### How it got started

At IMPAKT we have been working on hybrid and online events for a while now. Both during our annual festival, as well as smaller events and projects. We are also part of the [Project Going Hybrid](#), a 24 month-long research project into the future of hybridity for the cultural field. The [IMPAKT Hybrid Art and Wine Tasting Event 1.0](#) is an example of a hybrid event we experimented with before DOORS.

For researching how we can best approach our audiences, we started using specific communication strategies. In order to reach a specific group of visitors for the IMPAKT hybrid events and to give them a suitable and good experience, we used several methods that helped us determine our target audiences. The focus was on how to communicate with them in a clear and exciting way. All communication actions together eventually helped us to construct an arch of engagement. This arch can, after the first events, become a template for more audience communication in the future.

During the DOORS project, we worked with four Work Packages, in which we researched and worked on different phases of the project. These are:

1. Project Management
2. Research audience segments and design visitor journeys
3. Production and development technology
4. Evaluation and dissemination results.

Throughout these phases, we prepared the tools and communication strategies that we could use with our audiences. These are described below.

### The hybrid events

Before we examine the tools and strategies used, we will briefly describe the hybrid events we worked on and organised during the DOORS project. When we began working on the events, we found that in order to receive more insights from their outcomes, a third event should be added. Since the events we organised were small-scale and not many people could participate, a third event would be a way to receive more feedback from our audiences. This is why we first focused on two events and later the third event was added.

#### ***IMPAKT Hybrid Wine and Art Tasting Event 2.0***

17 March 2023

For this event, the audience was invited to taste several wines, with guidance from a wine connoisseur. Aside from this, there were also hybrid art presentations the audience could experience. The art programme of the Wine Tasting focused on two things: 1. On how a virtual environment can influence our taste experience (so more an exploration of the digital than the social) 2. The second artwork was more an examination of the ritual of eating together using AI. This event was an interesting project, since it combined the very physical sensation of tasting wine with digital communication. This way the audience could experience how a typical social and often intimate event of tasting wine in a group can become hybrid and connected to a digital community of other people around the world. The IMPAKT Hybrid Wine and Art Tasting Event 2.0 was made to attend from home, with the intention of reaching more audience members and more flexibility in who could join, compared to the first wine tasting event we organised.



Hybrid Wine and Art Tasting Event 2.0, IMPAKT, photo by Pieter Kers

## ***Project Stargaze***

19–21 May 2023

Project Stargaze was the second hybrid event that IMPAKT organised in May, a hybrid experience by artists Roos Groothuizen and Derk Over. This interactive game explored the future of humankind, when we have become one with digital technology. It challenged participants to play games and overcome challenges, together with their ‘online mind’ – another participant with whom they communicate digitally.

## ***The Great Idle***

31 May 2023

The hybrid, mixed-reality performance *The Great Idle* was made by artist Benjamin Pompe and invited its audience to follow a lone person on a digital deserted island. Connected to this person was a live performer at IMPAKT. The audience determined the movements of the performer, who controlled the main character through a motion capture suit. This way they became one body: physical and digital. Moreover, the audience – both online and onsite – could influence the lone person’s wandering around the island, by choosing what they would do next.

### **Tools used**

The tools and strategies we used for audience engagement before, during and after IMPAKT’s hybrid events helped us in defining our audience, how to approach it, but also how to flow our gained knowledge towards the rest of our IMPAKT team. The following tools show how we approached these issues.

- **Personas and profile types**

The first tool contains templates with personas and profile types that help us in determining what our audience looks like and in gaining insight into how we can approach and connect to our visitors. In the past years, IMPAKT has developed and divided its audience into seven audience segments (what we call: IMPAKT Profile Types). These types are created by looking at their interests, age, life stage, the amount of money they have to spend and how they spend their time. Starting from this year we are more actively working with these segments for all the events we organise. Concretely, this means that during the development of each event, we select focus segments, based on the content and typology of the event. The communication and marketing strategy of the event is based on the choice for the segments.

As a part of our research and to help us prepare for our first DOORS pilot event (the IMPAKT Hybrid Wine and Art Tasting Event on 17 March 2023), we engaged with the entire team in a workshop to further define one of our audience profile types. We conducted an extensive workshop and group brainstorm session, led by Kim van den Brink of [Ask Your Audience](#), to help us discuss our existing audience segments and how we felt we could best appeal to them. This was an interesting experiment that proved to be of huge added value, as we were able to gain many insights about our audiences from the different departments in the organisation. We found that keeping our audience segments in mind from the start led to different decisions being made. To build on that awareness, we are looking for ways to integrate this into our standard workflow for developing new programmes.

Using the profile types as a starting point, together with Van den Brink, we also discussed several personas for specific hybrid events that helped us to imagine visitors attending the events. Here we zoomed in on the specifics of the personas, their possible names, gender, age, typical features and personalities. Also covered was their connection to IMPAKT, how well they know the organisation, how they prepared themselves for their visit and how they would experience the event. This was an important aspect of our communication plan, since it made us think about who our audience is and how we should respond to them.

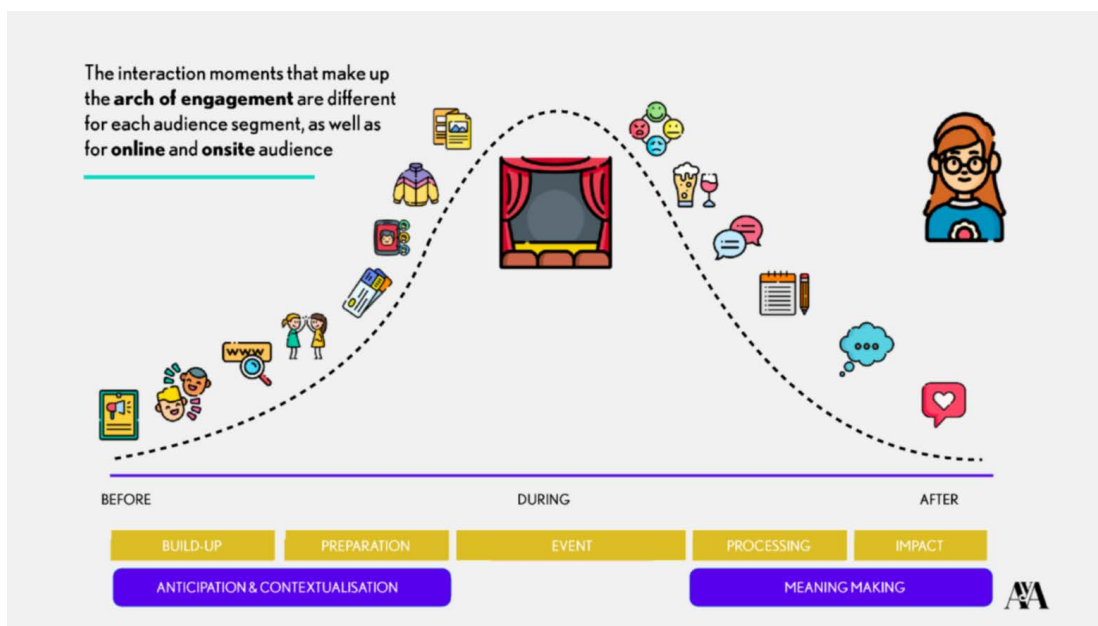


PROFILE TYPE	PROFILE	SHORT DESCRIPTION	IMPAKT PROGRAMMES
1) Young culture vultures	Age 17-35 students or recent graduates no children not much money to spend	Students or recent graduates (for instance in humanities or arts). Active, cheerful, adventurous, but have to be careful at the end of the month. Broad tastes or heavily or over-artistic. Focus on physical activities with a social component.	<ul style="list-style-type: none"> <li>• Out of Office</li> <li>• Hybrid events: Project Stargaze + The Great Idle</li> <li>• Betweter</li> <li>• Uitefest</li> </ul>
2) Creative extroverts	Age 25-40 no children quite a lot of money to spend	Young, creative city-dwellers (including expats). New experiences and trends (NFTs, memes). Tech-minded. Outgoing and extrovert programmes: experiencing culture is above all a social activity. Broad tastes and less social criticism, as long as it's trendy and being talked about.	<ul style="list-style-type: none"> <li>• Out of Office</li> <li>• Uitefest</li> <li>• Art &amp; Wine Tasting</li> <li>• IMPAKT at NFF</li> </ul>
3) Art & culture connoisseurs	Age 30-45 young children quite a lot of money to spend	Busy jobs and not much time to spare, and therefore very choosy. Have tastes of their own and know exactly what they want. Content is the key. Niche programmes such as Weird Gnosis or Tabita Rezaire. The social component is important, but if they want to see someone in particular they're perfectly happy to go there on their own.	<ul style="list-style-type: none"> <li>• IMPAKT Festival 2023</li> <li>• EMAP Residency</li> <li>• IMPAKT at NFF</li> </ul>
4) Professionally motivated	Age 30-60 Dutch or foreign professionals; enough money to spend (especially on work), but are often on guest lists	Art & Culture Connoisseurs with a professional interest in IMPAKT's programmes. Busy jobs and not much time to spare, and therefore choosy, but will come if the topic is worth while. Their standards can be high, for their professional background makes them familiar with the topics and debates.	<ul style="list-style-type: none"> <li>• IMPAKT Festival 2023 (accreditation, separate communication flow)</li> <li>• EMAP Residency</li> </ul>
5) Tech-minded	Age 25-45 usually no children plenty of money to spend	Keen on technology and gadgetry, and enthusiastic about the new things you can do with them. Open to criticism as long as it's substantive. Have no problem with show-case technology, but do expect IMPAKT to offer them something special.	<ul style="list-style-type: none"> <li>• CODE</li> <li>• Share your Techlore (EMAP Residency events)</li> <li>• Hybrid events: Project Stargaze + The Great Idle</li> </ul>
6) Critical thinkers and activists	Age 20-55 no children not so much money to spend	Environmentally aware, with commitment to today's problems. Critical and sceptical about technology and the impact of tech and tech firms on our lives and our planet. Less interested in art, but more interested in the critical debates and topics in IMPAKT's programmes. Looking for greater personal and in-depth development.	<ul style="list-style-type: none"> <li>• IMPAKT Festival 2023</li> <li>• Out of Office</li> <li>• CODE</li> </ul>
7) Cultivated art-lovers with settled lifestyles	Age 40-65 Single, or children who are already adult or have left home; quite a lot of money to spend	University-educated. Looking for quality. Very familiar with more traditional art forms, but also curious about new ones. Above all socially committed, and very interested in climate issues. Not so fond of very theoretical and complicated art. Also less drawn to online programmes.	<ul style="list-style-type: none"> <li>• Tentoonstellingen</li> <li>• Debating events</li> <li>• IMPAKT at NFF</li> <li>• Art &amp; Wine Tasting</li> </ul>

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### ● Arch of engagement

To map and visualise the specific needs of each audience segment, we chose to work with the so-called 'Arch of Engagement'. An Arch of Engagement is a helpful way to visualise the entire experience of the visitor and the ways they interact with IMPAKT in the different stages of their journey. After experimenting with user journeys during the workshops in the first phase of the DOORS incubation programme, we found this arch extremely helpful to map the different communication moments. For the scope of this pilot, we chose to focus on the phases that were not yet tackled within our current experiments with hybrid formats: the anticipation and contextualisation and the meaning-making phases. Each phase can consist of several touchpoints. The concept is to hook the customer at every point of the process. An important aim we have with hybrid events in general is to draw the audiences from their 'spectating' role, to a more participatory 'co-creative' role.



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The specific personas we created were placed into an ‘arch of engagement’, which consists of a timeline with stages before, during and after the event. The stages are: 1. Becoming conscious of the event and deciding whether to go 2. Preparation 3. Artistic exchange 4. Evaluation 5. Ending decision and impact. Within these stages we included the actions of the persona and the communication coming from IMPAKT, with steps such as ‘reads Instagram post’, ‘it’s worth the money’, ‘stays for a drink’ and ‘feels inspired and will come back to other events in the future’.

The short texts in an arch of engagement are of course ideal developments of actions and reality will most likely differ from what we think could happen. Still, these considerations helped us prepare for how audiences would react to our communication, as well as how we can adjust our communication with an eye towards our expectations and actual behaviour of the audience. The arch of engagement furthermore is still an experimental tactic that is in constant development and in the process of setting up. The audience feedback will also constantly influence our communication strategies in order to give visitors online and onsite the best experience we can offer.

A persona we have worked with to create an arch of engagement for The Great Idle is a ‘Young Culture Vulture’. We named them Tom and imagined he would know about the event – this is the build up phase – through a newsletter, an Instagram post, or possibly through his study’s teacher. As preparation, he would send the post to his friends and read more about the artist who created the artwork. Then he decides to go. During the event he is immersed into it and does not process a lot of it until just after it has ended. He stays for a drink and asks the artists some questions, or checks out some of the other events that are happening. In the impact phase he looks up things that he wrote down earlier and would enjoy seeing another event, especially if it connects to his studies or if he can go with some friends. This is an example of how the arch of engagement is put into action.

#### ● **Direct and indirect communication**

During our hybrid events, we made use of different kinds of communication, these are indirect as well as direct. Some examples of indirect communication with (possible) audiences are social media, newsletters, advertisements generated by other institutions and partners, and information spread by cultural agendas and artistic platforms.

Along with personal types of communication such as ‘word of mouth’ and personal letters to partners to join the events, an interesting direct form of communication is Whatsapp messages. During our hybrid events in this pilot, we experimented with sending Whatsapp messages to connect with audience members. When buying a ticket, audience members could write down their phone number, to which we could send messages in the preparation phase, as well as just before the event or after it has ended. For this, we prepared some messages beforehand, which we could send to everyone who would join. Some of these messages had a practical nature, such as asking whether visitors of the hybrid wine tasting event had already bought their wines. And others were more informal, with the intention of making personal contact with the audience members and creating an active atmosphere. We experienced that visitors mostly replied to our messages in a practical manner, for example, saying they would be slightly late or if they had bought their wines already. We are still looking for ways in which we can make these messages more interactive and exciting.

#### ● **Coaching sessions**

During the hybrid events period we talked with mentors Lauren Vargas and Vanessa Mignan. With Lauren Vargas, we focused on the IMPAKT Hybrid Wine and Art Tasting Event. She helped us with gaining more insight into our communication with audiences. We specifically went into Whatsapp communication. We reflected on whether our messages are clear and transparent enough, as well as what we would do with the messages and pictures audiences sent us. Moreover, we focused on creative ways of asking for feedback from the audience, instead of a traditional survey.

We spoke with Vanessa Mignan shortly before our other two pilot events, Project Stargaze and The Great Idle. She helped us gain more insight into our way of communicating and how

to develop this. For the hybrid events, we have been working with small groups of audiences, due to technical aspects of the events. This resulted in intimate meetings and experiences, which were qualitatively rich and in which communication between participants could emerge. Whatsapp is an example of how we tried to increase this intimate and close communication. As mentioned above, these messages were sometimes replied to in a practical way and did not seem to connect to all of the audience members, although others reacted positively to them. For the audience target groups, we want to focus on not over-segmenting them and to diversify our personas.

With each event, we will understand better what the wants and needs of our audience are, by formally and informally asking them about their experiences. These vary from 'How did you prepare for this event?' to 'Did your experience match your expectations?' and from 'What are your main takeaways from this event?' to 'What could we improve?'. Something we can try for this is organising group interviews, creating interviews that go in depth about the event, or use fast interviews to grasp a visitor's first impressions of the event. Importantly, all these interview versions should be transparent about our need to learn from the visitors.

- **CRM programme**

Together with Dutch software developer Loggix, we have started developing our FileMaker-based CRM (Customer Relationship Management) system. During the DOORS project, we continued working with them to develop our system so we can better organise and further enhance our audience communication, and also have better communication within our IMPAKT team.

Through the CRM, we can store and organise our visitors' data, which we receive from different platforms, such as our newsletter and our ticketing system. This allows us to more effectively segment our audience, as well as improve our communication. The CRM allows us to get a more detailed picture of our visitors, such as age and which programmes they visit. That way, we can better see which programmes resonate with which audiences.

This CRM is still a work in progress, and we look forward to the increased possibilities it will offer us.

## Benefits & Impact

Our online and hybrid events and exhibitions have proven to be very effective formats to engage wider, more international audiences. There is great value in continuing the development of online and hybrid formats as a potentially sustainable and inclusive way to reach audiences and organise international collaborations, to prepare for possible new pandemic-related restrictions, and as a way to connect with younger generations that spend more and more time online.

### *Transfer gained knowledge to the team*

In order to improve our knowledge on communication strategies and to reach audiences, it is important to transfer our gained knowledge to the rest of IMPAKT's team, as well as to other partners. We aim to do this formally, as well as informally, depending on the content and group of attendees. An informal way of doing this is by raising these issues during IMPAKT's internal two-weekly meetings. A formal way of transferring knowledge is by writing guidelines and a toolkit about our insights and by stating their importance for future use. This way we can apply our knowledge to the next hybrid projects. In the first year, we will reflect on these guidelines after each event and adjust them where necessary. As they become more and more concrete, this will be needed less regularly. This will be driven by the team members who were also closely involved in DOORS. By sharing with our partners and other art and culture platforms, we can enrich the artistic field with new knowledge on hybrid events as well. Just like we do during our festival and other events, we aim to include artists who are experimenting and working with hybrid formats.

Here we pointed out some more benefits and impact we noticed when working on the DOORS project:

- inspired audiences during the hybrid events through engaging with them in new communicative ways;

- engaging with artists who specifically work with hybrid art;
- a better preparation for future hybrid events, by engaging with online and onsite communication and by connecting audiences in a direct way to hybrid experiences;
- reflection on hybridity with other institutions and organisations;
- experience of tailoring communication with visitors and reflecting on these by understanding the insights they give, which we can communicate to the other IMPAKT team members;
- a better understanding of what our audience looks like;
- a better understanding of how to connect to small-scale audiences of hybrid events.

## Limits & Drawbacks

Possible limitations and challenges we faced and are still working on, are the following: Firstly our dependency on audiences for receiving feedback after the event has taken place. It is often difficult to make audiences fill in surveys or receive more information on their experiences of attending an event, when it is not built into the event itself. The low number of visitors that would likely attend our hybrid events makes this even harder. For Project Stargaze there were 16 participants for each game and during the Hybrid Art and Wine Tasting event not more than six people could join in front of one camera. The limited number of visitors both during the IMPAKT Hybrid Wine and Art Tasting Event, as well as during Project Stargaze and The Great Idle, created intimate and social experiences for the participants, but also made our learning process slower. The scale of the audience influenced the pace of learning, since more people provide more diverse and informative insights that help us to further nuance our way of programming events and the corresponding communication. We find that direct communication strategies can already improve this difficulty, but it remains something we want to explore further.

Another difficulty that we are currently facing is how to involve the whole IMPAKT team into our communication strategies plan and our insights into how to create richer audience experiences for our events. IMPAKT has a relatively small core team, which is often changing, especially since we work with many interns. This means we have to find ways in which we can share our wishes and needs for audience engagements, also when we are working in busy periods. We aim to communicate our approach to audiences consistently and to involve IMPAKT team members from all departments.

A third challenge is finding ways to bring in audience members, especially when the set-up and medium of the event is not entirely clear and the idea of hybridity scares visitors. For the hybrid events we organised, it was often not entirely clear how this would be experienced from the start, because of the new and experimental characteristics of the artworks. This was made evident by the ticket sales of *Project Stargaze* - an event for which friends had to be online and offline, separated in space. Although in the end both game days were filled with visitors, ticket sales started off very slow. The hybrid aspect of our events also had a negative effect on audiences' enthusiasm, since they expected to have to work out technical difficulties themselves.

Since the end of the Covid lockdowns at the start of 2022, we have found that audiences have been late with deciding whether to go to an event or not. This makes the anticipation and contextualization phase difficult to engage with audiences. Because of this, it is important for us to take into account this consumer behaviour when setting up an arch of engagement.

## Future Prospects

With the continuing development of technologies, the possibilities for creating engaging hybrid experiences will only keep improving. Meanwhile, the ever increasing need for creating sustainable and inclusive programmes shows us the necessity of hybrid programmes. This means that working on enhancing the *anticipation and contextualisation* and *meaning-making* phases is an ongoing process, with many new opportunities and challenges to come.

- To make the most of these opportunities, we found several aspects throughout our DOORS research that we want to work on in the future and wish to implement into our workflow:
- Arches of Engagement for each of our seven profile types.
- (Semi-)regular workshops to discuss our target audiences and the Arches of Engagement.

- Sharing our findings with other organisations so they can build upon our research.
- Collaborating with other organisations, artists and educational institutions to find new audiences and keep developing our product.

## Key Take-Aways

Our biggest take-away from our experiments with hybrid formats so far is that we must invest in new and engaging ways to communicate and interact with our audiences. Our current hybrid experiments focus on the experience of the visitors during the event. Yet, there are also numerous contact moments for visitors before (anticipation) and after (meaning-making): how they get their tickets and event reminders, how they get context information and how they are asked for feedback. How, when and through which channels and platforms this happens, might differ; not only in relation to the audience segments, but also in relation to the way in which one is following the event (online or onsite).

Other take-aways connected to this are: how we can use templates and prototypes for audience engagement, what way of communication works well before, during and after hybrid events and how we can approach online and onsite audiences for receiving feedback about their experiences in creative and new ways.

We have had to analyse our audiences thoroughly in order to apply our communication strategies to our audience in a good way. This means adjustments have to be made throughout the process, for example, changing a profile type completely in accordance with our current visitors, and reflecting on who we think our audiences are, and who they actually are.

Another important take-away is how we can transfer these insights to the rest of IMPAKT's team and how we can let our learnings come into practice in the future. Sharing new findings is difficult to put into words when we are still processing them ourselves. This is something we are working on.

Lastly, we find that it stays difficult to make the anticipation phase for online audiences as strong and exciting as it is for onsite audiences. Their environment and social connection is often less immersing and all-embracing compared to that of physical visitors. This, again, is a work in process, and also shows the importance of this research.

## Involved Parties

[Ask your Audience](#) (audience analysis)  
[Loggix](#) (FileMaker)  
[Voordemensen](#) (ticket sales)  
 Artists IMPAKT Hybrid Wine and Art Tasting Event: [Sophia Bulgakova](#), [Leo Scarin](#) & Cemre Deniz Kara, [Cenk Güzelis](#), [Valdemar Danry](#) and [Anna Pompermaier](#)  
 Artists Project Stargaze: [Roos Groothuizen](#) and [Derk Over](#)  
 Artist The Great Idle: [Benjamin Pompe](#)

IMPAKT is involved in two large research projects that experiment with new hybrid formats for public events. Within the multidisciplinary collaborations of the Innovation Labs, RAAK-SIA we work with multiple partners that help us in curating and realising hybrid events in 2023:  
[Institute of Network Cultures](#)  
[Framer Framed](#)  
[The Hmm](#)  
[MU Eindhoven](#)  
 Varia  
[Hackers & Designers](#)  
[The University of Applied Sciences Amsterdam](#)  
[The University of Applied Sciences Rotterdam](#)  
[Willem de Kooning Academy](#)

## Who | Institutional Profile

<b>Institution</b>	<u>The National Museum of Maps and Old Books</u>
<b>Location</b>	Bucharest, Romania
<b>Short Description</b>	The Maps Museum is a small and active museum, with a unique collection of maps and graphic art dating from the 16th to the 20th century. The museum aims to be a relevant institution for the public, promoting research, interactivity, lifelong learning, creative engagement and inclusion. It is a place destined for learning experiences held in an experimental creative museum space.
<b>Ownership</b>	Public
<b>Size</b>	12 FTEs

<b>Approach to Digital</b>	<p><b><i>Input by Teodora Dumitrache and Ioana Marinescu</i></b></p> <p>The museum is no stranger to technology. Fortunately, it has a young team, curious enough and open to new ideas. Whether we are talking about digitising the museum’s collection or the Augmented Reality inserts within our museum, we are constantly trying to find the proper means of teaching about maps, geography and history to our public. We know that it can be tricky at times, but we are not discouraged by it. We will never be, because we know the value that technology can bring.</p>
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## What | Case

<b>Project Title</b>	<b>Hands on the map! @ Maps Museum</b>
<b>Timeframe</b>	November 2022 – September 2023

<b>Concept &amp; Approach</b>	<p>The approach in this scenario is to transform the Maps Museum into a learning tool that aligns with school curricula and supports teachers and parents in explaining concepts of various subjects to primary school pupils. Our manager identified a gap between the museum’s collection and the content covered in school curricula, and she aims to bridge that gap through a new approach to museum education.</p> <p>The goal is to enhance the educational value of the Maps Museum and make it a valuable resource for teachers, parents and students. By incorporating concepts from Geography, History, Biology, Science, and other subjects, the museum aims to provide a comprehensive learning experience that complements classroom teachings. The ultimate objective is to help younger visitors better understand these subjects by offering interactive and engaging educational materials within the museum’s exhibits and programs.</p>
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**Context. Why did we do this?**

- an extremely low rate of young museum visitors in Romania
- an almost non-existent connection between museums and schools
- a very low level of interactivity and digitalisation in Romanian museums

**What did we do?**

- An educational pilot project of digitalisation that aims to attract young museum visitors and diminish the gap between museums and schools.
- An educational application that would be used mainly in the museum, on smartphones or tablets, especially by young visitors of 10 to 14 years of age, during school trips, family visits or with friends, but not limited to them. All museum visitors interested in multimedia and technology are part of the target group, and also the school teachers, museum professionals, Maps Museum's staff etc.

**How did we do it?**

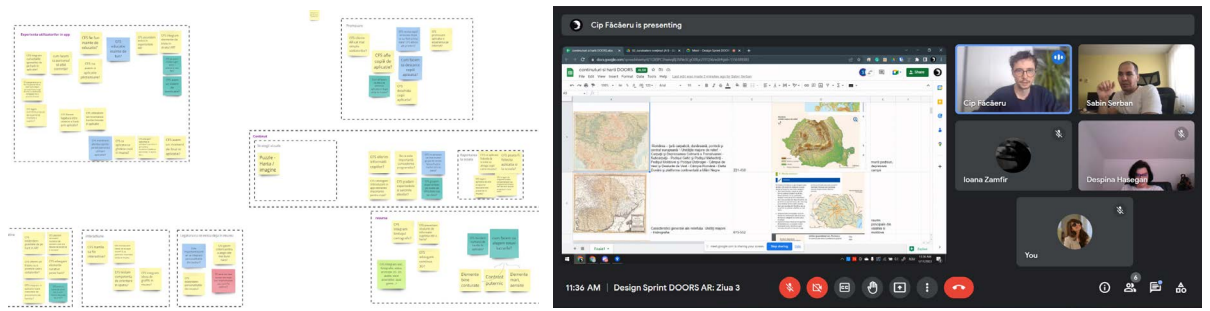
- Creating meaningful edutainment experiences related to school curricula, but outside of the conventional space of the class.
- In order to attain this result, an interdisciplinary team of museum specialists, school teachers and mobile augmented reality designers, creators and developers worked together.
- The app can stand as a base for RECAP and EVALUATION activities for teachers.

**The school curricula:**

- The Romanian school curricula for History, Geography, Biology, Natural Science and IT lists competencies (a set of attitudes, knowledge and information that children are supposed to achieve, acquire and master) that are enriched with new content each year. School curricula tackle topics such as:
  - exploring relevant sources in order to understand facts from the past and present;
  - localisation in time and space of various historical moments;
  - relating real space and territory to its cartographic representation;
  - understanding the space around us through orientation in space;
  - understanding map scales, orientation on maps, drawing maps of various spaces;
  - problem solving etc.

**Chronological steps & where are we now?**

- Teachers have been involved in the configuration of the concept since the beginning and will continue to accompany the whole process of app creation.
- We designed the app based on a sprint design with the developing team (defining the problem and its solutions, objectives, indicators, success metrics, imagining the user's journey, narrative drafts etc.).
- We selected the VIP maps and objects linked with the school curricula and we designed tasks around them.
- To frame the tasks of each object, we designed a story around them, along with a character called Nova.
- The next step was to write the script and implement everything we imagined.
- In May we had the first prototype of the app, where children pre-tested the app at key points of development. We carefully gathered and analysed the feedback from the participants.
- A debriefing meeting with the developing team was held focusing on improvements to the app and storytelling, based on the received feedback.
- We completed the storyline.



Zoom call and Miroboard activities, The National Museum of Maps and Old Books

Next steps include

- organising the casting and recording the narration voice that needs to be integrated in the app;
- the final tests with school children and teachers;
- implementing the communication strategy and organising the launching event;
- the final step: App launching with our audience within the museum.

Some of the tools we used during our meetings: Miro, Google Hangout, ZOOM etc.



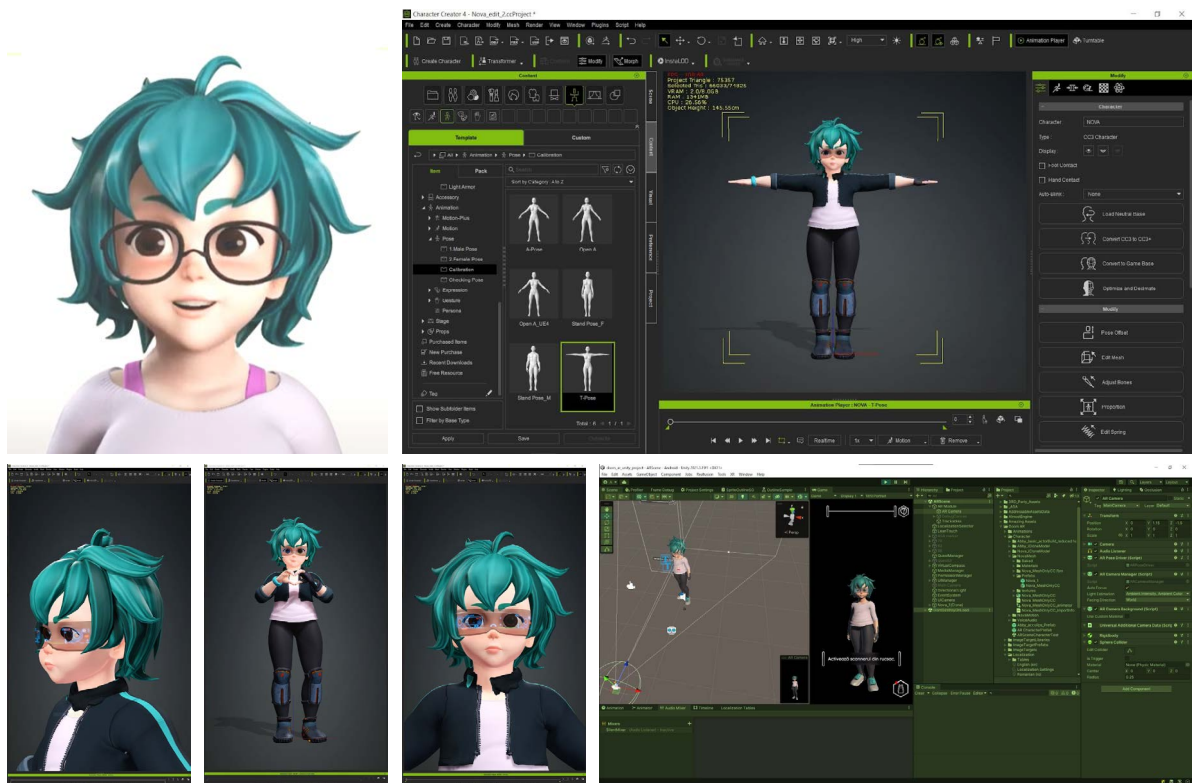
Testing the app with the target group, at The National Museum of Maps and Old Books

### How about the character? Meet Nova!

Nova is a charismatic 13-year-old time traveller from the year 2103 who visits the present through advanced AR holographic technology.

With a passion and curiosity to discover the past, one of Nova's hobbies is to uncover stories and solve old mysteries.

TOV: enthusiastic, friendly, playful, in accordance with our main character.



Nova character, The National Museum of Maps and Old Books

### Character traits

- Intelligent and determined: When Nova sets her mind on a goal, she will surely achieve it.
- Enthusiastic: Nova's passion for uncovering stories is infectious, and she strives to make her passion engaging and fun for museum visitors.
- Friendly: Nova is understanding and enjoys working in a team, easily forming bonds with visitors of all ages and backgrounds.
- Adventurous: Nova has a natural curiosity that prompts her to explore the museum and the historical events associated with the maps, creating an immersive experience for visitors.
- Resourceful: Equipped with her holographic gadgets and knowledge of our current present (her past), Nova can quickly adapt to situations and find creative solutions to challenges that arise during the tour.

Nova's mission is to inspire museum visitors and create an unforgettable AR experience. It attracts many visitors, fostering an inclusive environment that encourages curiosity and exploration.

To give meaning to the tasks, we firstly had to think of a meta-narration, which means:

1. The story that justifies the presence of the main character.
2. The need for user involvement in the overall story.

This character is NOT a museum guide. She is a teammate, with whom the participant can carry out the tasks. The main focus is on these tasks - based on the knowledge learned from the subjects of grades 5-8, which are related to the objects in the museum.

The application does not have a traditional pathway. It can be started from any floor of the museum: there is an introduction of the user to the story, after which she/he/they can start solving the tasks with Nova's help.



## **So why is she here? The Meta-Narration.**

Nova is contacting the user from the future because she needs his/her help. In her interdimensional exploration she got stuck in space and time due to a miscalculation, and the only portal that can be reactivated to continue the exploration is from the Map Museum in Bucharest.

She can't get there physically, but she can communicate through this AR app. Incidentally, with the user's help, she can holographically teleport and they can work together to decrypt the interdimensional portal. For this plan to work, the user must complete (with Nova's help) all the tasks in the app.

## **Benefits & Impact**

### **Short-term impact (quantitative)**

The metrics and analytics component included in the design of the app supplements our research and our reports on our target group, helping us improve our response to our audience's real needs.

Launching the app will have many benefits.

#### **Outcomes - results**

- a minimum of 5 meetings of the project team
- a minimum of 5 Facebook and Instagram posts about the project
- 1 announcement on the museum site
- 1 event for launching of the app
- an increase by 10% of children visiting the museum, comparing Aug - Sept 2023 with the same time frame a year earlier
- a minimum of 40 downloads of the app by the ending of the project
- a minimum of 50 children of 10 to 14 years old using the app
- a minimum of 4 teachers using the app
- a minimum of 4 different schools visiting the museum within the project by the end of Sept 2023

#### **Outcomes - products**

- 1 free multimedia AR app for smartphones and tablets, Android and iOS
- 10 tablets purchased for the use of the app inside the museum
- 50 stickers with the app
- 1 Fb & museum site visual for the project
- at least 2 press releases about the project

#### **Increased visitor engagement**

The digital application will attract more visitors to the museum, leading to higher footfall and increased visitor engagement. We expect an increase of 10% of the number of teenagers visiting the museum that download the app.

#### **Increased usage of the application**

In the initial stage we addressed the project for children and teenagers of 10 - 14 years of age, and also school teachers and parents. In 2022 the statistics show that 15% of our visitors are children, compared with 35% before the pandemic. In 2023 we already registered an increasing number of visitors, which also means a higher number of children visiting the Museum. Our communication strategy for the DOORS Project already planted the seeds for promoting the app and we will continue to promote the app.

The number of users accessing the digital application can be measured, providing insights into its popularity and adoption among museum visitors. In order to achieve our KPIs, we will give free museum visits for two weeks to the people downloading the app.

#### **We expect**

- at least 50% of the teenagers visiting the museum in the following 6 months will have used/downloaded the app;
- an increased use of application by 25% in the next 12 months;

- an increased number of young visitors by 20% in the next 12 months;
- a minimum of 4 different schools visiting the museum within the project by the end of Sept 2023

### **Long-term impacts (quantitative and qualitative)**

- Digital confidence

By actively engaging in the development of the digital application, the team members will have the opportunity to enhance their digital confidence and knowledge. They will be more proficient in understanding the process of designing apps, of using multimedia tools, and other digital technologies relevant to the project. As their technical knowledge grows, so does their digital confidence.

- Improved educational outcomes

Over time, the use of the digital application may contribute to improved educational outcomes among students and visitors. It provides a valuable learning resource that reinforces concepts covered in school curricula, leading to better understanding and retention of knowledge.

- Enhanced reputation and visibility

The development of an innovative digital application demonstrates the museum's commitment to embracing technology and providing cutting-edge experiences. This can enhance the organisation's reputation, attract media attention, and increase its visibility within the cultural and educational sectors.

- Research and development insights

The project may provide valuable insights into visitor preferences, engagement patterns and the effectiveness of digital tools in enhancing the museum experience. These insights can inform future research and development initiatives, leading to continuous improvement in educational offerings. The insights will also help us develop new projects in the area of education and technology. Increased usage of the application: The number of users accessing the digital application can be measured, providing insights into its popularity and adoption among museum visitors. We will give free museum visits for two weeks to those who download the app.

- Increased collaborations and partnerships

The success of the digital application project may attract partnerships and collaborations with other institutions, organisations or technology providers. This can open up new opportunities for knowledge sharing, funding and joint projects, further enhancing the organisation's impact and influence.

- Enhanced educational experience

The digital application will likely contribute to a more immersive and educational experience for visitors, allowing them to learn and understand maps in a dynamic and interactive manner. They will make a better link between school curricula and the museum's collection.

### **Limits & Drawbacks**

While the development of the digital application for the museum has its benefits, it is essential to acknowledge the limits and drawbacks that we encountered during the project. Here are some internal and external limitations and challenges that the team has faced:

#### **Internal**

- Resource constraints

Developing a digital application requires adequate resources, including skilled personnel, time, budget and technological infrastructure. Despite having digital competences, creating a digital app can still be a challenging endeavour.

In the beginning, not all of us could clearly see the outcomes of the final product. Sometimes we imagined things that could not be translated into AR technology and had to adjust and think about new solutions / ideas.

- Skill gaps

Even though we are a small team, members may occasionally have encountered skill gaps in specific areas, such as storytelling (game narration), challenges in the collaboration between museum specialists and developer teams. This was due to the difference in language and terminology used by each group, and digital content creation. Also the different backgrounds and experiences that each of us had. These skill gaps can hinder the progress of the project and require additional training or collaboration with external experts. All the mentoring



sessions within this project helped us discover what we are good at, but also what we must improve. This also gave us a clearer vision of the direction in which we wanted to go.

- Team coordination

Collaboration and effective communication among team members are crucial for the success of a digital project. Challenges related to team coordination, different priorities, or conflicting schedules can impact workflow and hinder progress. It was difficult for us sometimes to adjust the DOORS programme and meetings during the Orthodox Holy Easter, because we had to be present at an important, mandatory meeting during our most important religious celebration and during our free time/holiday.

Furthermore, as far as the online meetings scheduled by the DOORS team are concerned, some of these would have been best scheduled at the beginning of the project, not towards the end, especially the mentoring sessions or other workshops.

### External

- User feedback and expectations:

The digital application aims to cater the needs and preferences of museum visitors. Gathering user feedback and aligning it with the project's objectives can be challenging. Balancing diverse expectations and incorporating user suggestions while maintaining the project's scope and feasibility can be a complex task. In the first session for testing the prototype of the app, some children felt bored by some tasks that the app proposed. This could be discouraging to us, but we tried to integrate the feedback received and see things from their perspective.

- Technological compatibility

The digital landscape encompasses a wide range of devices, operating systems and browsers. Ensuring the compatibility and optimal performance of the application across different platforms can be a technical challenge, especially considering the rapid evolution of technology. However, not all children have the latest devices for personal use. This is why we

## Future Prospects

- Interactive learning experiences

The digital app that we created can serve as a foundation for developing more interactive learning experiences within the museum. By incorporating additional educational content, interactive quizzes, or augmented reality features, we can further engage visitors and deepen their understanding of the exhibits.

- Multilingual support

Consider expanding the app's language options to cater to a diverse range of visitors. Providing multilingual support can enhance accessibility and inclusivity, enabling a wider audience to engage with the museum's content and exhibits.

- Expanding our project into the realm of virtual reality (VR)

Is an exciting prospect that can further enhance the visitor experience and open up new possibilities for engagement. Adapting the app to VR can offer a more immersive and interactive environment, allowing visitors to explore the museum and its exhibits in a unique and captivating way. We can take things even further, if the technology allows it, using smart glasses and adapting the app to this medium.

- Integration with online platforms

Extend the reach of the museum's content by integrating the app with online platforms. This could involve sharing curated content, virtual tours, or interactive experiences on the museum's website or social media channels, allowing a broader audience to engage with the museum's offerings remotely.

- Data analysis and insights

Utilise the data collected through the app to gain insights into visitor behaviour, preferences, and engagement. This data can inform decision-making processes, helping the museum to refine its exhibits, tailor educational programs, and continuously improve the visitor experience.

- Collaboration with other museums

Consider collaborating with other museums or cultural institutions to share the app's technology and best practices. By fostering partnerships and knowledge exchange, we can contribute to the development of innovative digital solutions within the broader museum sector.

By exploring these prospects, we can extend the impact of our project beyond the current museum context. The app's features and concepts can be adapted and applied to various other museums, cultural heritage sites, or educational institutions, creating engaging and immersive experiences for visitors worldwide.

## Key Take-Aways

### *The Sparkles - the good, the bad and the funny*

Making an app could be challenging, especially when all the team members have something to say and have strong personalities :) But we aim to present our stories as successful and shining examples. Interestingly, failure often plays a crucial role in achieving this outcome. Our small team experienced a challenging period where, despite extensive research, questionnaires, and inquiries, we desired additional time to comprehend the app's direction and the development process. However, circumstances did not allow us this luxury. We wanted more contemplation time, while the time constraints demanded immediate action. This led to a negotiation process between us and the developing team, where we accelerated our decision-making processes and embraced the opportunity to learn how to make quicker decisions and adapt on the spot.

Furthermore:

The good:

- We created a gamified app from scratch which will be amazing to use for our visitors.
- We gained digital confidence and started using new tools in the digital world.
- We started learning new ways of talking and presenting heritage and the maps of the museum.
- We started accepting and integrating the perspective of others - teachers, children, partners. We also wanted to interact more with their perspectives.
- Team cohesion - this project worked as a team building exercise, we learned to trust each other and how to swap tasks from one to another.

The bad:

- We acknowledged the fact that teenagers don't like to read as much as we liked back in the day, and that the attention span is shorter than ever, which led us to leave a lot of important information out, as it may be tedious for our target audience.
- The budget and the app are tight, meaning we couldn't do all the animation and fun graphics and designs that we had thought up.
- In order for the app to function properly, we aren't supposed to move anything from the VIP objects that appear in the app. This can be, from a conservation perspective, quite exasperating, especially since the main medium of our museum is paper, which is more prone to degradation. This will limit our moves.

The funny:

- We learned a lot from the children testing the app.
- We had fun exploring the museum collection through their eyes.

## Involved Parties

Andreia Petcu – science teacher in primary school, museum educator and a friend of the Maps Museum.

[Augmented Space Agency](#) - an AR company, the DSP part of the project.

# New Content Distribution and Revenue Models

The pilots in this innovation area set the steppingstone for new business models by thinking of new ways to distribute their content and generate revenue. Whether they develop a unique experience to appeal to new audiences, create blueprints for digital solutions that can be adopted by other museums, set-up an E-shop to support professionals and their community, or expand the range of services offered, their goal is to become more resilient and financially sustainable.

## New Content Distribution and Revenue Models

The world is facing a resurgence of risks like rising cost-of-living, geopolitical tensions, the rapid and unbounded advancement of technologies and the escalating impact of climate change. In response to these challenges, museums are finding themselves at the boundaries of the traditional models upon which they were founded. To adapt and thrive, they must explore innovative strategies for their daily operations, develop new ways to generate revenue, and reconsider how they can best provide value to society.

Historically, the topic of introducing new financial models has been a delicate subject for museums in Europe. Many of these institutions are non-profit and state-owned, primarily focused on safeguarding, researching, and facilitating access to the rich cultural heritage they preserve, rather than exploring revenue-generating avenues. However, in times of crisis, museums are recognising the need to diversify their income sources to ensure operational independence.

New content distribution and monetisation is one of the most discussed topics, yet with numerous challenges to overcome. While the global digital media market is growing, museums are experimenting with the development of sustainable digital revenue streams based on B-to-C & B-to-B content monetisation, as well as accompanying consulting services. However, one has to take a look at the whole digital media market, to understand the circumstances in which museums have to survive.

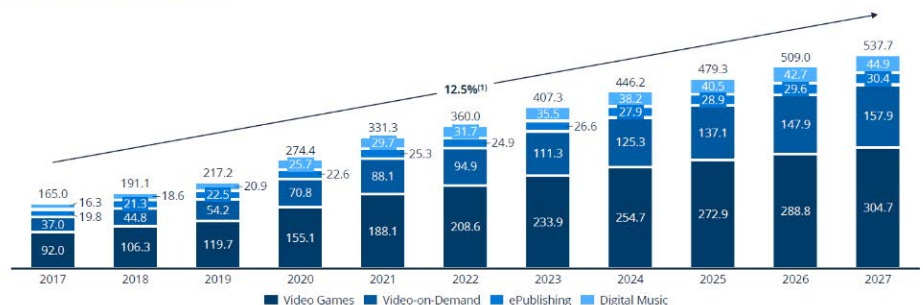
### The digital media market is one of the fastest growing

According to the report published by Statista in 2022, the digital media market presents opportunities for profitability as it has been generating billions of euros per year with an expectation to increase even further 12,5% by 2027 (Trenker, 2022).

The global Digital Media revenue is expected to grow at a CAGR<sup>(1)</sup> of 12.5% to US\$537.7 billion by 2027

Market size: revenues (1/2)

Global revenue forecast in billion US\$



Notes: (1) CAGR: Compound Annual Growth Rate / average growth rate per year  
Source: Statista Digital Media Outlook 2022

Figure 1. The global digital media market and its expected growth by 2027.

Statista (2022). Global revenue forecast in billion US\$ [Infographic]. In Trenker, J. Digital Media – Market Data Analysis & Forecast. Retrieved from <https://www.statista.com/study/44526/digital-media-report/>

But what falls under the umbrella term digital media and how can museums be competitive within this market? As we see in the Statista report, the digital media market focuses on delivering digital content through electronic devices such as computers, smartphones, tablets, and other internet-enabled devices in four different segments: (1) video games, (2) video-on-demand, (3) e-publishing and (4) digital music.

The digital content landscape is highly diverse, with various segments and sub-segments. For instance, within the realm of video games, we find mobile games, download games, online games, and gaming networks. Video-on-demand can be further categorized into video streaming, video downloads, and pay-per-view content. E-publishing encompasses e-books, e-papers, and e-magazines, while digital music includes music streaming and music downloads.

Companies operating in this market, such as social media platforms, streaming services, online news outlets, video game publishers, and digital book publishers, offer a wide range of digital media products and services. These services span social networking, entertainment, news, and educational content.

The digital media market has been experiencing rapid growth, driven by factors such as increased internet accessibility, faster connection speeds, and expanded mobile device coverage. As new technologies emerge, and consumer preferences increasingly favour digital media consumption, the growth will only accelerate. Museums have the opportunity to leverage digital content to reach global audiences, attract more visitors, and create meaningful digital experiences in a digital landscape often filled with ambiguous information.

## **Digital content monetisation: the challenges**

Museums face a multitude of challenges when it comes to monetising their digital content. These challenges encompass the swift evolution of digital technologies and a shortage of respective expertise, limited prior engagement in this domain, uncertainties about meeting the diverse demands of specific audience segments, unpredictability regarding usage and return on investment, audience reluctance to pay for digital content, the quest for suitable formats, and intense competition from other digital content providers.

Many initial attempts to monetise digital content faced challenges as online audiences became accustomed to accessing museum content for free. When the pandemic struck, cultural institutions hurried to share their content online without charge, aiming to stay relevant and connected with their audiences during closures. However, as online visitors got accustomed to free content, they become more hesitant to pay for or invest in digital offerings from museums.

The digital content provided by museums faces significant competition from an ever exploding array of sophisticated offers from digital-native companies in the entertainment and leisure industries. Additionally, museums may not always fully recognise the various forms their content can take.

The rapid expansion of the digital media market proves that digital content continues to captivate audiences even after the pandemic. Within the Future Museum research project, MUSEUM BOOSTER in collaboration with Fraunhofer IMW and The Audience Agency conducted a survey on behaviours of online audiences in Germany which revealed that almost 80% of respondents engage with digital museum content up to three times a year (representative survey of over 1,000 people aged 18+ in Germany). The main reasons to engage digitally with museum content were to prepare oneself for an in-person visit, to learn something or have an educational experience, to be intellectually stimulated or to do something new/out of the ordinary (MUSEUM BOOSTER & Fraunhofer IMW, 2023). Findings from the Culture Restart research programme (Insights Alliance, 2020), where respondents were asked about their attitude towards online culture once live performances and visits would be possible again, showed that 23% of respondents would still engage with and pay for events online. 61% of respondents stated they would be less likely to engage with online culture but would still consider online events that would not be available for them otherwise. The great potential of hybrid offers unfolds in the attraction of new audience segments, that normally cannot visit the museum physically, eg, because of geographical distance or mobility impairments. The research findings support the idea that there is a demand for paid digital content, yet museums need to see how they can get a share of the market.



## Content, consulting, customers

Museums have a wide range of options for creating and presenting digital content, including in-app purchases, virtual memberships, online events, educational resources, digital content with “pay-as-you-wish” models, online fundraising, digitizations, digital museum guides, games, digital exhibitions, and podcasts. Museums don’t have to start from scratch; they can draw inspiration from other sectors and industries to identify what resonates with their audience and then adapt these formats to align with their visitors’ preferences.

Moreover, the emergence of a hybrid reality offers museums new opportunities to blend digital content with physical components or package it with enhanced ticket options. It’s important to recognize that there is no one-size-fits-all solution when it comes to digital content for museums, and flexibility is key in catering to the diverse needs and expectations of their specific audiences that need to be mindfully segmented.

To break even the costs of creation of digital content, museums think of multiple ways for return-on-investment. The two sparkle cases are illustrative in this regard: the Jewish History Museum in Romania with its web tool Muzeon – that markets its tool to other museums, which could give potential to other museums to improve the experience that their visitors have; or the Museum of Urban Wooden Architecture in Vilnius with its Interactive hub for wooden architecture that provides consultation services on preservation and upkeep of wooden architecture in the city of Vilnius.

Beyond the “museum bubble” itself, one could also think of more possibilities to offer existing digital content to other industries – including retail shopping, gastronomy and hospitality sectors, which are very much in need of meaningful storytelling. Joining efforts in service and product design proves itself efficient in terms of complimenting expertise across sectors, boosting brand recognition of museums and empowerment of workforce in areas beyond the traditional scope of preservation and research.

It is essential that each museum stays true to its collections and ways of working, building on its strengths and capabilities and understands what it is comfortable with. To make digital content monetisation work and to overcome the challenges attached to it, museums can lean on different formats and leverage the power of creativity, authenticity, and emotional design.

## Reference list

MUSEUM BOOSTER & Fraunhofer IMW (2023). *Future Museum Phase II Omnibus Survey – First results*. Unpublished research paper.

Trenker, J. (2022). Digital Media – Market Data Analysis & Forecast. In Statista (Ed.). *Digital Media Report*. Retrieved from <https://www.statista.com/study/44526/digital-media-report/>.

### Sofia Widmann

is the founder & CEO of MUSEUM BOOSTER. She oversees operations and company strategy and steers its development. Having an economical background, she gained experiences working in both non-profit and for-profit cultural organisations in the fields of event organisation, marketing, and PR. The special focus of Sofia is on new media technology and its influence on success of museums. From 2014 to 2016, she studied this correlation as part of her MBA studies at Modul University Vienna. She is a regular speaker at international conferences on the topics of visitor experience, digital strategies, new revenue models and innovation for the museum sector.

### MUSEUM BOOSTER

is a Vienna-based research & consulting company with a focus on the strategic advancement of museums and cultural institutions through digital transformation and organisational innovation.



## Who | Institutional Profile

<b>Institution</b>	<u>Computer History Museum (Računalniški muzej)</u>
<b>Location</b>	Ljubljana, Slovenia
<b>Short Description</b>	<p><b>“Raising digital heritage awareness since 2004”</b></p> <p>In the last decade humanity experienced a radical change; foremost it became entirely computerised. Because ICT has completely penetrated society there is a stronger need for museum institutions that will document and reflect these changes in society, creating a space for exchange and discussion of pressing technology topics.</p> <p>The Computer History Museum’s collection consists of more than 6,500 examples of hardware and software, books, magazines and related objects representing the history of computing development in Slovenia and abroad.</p> <p>A large part of the collection is maintained in working condition to showcase the pristine interactions with software and human computer interfaces of certain times. Specialised museum laboratory staff extend their creativity into reconstructions of historic experiences such as dial-up internet browsing, and creatively approach the combination of old and new technology to enable unique and engaging visitor experiences. Digital archaeology skills are essential to the Computer History Museum’s UNESCO Software Heritage mission but are also put to use for the broader needs of partner organisations and individuals alike.</p> <p>The Computer History Museum is also a place of knowledge transfer, networking and idea exchange. Through various community events such as tech meetups, book launches, expert panel discussions, lectures and training programs it is a focal point of the local technology community as well as a place for vibrant exchanges between audiences of multiple generations.</p> <p>The museum education department runs afternoon computer clubs, school programmes and teacher training for local and international education staff. The museum works with universities to create new research and to broaden the horizons of young academics in the making through practical engagement at the museum.</p> <p>At the same time a significant proportion of the museum’s audience development efforts goes into keeping things fun with special events, such as dinners at the museum, game nights, trivia nights, family fun, company team building programs, and more.</p>
<b>Ownership</b>	The Computer History Museum is a privately owned volunteer based non-profit institution.
<b>Size</b>	The Computer History Museum caters to approx. 14,000 visitors annually, with a team of dedicated 2 FTE people and a steady group of 10 active part-time team members and volunteers as well as an extended team of another 20 occasional volunteers who participate in select niche activities. Our audience focus so far has been defined by the physical museum location.

## Approach to Digital

### *Input by Gaja Zornada*

Digital runs through our veins. Our core mission is to preserve and present the digital heritage of the recent seven decades of informatisation and its impact on society at large. On a daily basis we work with the digital narrative (machines - computer hardware, software and oral history from the age of digital discovery to the end of the era of digital innocence and the introduction of digital related issues and contemplations about the future it can provide).

That said, we are far from having all our processes run digital, or having a unified level of digital literacy within our organisation. On an organisational level we still need to invest time, thought and effort into supporting our digital strategy goals and implementing processes and solutions to bring theory to practice. Although we have an above average adoption of digital tools, foster remote working online communication as the baseline for our asynchronous and dispersed team, and have digital creativity as one of our core values, we have yet to shift our focus from presenting digital in the physical space of our museum, to truly developing digital stack beyond mere media production and external communication efforts.

## What | Case

### Project Title

**Ctrl+Shift+Esc** – Digital Museum Escape Game and Live Stream Treasure Hunt - a digital framework for turning internal museum expertise into a remote engagement and monetisation product

### Timeframe

2022-2023

### Concept & Approach

#### **Not a lot of things in life age as quickly as the digital**

Being a museum, dedicated to preserving fragments of our digital existence through the decades, we are acutely aware of the production equipment capacity tell-signs of digital products. Every day we are faced with what used to be cutting edge but would now fly well under the expectations of an average consumer of digital products. But despite the inevitable digital ageing, we were able to often identify principles, concepts, approaches, that seem timeless in a sense, preserving their original value through the changing decades of user appetite development.

#### **User behaviour change of 2020-2022**

Like many other institutions, our digital efforts before the pandemic were focused primarily on internal needs and processes. We were gearing up to open a new physical location and most of our audience efforts were concentrated on the exhibition space and things such as adequately conceptualising physical interactive exhibits to illustrate various digital phenomena.

With the profound change towards the use of digital interactions brought to most audiences during the 2020-2022 period, however, we identified for the first time a direct opportunity to address a much wider audience than the physical space ever could. At the same time, we like many others started hedging our location dependency with this digital first model for new revenue generation. We took our initial location-based museum escape game and decided to turn it into an online experience that could be enjoyed by audiences located further away.

#### **Scarcity breeds ingenuity**

As we performed our market research, we discovered that the offering of similar products was existent but extremely resource-demanding and tended not to age well at all. We reached out to the tech community, that is our core subject matter constituency, to validate some hypotheses and the games developers confirmed our fears that creating a really good online interactive experience is far beyond the museum budget or reasonable time investment foreseen for such an experiment and would not be feasible as a stand-alone auxiliary revenue generation product.

Luckily the history of computing is full of brilliant ideas resulting from constraints of early computing power. One of those that we liked a lot in particular is the format of so-called Interactive fiction or text adventure games, where the player interacts with a written text story, influencing the way it unfolds through the actions they type in responses.

We first adopted this cross-over format between literature and computer games in our 2019 CodeweekEU workshops, when we started reaching out to non-computer-first young audiences that didn't identify primarily with the desire for learning to code, do maths or become an engineer. The tremendous impact of creative ideation and imaginative collaboration at those workshops instantly overpowered any fear of coding and it became our staple approach. It also made us realise just how powerful a well-done narrative really is for all those challenged to imagine their next move in a story.

### **Reaching out to a new audience by bringing back a lost art**

So we decided to turn back to this once extremely popular adventure game format, that experienced its peak in the early 1980s and withered out of use when graphic capabilities of home computers accelerated, partially because of the appeal of visual, but partially also because the production studios' twisted competition spiralled into ever harder riddles and less and less enjoyable games, with more focus on challenges than storytelling.

We took it upon ourselves to make text adventures come back - at least for our own purpose - because it so nicely illustrates where human imagination is more powerful than the machine that runs it. Something we need to be reassured of in this new AI flavoured reality. Exercising a vital muscle that must not go out of use...and to test our own group imagination in a new digital first platform turning on its head everything we have so far believed we know about presentation and audiences. It sounded like an adventure. And a sustainable one to begin with.

We discovered interactive fiction is a curious format - too light perhaps for hard core book worms, too demanding for casual players, but with an excellent fit to the edutainment needs of a cultural tourist. At the same time, we discovered it can easily be paired with a conclusive participatory online streaming event in the format of a live treasure hunt from the museum, to give it more substance. Thus extending and deepening the connection with the museum and its subject matter. As it turned out, this combination of individual and group experience also offered itself as an interesting team-building programme format for primarily remote working teams, making us shift our business model to a more reliable business format to avoid the bottomless pits of marketing spends on games platforms geared towards direct consumers.

## **Benefits & Impact**

Although creating a digital first product for a museum no longer means you're going alone on a road less travelled, it is still an exercise far from the predictable everyday museum. If this is to be a successful endeavour, it demands a special dedication from the very top of the organisation all the way to every single participant in the process. You need to overcome the rather large initial intangibility gap, before you can produce a prototype people can begin to relate to. In that, the process of developing a digital product is foreign to a team used to physical presentation production principles, with standardised outcomes (exhibition, experience, exploration box, lecture, workshop,...). The novelty as well as the ambiguity of the process offer ample room for re-evaluating our presentation tactics, organisational growth, internal skills identification, new skills development and introduction of new workflows and reporting paths. If done with a purpose, the process of new product development can serve as an organisational reset button, to balance out entrenched behavioural patterns, stemming from the habits tied to the physical space and objects.

### **Internal – tangible – short-term**

- All departments participation mechanics  
Gaja Zornada, Museum CEO:

*“The most quantifiable internal impact and benefit of this product development project has been a set of mechanisms that allowed us to create workflows allowing for hop-on / hop-off participation of teams from all museum departments. By breaking the large project down into small discrete units that had defined grids of interaction with one another, we were able to introduce a new way of working, upskilling and promoting within the team.”*

- Additional training for team members (storytelling, performance)

Marko Štamcar, Engineer – Head of Laboratory:

*“I find an opportunity to interact with the audience while exploring the museum live very exciting and at the same time daunting because it requires me not only to present clearly and efficiently the content the way we imagined it but also interact in a way that addresses all the inquiries, questions, reminiscing and all other inputs from the audience which come out of experiencing nostalgia in a computer history museum. For that I needed to explore my strengths and weaknesses while giving live lectures and interacting with others. I strive to have a positive impact on those interacting with the museum and at the same time want to keep the focus on our way of telling the story which is a challenging task to manage in unpredictable non-frontal exchange. What used to throw me off balance as an introverted engineer - head of the museum lab - is now much much less of a challenge.”*

#### **Internal – tangible – long-term**

- Empowerment (going beyond default hierarchical structures)

Tara Maja Simonič, Student:

*“When I was asked to shift my focus from day-to-day front of house operations to custodial department work and later this digital presentation of our collection I knew I was going into something new and challenging. What I, as a student of history and cognitive sciences, didn’t foresee is how well all of my insights and expertise will connect in the escape digital project. This was the first time for me to be involved in developing a tech product and I was able to see first-hand how much complexity you need to manage to produce a simple and enjoyable digital experience. I know this time spent working on reimagining the online part of the computer history museum gave me an understanding and product design I would never get in my university curriculum. It also enabled me to take on a much more responsible role than managing the front desk interactions and guided tours which in turn helped me understand the workings of a museum even better and at the same time use my knowledge to help bring to life something new independent of the previous museum content presentation.”*

- Differentiating product purposes based on target audiences and sales tactics – the process of developing this digital-first extension of our museum offering and following correct target audience product development formats resulted amongst other things in exposing team building programmes as a service segment we wish to focus more on. Effectively opening up our broader understanding of the corporate relations building potential of the museum, previously more focused on education and individual visitor programmes.

#### **External-less tangible**

- Reimagining the international positioning of our museum collection

Boštjan Špetič, Head of Collections:

*“Earlier, before starting to work on Ctrl+Shift+Esc text adventure, we wanted to internationally position ourselves by using the history of technology between East and West, based on Yugoslavia’s amazing economic and international relations position at the time of early technology development. Now we see that as an idea card, which didn’t even make it into the game! Through the process we discovered it is much more valuable to our intended international audience to develop experiences based on similarities of memories, on common understandings and shared group nostalgia, than to try to “sell” another uniqueness, no matter how relevant or irrelevant to their personal experience.”*

- Cross sector collaboration such as expanding our network to the global IF community and local storytelling community as well as considering theatre in the museum as part of our new outreach and at the same time a continuation of research and discovery into variations of presentation tactics seem to have landed on our roadmap.



## Limits & Drawbacks

When you are well-versed in new product creation you know one thing: the more you want to focus on the process instead of the end result, the more patience you will need to run project management. This is doubly so the case for digital products. The tech industry's processes and workflows are pretty much standardised and time pressure is one of the main imperatives when innovating digitally. There are known pitfalls if you let the ideation process linger on too long, if you run too many compliance circles, if you want to make sure everyone has had a chance to contribute. But going into this product development cycle it just didn't feel right to introduce the standard product development rigidity, because the environment was too early-stage for it. This was our first digital product and we were supposed to try and fail and try again, to experiment, to learn from our mistakes and at the end to come out better equipped for the next round than we went in. In some sense we put ourselves in the mindset of first time start-up entrepreneurs, hacking at a prototype like there is no tomorrow, bruising our knees and elbows along the way – collectively discovering what we are actually making and for whom. So it made no sense to write down a Product requirements document and to design a Scope of work checklist, to just hand over to a digital service provider, only to be disappointed at how differently it came out from what we imagined, but we took extra time to find someone who would be willing to work alongside us through the process.

This resulted in giving us more creative freedom, but also less project management structure because we had the opportunity to adapt the work to our needs as often as we desired. At a certain point in the process, we experienced a belated effect of ideas overflowing far beyond the designated ideation stage. The main focus of the project management shifted to managing internal inclusion expectations and deriving outlets for creative expression with a purpose in future implementations. Sprint deadlines shifted, tasks lagged, we focused more on keeping everyone on board rather than on keeping to the PM timeline. Was it worth it? We believe so, but we will begin onboarding client companies later than anticipated, which means, we will have to wait longer for the market feedback and adjustments that will undoubtedly come from actual - non-tester - use.

## Future Prospects

We believe both our project and the process behind it translate well into other museum environments as a learning mechanism to bring teams onboard with practical and manageable outputs in digital form. All museums are good at content and the audience knows that. So we foresee expanding this project further with partner organisations into a network of connected narratives.

## Key Take-Aways

- In addressing an international audience, we started to look for similarities with their experiences, not differentiation from offerings they can find elsewhere, which is a major shift in how we approach a global audience.
- The process of creating something completely new in a new medium (the digital) enabled us to deconstruct existing workflows and hierarchies and set new relationships within the team.
- By engaging everyone at various points in the development of the product, we enabled people to step in and out of the process at will, which removed the pressure or feeling of disconnect for those who needed more time to get to know the project and its purpose better.
- This process effectively became a silent programme of digital upskilling for the team.
- One of the best decisions was to 'adopt' our digital service provider as almost an extended team member – a practice known in tech start ups as 'external technical cofounder development agencies' which work with product or business co-founders to develop their initial idea.
- Since from the perspective of the core tech team this was 'not our first rodeo' with a digital product because of the experience we had in the private sector, we vastly underestimated the need to bring everyone onboard with the product and under-budgeted the time and personal effort involved. But as we corrected our approach it paid off.
- That said, we had to push a feature set to a later version of the product to fit the timeframe. So our end product will not be as polished as initially conceived, while at the same time retaining its function to test the market readiness for our new business model.

- One thing we had to adjust was our initial approach to accessibility, because our user testing informed us that we cannot cater well to younger audiences if we exclude all visual information from the narrative as was the original and most historically correct approach. So we introduced visual accompaniment to the online part of the experience in a non-essential way to ensure age inclusivity. The live streamed segment remains narrated as well as carried out in front of a camera, again ensuring accessibility with live captioning software.

## Involved Parties

First a big shout out goes to the museum team and volunteers for having the faith, courage and persistence to see this novel experiment through on all levels in all departments.

Eduard Filipas, from [Rhea technologies](#), whom we have all but adopted, who had the interest, dedication and stamina to grind through this project with us and will stay close to help us iron out any bumps along the road.

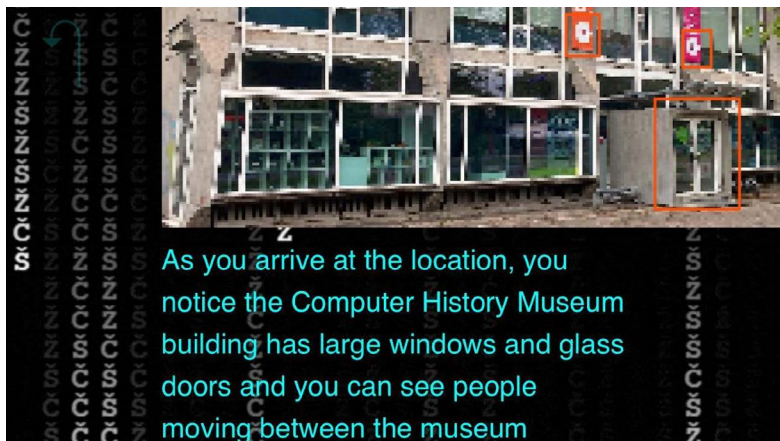
Veronika Hana Grubič, who taught us how to be better storytellers and whose input on all things performative was invaluable and has changed our organisation dramatically.

Ines Camara, your words of wisdom and openness to share the knowledge you acquired along your rich path of working with museums and their audiences was the adult guidance we needed in the process.

Vanessa Mignan, who made us focus on the benefits and not limitations of accessibility and how a digital first product can illustrate the power of using unlimited imagination to bring content closer to a wide array of users.

The team and fabulous mentors at DOORS, who have made us part of a stellar incubation program, the fertile ground on which our ideas sprouted into tangible existence.

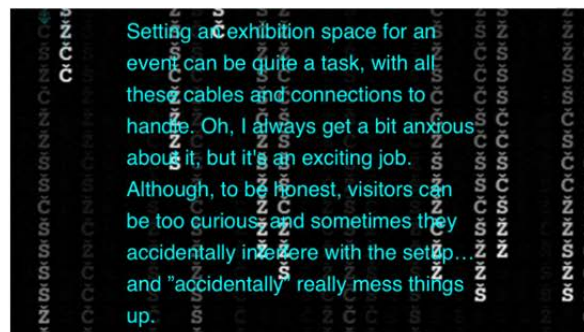
Last but not least, our peer cohort museums, who have been a shoulder to lean on in times of confusion and were happy to share their notes and insights as well as connections.



Ctrl+Shift+Esc, Computer History Museum (Računalniški muzej)



Ctrl+Shift+Esc, Computer History Museum (Računalniški muzej)

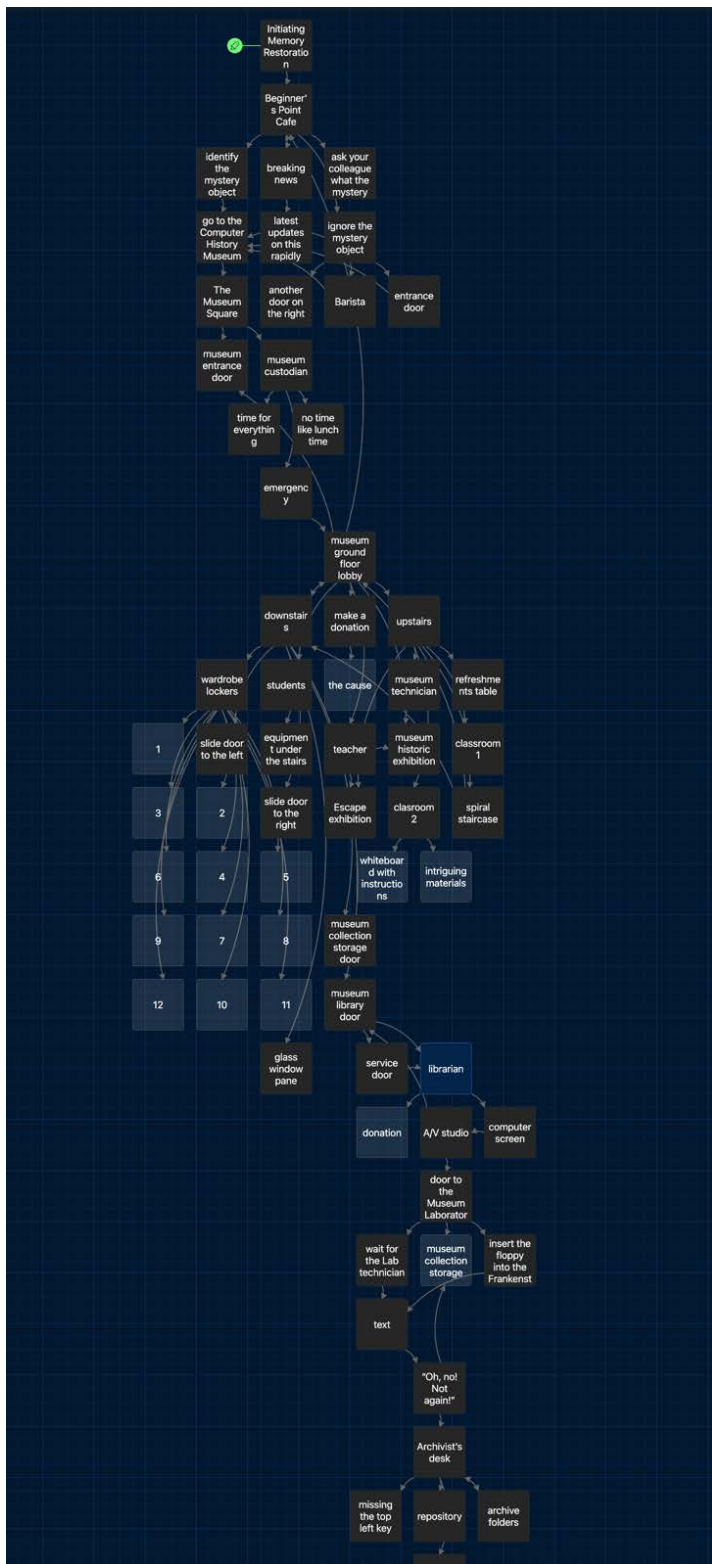


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librarian
Undo Redo + Tag Size Rename Test From Here
B/S [color icons] [list icons] [macro icon] (Macro:) [eye icon] [speech bubble icon] [magnifying glass icon] [help icon] [gear icon]
(if:(history: where its name contains "donation")'s length >= 1) ["The Lab technician is busy working on some stuff for the Archivist. But to make the wait shorter, you can help me with my (crossword) puzzles? The librarian turns his [[computer screen]] so everyone can see. "] (else:)[[The Museum custodian nudges you: "The librarian is a volunteer, a little kindness goes a long way", he slips you a museum brochure which has a [[donation]] QR code on it.]

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Part of backstage short-code, Computer History Museum (Računalniški muzej)



Segment of story structure, Computer History Museum (Računalniški muzej)

## Who | Institutional Profile

<b>Institution</b>	<u>Museumsmanagement Niederösterreich GmbH</u>
<b>Location</b>	St. Pölten, Austria
<b>Short Description</b>	The Museumsmanagement Niederösterreich (MMNOE) is a service institution for regional museums in the state of Lower Austria and hosts an online object catalogue ( <a href="#">DIPkatalog</a> ). The Digital Warmth project is implemented in cooperation with the <a href="#">Kaiser-Franz Josef Museum</a> , a voluntary museum in Baden.
<b>Ownership</b>	Public
<b>Size</b>	Addressing 750 museums in the region (mostly operated by volunteers)

<b>Approach to Digital</b>	<p><b><i>Input by Christa Zahlbruckner, Museumsmanagement Niederösterreich and Ulrike Kuchner</i></b></p> <p>We at MMNOE have increased the awareness for digital transformations over the past two years and we see the benefits as well as the challenges of the digital world, especially for voluntary-run regional museums. Therefore, we try to professionalise and support museums staff in their digital transformation and approach.</p> <p>Our goal is that all regional museums supported by MMNOE will include an aspect of digital agenda in their museum concepts. We work towards ensuring that every regional museum becomes fully aware of the benefits of operating in a digital environment. In working with them, we highlight the already existing use of their digital work and communication channels. This includes their web presence, as well as the internal processes and communication with audiences. We have learned that while a digital strategy does not solve all problems, it addresses many. Thus, we are now encouraging institutions to include digital transformation in their own museum strategies and visions.</p>
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## What | Case

<b>Project Title</b>	Digital Warmth with Tiled Stoves – <a href="#">DIP.world</a>
<b>Timeframe</b>	developed in 2022-2023 - ongoing



## Concept & Approach

The idea for DIP.world was actually born at a Kulturhackton event. It was triggered by the questions and reflection on how we can create new ways to access the online object catalogue [DIPkatalog](#) and how the interest of special collections can link together different peer groups (science community, volunteers, museum workers, interested parties, audience)?

Therefore, we aimed to create a new digital interface in addition to the list view of the DIPkatalog and to offer a possibility to add personal notes or information to the objects.

DIPkatalog is based on different museum collections. As a result, the Digital Warmth project arose from and was based on collaboration of various partners (Ulrike Kuchner, scientist, Rainer Simon, digital developer and the regional museums community).

The Museumsmanagement Niederösterreich hosts the DIPkatalog to give regional museums the opportunity to be digitally present. Therefore, digital objects from different museums and locations get to be shown in it, and it was always an interesting aspect to render visible the regional location and possible connections. That's why the starting point of our visualisation was to locate the objects on a digital map – the DIP.world.

**DIP.WORLD: ENTDECKEN UND KOMMENTIEREN**

Kacheln und Kachelofenobjekte sind in vielen Sammlungen Niederösterreichs zu finden. Entdecken Sie hier auch deren Herstellungs- und Verwendungsorte! Mit einem Klick auf den Standort sehen Sie dazu passende Objekte und weitere Details im [DIPKATALOG.noemuseen](#).

- ▶ Sie wissen mehr zu einem bestimmten Ort oder haben eine Frage zu einem Objekt? Wir freuen uns auf Ihren Kommentar!
- ▶ Sie haben Kacheln oder Kachelofenobjekte? Wir nehmen diese gerne auf: [DIP.world Teilnahme!](#)

Was ist die DIP.world? Wie kann ich mich beteiligen?  
Lesen Sie mehr unter: "Digital Warmth - Designs that keep you warm"

DIPworld, online object map, Museumsmanagement Niederösterreich

The objects and the topic chosen for the map represented the collection of tiles and oven objects. This prompted the name of the project - Digital Warmth - as tiled stoves create a pleasant warmth and personal atmosphere. They are also generally associated with a specific location. To this day, tile stoves are a common feature in many homes in Austria and its neighbouring countries. However, in the past, they were in use in abundance; both as a necessity and as an ornamental feature. Today, the tiles can be found in stoves in a variety of environments, from moderate homes to staterooms and castles. Their study enables us to explore links between the present and past socio-economic stature of tile stove owners as well as historical production routes and their art historical evolutions. With this in mind, we want to connect personal meaning and memories with the (historical) objects, while integrating this interest and information with researchers and into museum collections.

Next to the extensive tile collection of the Kaiser Franz Josef Museum, DIP.world (like the DIPkatalog) presents objects from numerous regional museums in Lower Austria.

The DIP.world is available online and onsite at the special exhibition 'Digitale Wärme – Die Geschichte der Ofenkachel' at the Kaiser Franz Josef Museum in Baden.



# DIGITALE WÄRME

# DIGITAL WARMTH

DIPkatalog, object detail, Museumsmanagement Niederösterreich

In addition to placing objects on the online map, DIP.world also includes a communication level. The audience has the opportunity to add information to individual objects and to make personal comments. This possibility of participation is also combined with an open call as part of which all citizens are invited to send photos of their personal tiled stoves or tiles. In the future, this should create a separate Citizen Scientist collection and link the historical cultural heritage and today's living environment.

## Benefits & Impact

- DIP.world is a long-term digital infrastructure and available for all regional museums in the state. The museums are invited to contribute their online collections and benefit from the joint platform. It is planned to open the topic and not only focus on tile objects.
- Digital Warmth is a use case and great example for further projects, not only for projects implemented in-house by the MMNOE but also for museums themselves or service institutions of other states.
- Motivation to digitalise collections!
- The open call to all regional museums as well as the example of objects in the DIP.world increased the motivation in the museums to organise and digitalise their own collections.
- Data enrichment and participation of regional museums
- The project and permanent structure increase the available online data as well as the number of participating museums.
- Interest from the research community
- Artists responding to historical collections
- Connection of regional museums
- Addressing new audience groups
- Interest in follow-up projects and cooperation (Museum Niederösterreich)

## Limits & Drawbacks

- Limited possibilities to lead the actual actions and workflows of the regional museums. All museums use the offered structure in their own way and need individual support for digital agenda.
- Usually, no direct audience approach
- The regular target group of the Museumsmanagement (addressed via the website, newsletter, social media and all channels) is the museum's community itself

(professionals, volunteers, museum staff). So the performance and traffic on DIP.world will also rely on the museums and how they integrate it in their communication.

- Technical limits
- To begin with, the idea was that users are also able to edit object photos of the DIP.world as well as upload and add their own photos. This feature has not been integrated. The comment function now allows only a message in text form.
- The main reason is not just the additional programming, but we decided that the metadata should not be changed by external users. It should also be clear which data is provided by the museums and which is added by external users (experts or citizen scientists).

## Future Prospects

- Addition of new technical features
- After the phase of stabilizing the structure and establishing the use by museums, the technical infrastructure was expanded. It is likely that additional features (comment functions with responses, uploads, mailings, calls for action, etc.) would be interesting.
- Tiles and more
- It is planned to not focus only on tile collections but to add a wider range of topics. The digital workflows (additional filter options) might therefore be expanded.
- In further projects, different target groups could be specifically addressed (for example, schools, craftsmen, Citizen Scientists, regional communities etc.) These projects or open calls could also be initiated by individual museums or researchers. The MMNOE now offers an infrastructure and platform with the DIP.world.

## Key Take-Aways

- The project became a great learning experience for the data process and provided needed workflows.
- The project highlighted the importance of data quality (meta data for different filter and search options).
- It was a good approach to start with one topic or specific collections.
- Working with partners from many different areas was often challenging but also rewarding and opened many new doors and possibilities.
- The participation in the DOORS programme (including all workshops, information, individual support, and exchange) was a great experience and benefit for our personal work skills and competences. (In terms of digital management tools as well as project management within a digital setting, great use cases, the exchange with comparable partners and pointing out inspirational future steps by professionals).
- The DOORS programme was also a great motivation: to think outside the box, to see opportunities and take new challenges and always think ahead for future topics, collaborations and possibilities.

## Involved Parties

### Project partners

- [Museumsmanagement Niederösterreich GmbH](#) (project management)
- [Kaiser Franz Josef Museum Baden](#) (project management)
- [Rainer Simon \(AIT\)](#) (web development)
- [Ulrike Kuchner](#), University of Nottingham
- Priv. Doz. Dr. Alice Kaltenberger, Universität Innsbruck
- [Hiroki digital](#) (web agency)

### Exhibition cooperation

- [no-mad-designers](#) (graphics)
- [Roland Hille](#) (artist)
- [Lebenshilfe Werkstätte Baden Guttenbrunnerstraße](#) (inclusion through art)

### DIP.world:museums

- [Kaiser Franz Josef Museum Baden](#)
- [Krahuletz Museum Eggenburg](#)
- [Museum Retz](#)
- [Museum St. Peter an der Sperr](#)
- [Palais Wild](#)
- [Sammlung Maria Hanúsková](#)
- [Schaubetrieb Ofenkachelmanufaktur Erndt](#)
- [Stadtmuseum Korneuburg](#)
- [Städtisches Museum Neunkirchen](#)
- [Triestingtaler Heimatmuseum](#)





Museum Baden Exhibition Digital Warmth, Museumsmanagement Niederösterreich



Museum Baden Exhibition Digital Warmth, Museumsmanagement Niederösterreich

### DIPworld

**Machen Sie mit:**  
Haben Sie einen alten Kachelofen oder einzelne Ofenkachel? Kommentieren Sie online und werden sie Teil der DIPworld!

Die Objekte werden auf einer digitalen Karte verortet und es kann nach Sammlung oder auch Verwendungs- und Herstellungsort gefiltert werden.

[www.noemuseen.at/dipworldnoemuseen](http://www.noemuseen.at/dipworldnoemuseen)

Die DIPworld ermöglicht es, Objekte in neue Kontexte zu setzen, Orte, Geschichten und Prozesse zu verbinden und den Austausch zwischen Museen, Forschenden und Publikum zu erleichtern. Beteiligen Sie sich aktiv an aktuellen Forschungsinteressen und Fragen rund um die Ofenkachel!

KULTUR NIEDERÖSTERREICH

INNOVATIONEN IN DER KULTUR

MUSEUMS MANAGEMENT

100%

DD

QRS Digital Institute für Österreich

Quelle: www.noemuseen.at, Bild: © Museumsmanagement Niederösterreich, Erndt

Invitation to participate in and explore the DIPworld, Museumsmanagement Niederösterreich

Ich will ein MUSEUM BESUCHEN
Ich habe ein MUSEUM
Ich will mich FORTBILDEN
Ich will mich ENGAGIEREN
Wir über UNS

## NEGATIVFORM DETAIL ROCAILLEMOTIV

**Negativform Detail Rocaillemotiv.** Links und rechts ist jeweils 1 große Rocaille dargestellt. Diese sind leicht mit rocailartigen Blattmotiven verbunden, die abgerundet sind, sodass sie eine abgeschlossene ovale Form bilden.

<b>Inventarnummer</b>	SE416
<b>Sammlung</b>	Schaubetrieb Ofenkachelmanufaktur Erndt
<b>Teilsammlung</b>	Negativformen
<b>Schlagworte</b>	Handwerk-Industrie-Handel, Kachelofenteile, Kachelöfen
<b>Material</b>	Gips
<b>Höhe</b>	31.5 cm
<b>Breite</b>	45.8 cm
<b>Tiefe</b>	4.8 cm
<b>Teile</b>	1
<b>Entstehungszeit</b>	20. Jahrhundert
<b>Objektyp</b>	Museumsobjekt
<b>Lizenzbedingung</b>	CC0 1.0 Universell - freie Weiternutzung

[ZURÜCK ZUR LISTE](#)

DIPkatalog, object detail, Museumsmanagement Niederösterreich

## Who | Institutional Profile

<b>Institution</b>	<u>Museum of Urban Wooden Architecture under the Directorate of Vilnius Memorial Museums</u>
<b>Location</b>	Vilnius, Lithuania
<b>Short Description</b>	<p>The Directorate of Vilnius Memorial Museums was established in 2005, by the vote of Vilnius city council, as an umbrella institution for four museums that were split off from the Ethnic Culture Centre of Vilnius. The Directorate took over most of the administrative work and allowed museum staff to concentrate on research and public engagement. The core values of the directorate are openness, authenticity, curiosity, creativity and the mission is to reflect these values and relevant topics while preserving authentic spaces open to the public. The Directorate envisions itself as the ambassadors of history, who preserve and research authentic environments of Vilnius citizens and their sociocultural context; it also seeks to create open spaces for discussions and recreation alongside communities. The museums under the Directorate (Memorial apartment-museum of Vincas Mykolaitis-Putinas, Venclova house museum, Memorial apartment-museum of Beatrice Gricenviciute, Memorial apartment-museum of Vincas Kreve-Mickevicius, Museum of Urban Wooden Architecture) are seen as open and welcoming spaces to the public and communities to explore history and culture. And the latest addition to the museums of the Directorate is the Museum of Urban Wooden Architecture (MUWA for short).</p> <p>MUWA was established in 2019 as a part of the Directorate of Vilnius Memorial Museums. This happened as a consequence of the decree of Vilnius city council in 2006 to protect the wooden architecture in the city of Vilnius. In the decree, alongside recommendations for buildings that could be considered valuable landmarks, there was a recommendation to establish a Centre for Wooden Architecture to provide the necessary consultation. This decree came into fruition when it was decided to set up the centre in a rundown 19th century building, which was considered a national cultural heritage landmark and was actively protected by the local community in the Užupis district. When plans for the establishment of the museum facility were announced, the building finally got the financing for its restoration and creation of museum exhibitions. MUWA is envisioned as an authentic and open space for visitors to get to know and experience the wooden architecture of Vilnius and reflect on its future. Naturally one of key moments was thus to preserve as much of the historical value in the house as possible. This helps MUWA communicate the historical values of wooden architecture and to showcase contemporary architecture in an authentic environment.</p>
<b>Ownership</b>	The Directorate of Vilnius Memorial Museums is a publicly owned institution.
<b>Size</b>	Currently the Directorate consists of 13 full time employees, divided between the Directorate and 5 museums, 3 of them working in MUWA.

## Approach to Digital

### *Input by Vilius Mateika, Indrė Užuotaitė, Viktorija Smalytė*

The approach towards digital products and the introduction of digital technology to the visitors is only partial in the Directorate, mostly due to a lack of funding. Museums of the Directorate are integrated into the Lithuanian system for cataloguing exhibits (LIMIS - Lithuanian Integral Museum Information System), which allows museums easier exhibit handling and introduces information to be accessed by the public. Museums under the Directorate regularly apply to receive grants to incorporate digital technologies into their museums. Some of the museums have used digital means to expand the visitor experience – they have enhanced the authentic environments incorporating the ASMR experience, augmented reality solutions and virtual audio guides.

The COVID-19 pandemic changed the approach towards digital communication and digital educational activities and online tours were introduced, but due to a lack of interest in the post-pandemic community they were reversed.

In the last two years the Directorate of Vilnius Memorial Museums has made a greater effort to digitise the workflow and more digital communication was incorporated due to the addition of MUWA. The museum is in a more distant location, making it more efficient to communicate through digital means and use digital signing options.

For most everyday activities, museums still rely on manual and semi-digital (non-automated) solutions, since most digital solutions provided by DSPs exceed the Directorates financial possibilities and budget. The Directorate largely uses digital solutions to expand user experience beyond the capabilities of small flat-sized museums, established decades ago, and as an umbrella institution encourages museums to explore the possibilities.

The Museum of Urban Wooden Architecture was established to expand the services provided by the Directorate. When establishing MUWA, it was evident that exhibition areas will have to rely heavily on digital solutions since most of the physical exhibits of the architecture museum are quite large and cannot be housed in the building due to limited space. While planning the permanent and temporary exhibitions, architects and museologists tried to combine both digital solutions and more traditional approaches to museum communication – small physical exhibits were put on the permanent exhibition with digital content accompanying them and expanding the storyline. It was necessary to use CMS, so that the content can be easily altered to keep up with the latest information.

The Museum of Urban Wooden Architecture is planning to hold both educational and scientific events for professionals and people interested in the field, but it has limited space, so the system to provide webcasting was installed in the hall that houses temporary exhibitions and events. After MUWA was established, its staff actively but cautiously tried to push towards digitalisation of services and inner communication, incorporating digital solutions to problem solving. However, museums still have to rely on creativity and open-source solutions to avoid putting a strain on the budget.

Overall, the Directorate and MUWA are leaning towards digitalisation of the services to ease the everyday tasks and integration of digital into its permanent and temporary exhibitions. The museum is constantly on the lookout for creative digital ideas on how to provide a unique audience experience.

## What | Case

<b>Project Title</b>	<b>Interactive Hub for Wooden Architecture</b>
<b>Timeframe</b>	November 2022 – September 2023



## Concept & Approach

One of the main aims of the Museum of Urban Wooden Architecture is to provide consultation services on the preservation and upkeep of wooden architecture in the city of Vilnius. Most of the wooden architecture is concentrated in the historical suburbs of Vilnius, which today are considered the city centre. As a result, this raises the price of land and most property developers see those locations as potential urban development spaces. Because of this, a lot of run-down wooden architecture that is not recognised as belonging to our national or regional cultural heritage, is being demolished, its land prepared for urban development.

Since its establishment, MUWA has visited most of the 'soon to be demolished' sites and tries to preserve bits and pieces of authentic elements of wooden architecture – windows, doors, mechanisms, decorations. These parts are put into the inventory of the consultation centre of MUWA and are used for restoration and renovation of historical buildings to preserve their authentic style.

One of the principal ideas of the museum is teaching by example, the building of MUWA itself, located on Polocko st. 52, Vilnius, being a case in point. Here all the missing parts were replaced with pieces gathered from demolished buildings to avoid using modern day mechanisms or imitations. This shows the potential for a historically sensitive and more accurate approach to fixing/restoring/renewing the building and works as a go-to place for people seeking inspiration.

While gathering the parts from houses and encountering interested people who would use the parts for their projects, we saw a big problem – we have to give people an extensive portion of time during every consultation, bringing them to the storage space and guiding them through the existing inventory. This sometimes grows into days or even weeks of communication.

This led us to the idea that we should try to catalogue the items and have them at hand, presented in some sort of a shop. Initially we thought to start this with small steps and try to fund it through municipality donations. After a month or two, our team was introduced to the DOORS project, which sparked a discussion on how to approach the project and how to alter our idea, since we already had some insight from people of interest and some experience with recurring questions. We decided to expand our initial idea by adding a woodworking professional database, simple tutorials and additional information on upkeep and preservation. This way the hub would present all the necessary information for wooden house owners and residents and could be easily updated if the need arises.

Making a web-based, easy to access solution was the first idea, as many locals are already internet-skilled, even the elderly, and this would make the content more accessible to the public. Our collective in MUWA is particularly thrilled about the concept of the item shop that would not only help us catalogue and distribute the parts that we collected but would also contribute to gathering additional funds for future workshops. Additionally, the shop could accommodate other services provided by MUWA if necessary.

To provide us with a better grasp, we reached out to DSPs, who pointed out a few problems and possible solutions, to make it as simple as possible and easy to use on the back-end. Staff and especially new employees would then not be overwhelmed, which would enhance the long-term feasibility of the project.

Overall, this project is a hub that would help MUWA to distribute information necessary to preserve wooden architecture, open a possibility for additional revenue for the Directorate and ease the process of providing the interested party with contacts and essential information.

## Benefits & Impact

During the incubation programme we as an institution managed to gather much insight and experience not only by working on a project, but also by listening to other museums, their past and current experience, and their solutions to problems that arose. Those experiences led the MUWA and the Directorate, as well as other museums under it, to adapt the way they write applications to secure funding for new exhibits. This includes new technological solutions to enhance visitor experience or to create innovative approaches to existing narratives. From the start of the DOORS incubation programme, museums under the Directorate have already submitted 10 applications to secure funding for digital innovations in its museums.

The Museum of Urban Wooden Architecture differs in its narrative from other museums under the Directorate, since they represent a clear story of an impactful person, their life and living space. Naturally, the projects these museums have in mind usually differ in style and approach to digital technology, but participation in the incubation programme gave MUWA useful insights on different approaches brought to light by other participants, which could be shared with other museums under the Directorate. These insights, along with experience creating current MUWA exhibitions, made the museum staff one of the 'expert' contact points for colleagues in the Directorate, where they can acquire information on potential DSPs, insight on possible digital solutions and approaches to digitalisation. So the impact of the incubation programme has spread somewhat beyond the museum participating in it directly.

For MUWA, this project was an opportunity to optimise its workflow with a consulting centre. More than 160 items and item sets retrieved from demolished houses were catalogued for the shop. Valuable contacts were formed between MUWA and partners from the cultural heritage sector, who intend to provide assistance during further work on the hub for wooden architecture. Also, while consulting with owners and residents of wooden houses, a clearer vision of their needs was formed. All of this helped to shape the portal. Later, their insights on the website's usability will be considered when making alterations to the hub.

One of the needs expressed by many interested visitors was usable files to produce exterior decorations with CNC milling. To provide this, MUWA staff underwent a workshop in creating ready-to-use drawings for CNC milling, or manual cuttings of decorations. Because of this, MUWA staff learned how by using common items (phone camera/mirror camera) and computer graphics software they could create 3D renders and use it to produce size-accurate drawings.

While working on the hub, MUWA encountered an example of how 3D scanning and 3D printing can be used to produce authentic looking parts. To achieve this MUWA will need an additional workshop on how it can be done, which we will achieve by finding sculptors or jewellers, who work with brass casting and can help us to understand the process of creating reproductions.

Some of the guest speakers during the inspirational talks and participants of the DOORS incubation programme led MUWA to look deeper into new technologies and their possible use in the museum context. As a result, with the help of Vilnius city municipality, more authentic buildings of the 19th and 20th centuries are being 3D scanned now. These scans could later be used for projects involving augmented reality or enhancing the experience of visually impaired visitors.

## Limits & Drawbacks

The 'hub for wooden architecture' will be a great tool to ease public access to physical and intellectual resources. This could be of value when preservation or repairs for a wooden house or wooden elements of architecture are being undertaken. Also, it will become one of the possible ways to create revenue in the Directorate of Vilnius Memorial Museums. Hence, the idea of the hub was well met by MUWA colleagues and by staff in both the municipality and the Directorate. Unfortunately, the process did not go as smoothly as expected.

In the first months of Stage II of DOORS incubation programme in 2022, we were still in the planning stages and were reviewing the budget of the project, debating necessary amounts of work to be done and discussing the contracts with DSP. As a result, receiving the funding fell into the 2023, when the Directorate along with other institutions under the Vilnius city municipality got to incorporate new rules of public procurement. This led us to starting the year behind schedule on the work. Finally, we realised that the new changes messed up all our plans, since a lot of procurements and agreements had to be redone again (sometimes more than once). This was a huge setback, since DSPs that we were in contact with started doubting if this project was still feasible. However, with further discussions on how the problems can be approached and reassurance from the Directorate and MUWA, we managed to convince those involved to move further.

As a result of the changes in MUWA's team during the start of the DOORS' stage II, the project team realised the need to prepare a concept on how to train new staff members quickly, especially if there is an ongoing project that they have to work on. As MUWA is a very small museum with only three employees, we pre-planned must-know explanations for the new member and left the rest to be explained during work. In the end, the change of staff

became a sort of advantage, since new people coming into the project gave it a fresh view and provided insights into possible alterations that could improve it.

Even at initial stages we realised that one of our major limitations to the item shop will be the centralised accounting of all institutions that work under the Vilnius city municipality. This means that most of the financial operations are limited and stretched in time by bureaucratic processes. It was evident that accepting payments will not be as easy as it was thought during concept creation, so there had to be a lot of discussions with DSP and accounting providers, to find possible solutions. Three options were provided ranging from least convenient for visitors to more convenient. During later discussions and DOORS progress-sharing sessions, a new work-around approach was aired that could potentially be used to avoid the least convenient and prolonged method of payment.

One of our aims was to involve local communities in the project. To do this, we tried to include our volunteers and university students interested in wooden architecture. This, unfortunately, proved to be unattainable in order to meet our set deadlines. However, in the future they will be involved in expanding the hub.

## Future Prospects

The hub for wooden architecture as it is at present is only the start, since it entangles itself in the everyday work of the museum and its consultation centre. In the near future, the hub will be gradually expanded, especially if additional funds can be attracted, to contract project-specific staff. Additional information could be researched and added along with simplified DIY videos on preservation of wooden architecture. Eventually, longer tutorial videos from workshops could be added as well to make the hub the main and easily accessible source of information for people working with wooden architecture.

MUWA also reached out to other potentially interested parties that could collaborate on the improvements of the hub. Sculptors and jewellers could help MUWA form the workflow for using 3D scanned and digitally sculpted materials to create newly made items that recreate the look of authentic parts. This would eventually become necessary to interchange the depleting intake of authentic parts.

All the museums under the Directorate of Vilnius Memorial Museums are open to visit and there is no ticket purchasing requirement. Thus, no payment methods are available in museums, limiting their income and the attraction of additional funds. The revenue model proposed by the MUWA together with the virtual shop will open the possibility of accepting internet payments for additional services provided in the museum environments and allow the museums to introduce merchandise without the need of undergoing difficult accounting procedures. Even for the MUWA, it could eventually become a more convenient and cashless way to pay for services.

## Key Take-Aways

As each challenge makes the person smarter, this incubation programme and the project for Interactive hub for wooden architecture also gave us insight into the way some tasks might be approached:

- One of the staff members in the Directorate said: **‘Try to avoid being the project manager for your own project’**. This way you can have a clearer, less involved view of the project and it would be easier to oversee the process, without the need to manage every detail.
- **Time management is the key**. Since we are a relatively small museum with only three staff members, two of whom are involved in the project, proper time management is necessary to make it work without sacrificing museum activities. It will be easier to sort priorities and see how and when everyday museum activities and unexpected issues can be addressed. This is especially clear when small staff get unexpected work along with museum activities and still have to engage with visitors.
- **Plan backups if possible**. Usually when visualising the project and the approach to it, a clear vision forms. However, it is very good practice to get a view from someone not involved to try and find potential issues, so that backup ideas could be brought to mind even before the need arises.
- **Expect the unexpected**. When working on projects, almost always something that would not normally be expected happens and sometimes it may feel devastating. To cushion this, it would be helpful to have someone who could provide support and assist in getting back on track.



- **Appoint a photographer.** When working in a small group or in a pair, it is sometimes hard to capture moments, especially if you are immersed in activity. To avoid this, it is better to have someone appointed as designated photographer to capture the more interesting moments, even if they are not involved with the project.

## Involved Parties

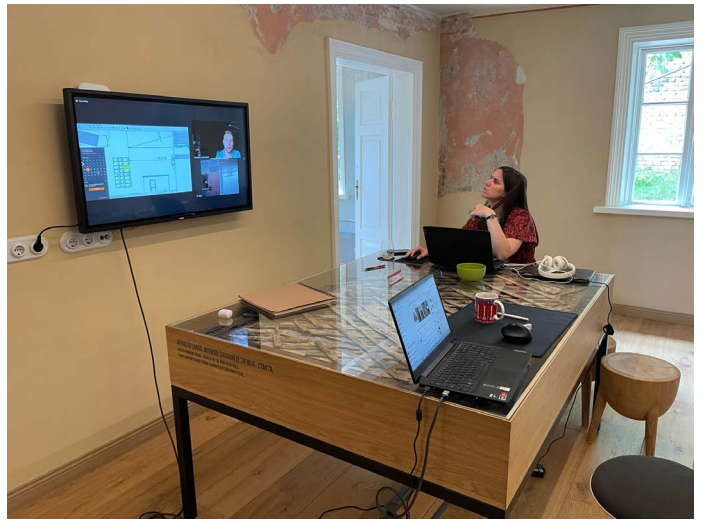
During this project the MUWA worked closely with the Digital Service Provider - Unisolutions, UAB (unisolutions.eu), who guided us through the process of creating the hub and provided revisions for our ideas.

Also, the project [FixusMobilis](#) staff provided us with materials and expert consulting on preservation processes for cultural heritage, and suitable approaches for tutorials.



MUWA (2022-2023)





MUWA (2022-2023)



## Who | Institutional Profile

<b>Institution</b>	<u>Muzeon – Jewish History Museum</u>
<b>Location</b>	Cluj-Napoca, Romania
<b>Short Description</b>	<p>Muzeon – Jewish History Museum, with its primary exhibition titled <i>Muzeon: The Story of your Jewish Neighbour</i>, debuted in 2020, on a foundation that is innovative and contemporary. Its primary objective is to acquaint visitors with local Jewish traditions and history. The exhibition features three true and personal stories whose authenticity aids in fostering a stronger connection between visitors and the topic. The real-life tales are accompanied by exhibits that combine 21st century museum innovations with conventional exhibition techniques.</p> <p>The mission of the museum is to provide visitors with information in a format that is easy to assimilate and that provides an exceptional experience. Virtual reality, interactive exhibits, artefacts and a variety of artistic installations are incorporated into the exhibition. The museum hosts temporary exhibitions in addition to the permanent display.</p>
<b>Ownership</b>	Private
<b>Size</b>	4 FTEs and around 5,000 visitors per year, with a constant growth in the number of visitors.

<b>Approach to Digital</b>	<p><b>Input by Flavia Craioveanu, Dan Craioveanu, Béata Siklodi</b></p> <p>It is critical for our institution's operations to be present in the digital world, both in our workflow and in our interactions with visitors. On the one hand, using digital tools in our daily work allows us to be more efficient as a team and get things done more quickly. On the other hand, we were able to broaden our audience and increase the attractiveness of our exhibition by integrating digital tools into the museum, such as our audio guide web application and virtual reality. The adaptability of the digital tools we use in our museum has allowed us to broaden our audience by adding more languages or new audio sequences to the audio guide. Aside from that, the audio guide web application enables us to employ technological solutions that improve the accessibility of museum content.</p>
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## What | Case

<b>Project Title</b>	<b>An Inclusive Digital Transformation of the Museum Experience</b>
<b>Timeframe</b>	2022-2023

## Concept & Approach

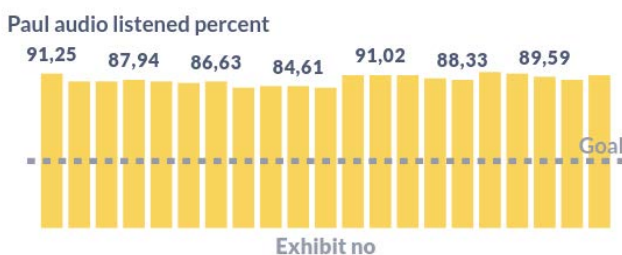
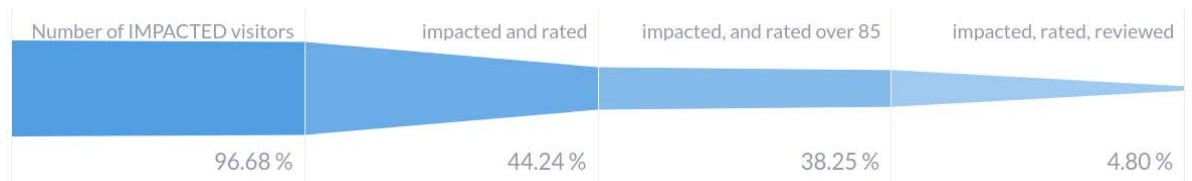
Throughout the entire DOORS project, we focused on two different types of innovation: new content distribution and revenue models, as well as innovative approaches to audience analysis and engagement. In retrospect, the incorporation of digital components into the museum's exhibition space and the subsequent improvement of the museum's central exhibition element - the audio guide - was the fundamental idea behind the design of the pilot.

During the phase of the project in which we were coming up with ideas, one of these was to develop an interactive virtual tour of the museum. However, we ultimately decided to develop a product that we would be able to market to other museums. The original idea for the project thus morphed directly into something both significantly more complicated and valuable - a tool that would have a significant impact on the museum community offering the improvement of the experience that other museums' visitors have. Additionally, it would be utilised to improve the museum content.

Visitor feedback as well as data collected from our audioguide web application indicate that our method enhances the visitor's experience by providing interactive and digital components rather than a more streamlined way of visiting the museum. Additionally, the audioguide web application generates analytical data that provides information on the visitors' views on the exhibition. This enables us to collect data that can be utilised to enhance museum content and better adapt it to visitor requirements. This helps to explain why we have decided to centre our attention on our web application for this particular project and to set the continued development of the web application into a marketable product capable of performing all its intended functions as the primary objective of our project.

**The audio guide web app collects a lot of anonymous data about how each visitor uses the app. This includes how long they listen to each audio sequence, how long they spend in the museum, which audio sequences they skip, which audio narrator they choose, and so on. A rating system and brief feedback form are also included in our custom-designed and built software.**

Examples of data gathered with the audio guide web application



Metrics, Muzeon

Additionally, the project team believes that expanding the capabilities of the web application, particularly through **developing a content management system for it** would benefit all team members within the institution. For instance, the modification of the content would not necessitate the participation of an external IT partner, resulting in significant time and financial savings. Because of the web application's user-friendly visual editor and content management system, additional establishments will be able to provide a digital experience for their visitors without the need for employees with specialised technological knowledge.

These functionalities can also ensure the efficiency and the relevance of the product to external parties.

Another aspect of the project **was the improvement of the audio guide web app by adding three additional languages as well as new accessibility features.** The audio guide is planned to be expanded with the addition of texts and audio in languages other than Romanian, Hungarian, and English, namely Hebrew, French, German, and possibly Spanish and Russian. The comments left by our users were considered when choosing the new languages to offer.

## Benefits & Impact

Muzeon is one of the few museums in Romania to discuss Jewish culture as well as the Holocaust. Additionally, it is the only museum in Romania that incorporates high-tech digital tools into its displays, enhancing the overall experience for museum-goers. This project will further our digital journey and facilitate communication with a greater number of individuals. While the operation of the museum will be improved, we shall also be able to provide other museums with access to the same technologies we use.

We believe that people will soon rate more highly our museum's content due to the changes that we're making through this project. Using our impact factor, which requires that more than 60 percent of all audio content be listened to and rated at least 4.5 out of 5 stars, we are able to measure the extent of this improvement. At this time, it has been determined that 76.4% of our site visitors are affected. Our objective is to achieve a further 10% increase in this percentage.

The high impact that the museum has on its visitors indicates that the use of digital elements is both accessible and highly popular in the museum setting, as shown by our statistics as well as the feedback we have received from our visitors. We anticipate that after adding all these new features to our audio guide web app the number of visitors will increase, which currently stands at about 5,000 people per year. The quality of the content will continue to improve in line with the increase in the number of visitors.

Moreover, this project will also make it easier to communicate with visitors who do not speak English by incorporating three additional languages from other countries. Even though the number of tourists who visit Cluj each year continues to rise, the city does not have a particularly large number of cultural attractions for tourists. There aren't many locations in the city that are open to people who don't speak Romanian because most exhibitions are held in Romanian. Therefore, the city's cultural offerings would become more accessible with this project.

Being able to produce a stand-alone museum application that other institutions might use will have an innovative impact on the local museum environment, at least. This would be an outstanding opportunity for us to become service providers for local museums and, hopefully, for international museums as well.

## Limits & Drawbacks

There are always advantages and disadvantages to releasing a new product, especially when competing in the same field. But how are we superior to the competition? There are at least two variables. The first is that we are museum professionals, meaning we are aware of the requirements for a museum guiding application. Second, and perhaps more importantly, our application allows museums that use it to discover what needs to be changed, improved, or enhanced in the exhibition concerned, based on the data the web app collects from each user.

One difficulty we will face is marketing the product to other museums. More specifically, it will not be easy to set a reasonable price for the product. The second issue is that we will not be able to provide adequate technical support to potential clients. Although our DSP will provide some form of maintenance to our clients after they purchase our product, we are unsure of the level of involvement required in this service. We intend to create a knowledge base document for our clients to reduce technical support as much as possible. We already have two potential clients - a national history museum and an art museum. These will act as real-world testing grounds for the application, and working with them as early adopters will help us overcome these challenges.

Another challenge is that other museums have specific requirements for the web application that we are developing for use in their exhibits. To be more specific, we must be able to

integrate specific features that they require while adhering to the established timeframe and staying within the project's financial limits. For example, if the exhibition spans two floors rather than one, we must ensure that the design is adaptable enough to allow for such changes in the visual interface. We are confident that we will be able to overcome this challenge by working closely with our prospective clients from the beginning of product development to ensure that we meet their needs. We've also scheduled at least one year of testing after the pilot ends, during which we'll meet with our clients on a monthly basis to learn what needs to be changed and adapted for the best results.

Another test we face is that we are unsure whether Romania's 'Museum industry' is adaptable enough to accommodate our offering. For this reason, we wish to spread the word about our product on a global scale.

## Future Prospects

With the release of the new application, all members of the team will be able to add new languages to the audio guide's content, as well as update and amend the content based on feedback. However, this means the future workflow will change. To ensure programme effectiveness, the team will meet once every three months to review feedback and discuss changes required.

Muzeon is dedicated to the continuous improvement of our organisation as well as the ongoing education of our employees. We will therefore create a meeting schedule for our employees so as to ensure the success of this project.

As part of the organisation's growth culturally, we will use the insights and learnings gained from this project to establish a climate of continuous improvement and feedback. Furthermore, we shall encourage the team to freely express their ideas, suggestions, and criticism. Yet we are also in charge of developing a training programme. Following the completion of the pilot programme, we shall begin working closely with customers who were early adopters of our product. We will meet with these clients, holding monthly meetings to gather feedback in order to better understand the needs of museums not affiliated with our organisation. This will allow us to fine-tune our product even further. In addition, we will attend events that focus on the intersection of technology and culture to stay up to date on industry developments and market our product to anyone interested in purchasing it.

We will develop a marketing strategy to help us gain the attention of prospective buyers and raise awareness of our newly released software. We plan to attend trade shows, conferences, and other industry events to demonstrate the product and network with potential customers. We shall also create targeted marketing materials, such as brochures and presentations, to be distributed to cultural organisations and museums. These materials will be customised to their specific requirements.

We already have two potential applicants for this product, as mentioned in the previous section, so we believe we will be able to test the initial barriers quickly. With the collaboration of the other two institutions, we shall then have more opportunities to spread the benefits of digitalised culture. We shall enhance our standing as an industry pioneer in the application of technology to cultural activities as we promote the software and establish connections with prospective clients.

## Key Take-Aways

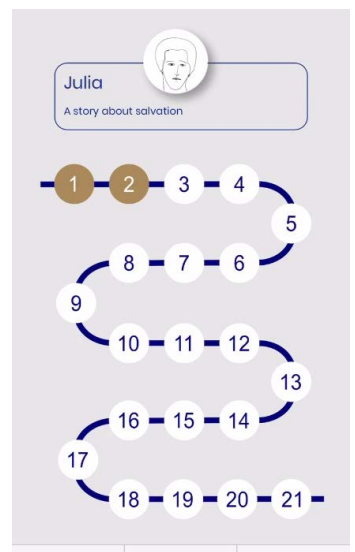
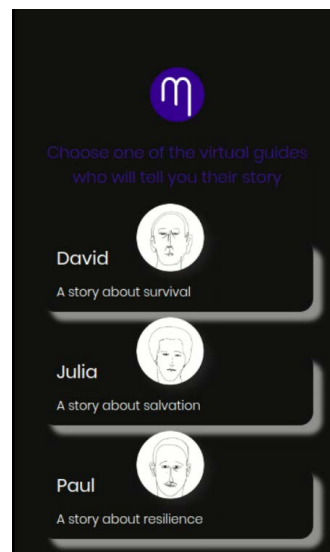
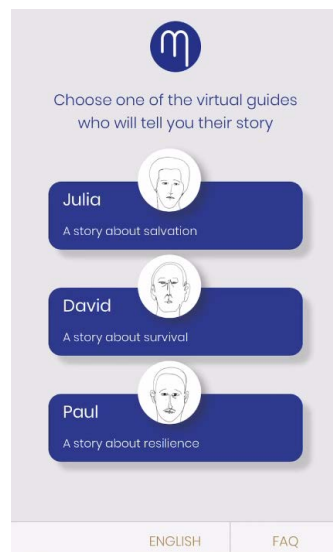
- Integration of digital tools and technology in museums can significantly enhance visitor experience, creating a stronger connection with the subject matter.
- Continuous improvement and technological relevance should be prioritised in the long-term plan and vision of museums.
- The development of a user-friendly and adaptable web application can improve accessibility, help gather analytical data, and allow for content modifications based on visitor feedback.
- Collaborating closely with prospective clients and early adopters is crucial for understanding and meeting the specific requirements of different museums.
- Marketing strategies, such as attending trade shows and targeted marketing materials, are essential for promoting and gaining attention for new software products in the museum industry.

- Time management is an ongoing challenge in project execution, with improvements necessary here to ensure effective operations.
- Mistakes and successes are valuable sources of learning, and reflecting on them helps in drawing conclusions and improving future projects.
- The involvement of various parties, including museum professionals and potential clients, is important for the successful development and implementation of museum applications.

These key take-aways highlight the importance of incorporating technology, continuous improvement, client collaboration, effective marketing and learning from experiences to enhance the museum experience and drive success in digital projects.

### Involved Parties

- [Exigea Tech](#) (software)
- [Boom Advertising](#) (sound)



Audioguide, Muzeon



Muzeon Room 1, Muzeon



Muzeon VR, Photograph by Gouwy Lieven



## Who | Institutional Profile

<b>Institution</b>	<u>Museum of Literature Ireland</u>
<b>Location</b>	Dublin, Ireland
<b>Short Description</b>	<p>A collaborative partnership between University College Dublin and the National Library of Ireland, the Museum of Literature Ireland (MoLI) opened in 2019 as a landmark cultural institution in the heart of Ireland’s capital city. Picturesquely located on the southside of St Stephen’s Green in some of Dublin’s finest historic houses (and the original home of UCD), MoLI’s cutting-edge exhibitions and programmes explore Ireland’s incredible literary heritage. Set amidst beautiful gardens, the museum has quickly become an inspirational oasis for locals and visitors to the city centre.</p> <p>The museum celebrates Ireland’s internationally-renowned literary culture and heritage from the past to the present, inspiring the next generation to create, read and write. Immersive multimedia exhibitions, precious artefacts, lectures, performances, free-to-access children’s education programmes, historic house tours, digital broadcasting, research facilities and a courtyard café set in one of the city’s most tranquil gardens make the Museum of Literature Ireland a major contribution to the local and international literary landscape.</p> <p>Irish literature has been hugely influential the world over, and dedicating such a significant historic site to telling the stories of our writers has attracted attention from across the globe.</p> <p>MoLI has won numerous awards since opening, including the Business to Arts Best Philanthropic Support of the Arts award 2021, Red Dot Best Exhibition Design 2020, IDEA Exhibition Design Gold Award 2021 and Europa Nostra 2023, and was shortlisted for the European Mies Van Der Rohe Architecture Award 2022, and the European Museum of the Year Awards 2022.</p>
<b>Ownership</b>	MoLI is a not-for-profit company limited by guarantee and is a subsidiary of University College Dublin.
<b>Size</b>	27 FTEs

<b>Approach to Digital</b>	<p><b>Input by <i>Benedict Schlepper-Connolly</i></b></p> <p>Our vision for digital activity at MoLI is to create a truly boundary-pushing and digitally native team within the museum, inculcating an institutional “digital mindset”, exploring new technologies, developing new audiences, and further realising the artistic and literary potential of the digital space in a manner that is both exciting, open, iconoclastic, accessible and democratic.</p> <p>MoLI’s digital programme was the museum’s first publicly visible activity – we launched RadioMoLI several months before the museum opened its doors to visitors for the first time. Creating a museum of literature was always going to come with challenges to access: there is so much potential for the public to feel that this place is not for them, or that the literary artform is only for the initiated and highly educated. The guiding ethos behind both our exhibition design and digital programming is to strip away those barriers, and to create a space where people can engage with the artform without fear and with an incentive to explore. We want to meet people where they are, both literally, in terms of reaching people across the globe or simply in their homes, and metaphorically, presenting people with the artform in a medium that works best for them.</p>
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## What | Case

<b>Project Title</b>	<b>An inclusive digital transformation of the museum experience</b>
<b>Timeframe</b>	2022-2023

### Concept & Approach

When we first launched RadioMoLI as a 24/7 live audio stream in February 2019, it was a way to first engage with our audience, while also build relationships within the Irish literature community. While we gradually started making our own recordings (for example by recording events, making audio for exhibitions) there was a large focus in the beginning on recordings contributed by partners in the community: literature podcasts, festivals with stockpiled recordings of events, other literature organisations with digital collections. As such, RadioMoLI became a vehicle to embed the museum into the cultural scene very quickly – before we had even opened the physical museum.

The following year, when we launched an on-demand player, hosted within the moli.ie website, the public engagement with RadioMoLI took on a new dimension. Though the functionality and design of this platform was quite basic, with quite limited curatorial or editorial features, it became clear to us that there was a strong demand from both listeners and producers for a service like RadioMoLI. Moreover, we realised that we were effectively building a substantial digital archive for Irish literature, and that RadioMoLI was a very effective first step in MoLI's digital collecting activity.

As traffic to RadioMoLI grew (to about 90,000 per year), and the number of recordings from both MoLI's own productions and partner contributions increased, it became time to plan a new phase for the project. As with anything that starts small and grows quickly in scale, there are some challenges: on a public-facing level, we recognised the need to develop an interface that was much more engaging, which could give us curatorial and editorial tools to present media in more interesting ways, and which could cope with a much larger scale of material.

We also knew that the systems and structures behind RadioMoLI – from technical infrastructure and build through to workflows and archival practices – needed improving to be able to operate at a much more ambitious scale, and to ensure that both the archive was safely preserved, while mitigating risks such as copyright claims and inefficient working practices. With a greater ambition for RadioMoLI's public engagement, we also recognised that the marketing and communications of the project would need to be streamlined.

At the same time, since the museum's inception, MoLI had been creating many other digital projects: commissioned literature-inspired films, digital materials for special exhibitions, digital-only exhibitions, and video documentation of events at the museum. All of this material was crying out for a centralised home, and we came to realise that RadioMoLI was best served as a multimedia platform to incorporate video, still imagery and digital exhibitions in addition to audio. This naturally meant that any reconsideration of RadioMoLI's design and infrastructure would need to be quite radical.

Joining the Ars Electronica's DOORS Digital Incubator for Museums project was a catalyst for action and brought RadioMoLI 2.0 from an idea into reality. Funding from the project enabled us to commission a complete redesign and rebuild of RadioMoLI, to expand the capabilities of our on-site studio, and to invest in infrastructural necessities like better contracts and digital preservation systems. But beyond the funding, the programme also helped us to shape and challenge our idea of what RadioMoLI could and should be: through engagement with our mentors and partners on the programme, we were able to distil our concepts and find better ways of communicating them.

We began by analysing the material that we had – hundreds of items of media – and considering how they might guide us to a new information architecture. We also carried out research on our audiences and the broader cultural context for RadioMoLI, through analytics

and softer data like surveys conducted with our audiences and stakeholders. Our research taught us that, while there was a strong interest in and demand for RadioMoLI, it would always be competing with a crowded entertainment space. We drew the conclusion that the new RadioMoLI would need to do everything possible to approach audiences in the language of contemporary media to have any chance of interrupting that cultural space; the phrase “a Netflix for literature” was used many times.

In the background we began building up our infrastructure. We redesigned our digital preservation strategy and workflows around file processing and storage – and invested in hardware to support this. We bought additional equipment for the museum’s studio, and developed a commercialisation plan, with a view to expanding the commercial possibilities for the studio such that the operation could become more financially self-sufficient in the future. And we developed new legal agreements that would make the producing of recording and receiving digital materials more straightforward and limiting any legal risks.

The task of redesigning and rebuilding the site was considerable, but we began by looking at the content and how we would best encourage engagement and re-engagement with it through a new-look RadioMoLI. Our new information architecture, developed through internal workshopping, was simple enough to be able to adapt to multiple forms and sources of content, but we added some additional attributes that would help us to serve up media in more interesting ways. For example, in addition to being able to group and display media by project or series, we are also organising media by themes, categories and people. We designed the whole site as lo-fi wireframes, before passing it over to our designer – a useful creative technique that emerged from a mentoring session.

We also spent considerable time considering and workshopping the project’s name and tagline. There was a certain warmth towards and brand recognition of the title, RadioMoLI, so that was retained, but we needed to add something that would capture the transition to multiple forms of media as well as the project’s cultural ambition. Beginning with “archive of tomorrow” we transitioned to “an archive for Irish literature”, before eventually arriving at “Ireland’s literature channel”. To us, this encapsulates the breadth of the collection, while communicating how centrally we see the project sitting within the Irish and international literature community.

Working closely with our graphic designer and developer, the new-look RadioMoLI began to emerge. Our designer, David Donoghoe, created a beautiful and distinctive visual system which remains highly functional, unashamedly borrowing elements from popular entertainment platforms that so successfully engage their audiences. Our developer, Stuart Cusack, built a whole new CMS and front end, with extensive custom code to realise the design approach. We’re particularly fond of the shape and rounded edges of images on the site – a not to an old television, and a potent visual currency that says “watch me” to a contemporary visitor.

One of the benefits of the DOORS programme was to consider the project in phases, and to never consider the project finished. This dynamic approach has benefited RadioMoLI 2.0; rather than limit our ambition, it has helped us to prioritise and visualise a longer-term approach to the development of the project. We’re delighted with what we have achieved with the help of DOORS, and excited about the future possibilities unleashed by the project.

## Benefits & Impact

It’s curious to think of what might have happened to RadioMoLI if we hadn’t been able to focus resource on it through the DOORS programme. There is every possibility that we would have arrived at an unwieldy collection that visitors could no longer navigate in a useful way, and something that would have become structurally quite unstable. As such we can consider the programme to have been something of a lifesaver for the project, and it couldn’t have happened at a better time.

The obvious, immediate, benefit, is that we have rebuilt RadioMoLI from occupying a small, technically limited section of our website, to a standalone media platform with much more potential to engage audiences as well as attract contributions from our literature community. The new RadioMoLI is so much more visually appealing, and offers more avenues for editorial

and curatorial presentation of the collection that it promised to create much greater access to the literary artform quite aside from the benefits it provides for the literature community.

Less visible are the structural improvements. Nobody sees the whole new CMS built for the platform, the much more efficient codebase, the new legal agreements, the digital preservation systems, the new workflows for our team and the incremental improvements to our studio – but they are there, and without them the platform couldn't function. In short, we couldn't have updated the façade without making stronger foundations, and the DOORS programme has supported this holistic investment in the project.

Our strong sense is that the relaunch of RadioMoLI will have an immediate positive impact on our existing audience, stakeholders, and partners in the literature community (festivals, writers, producers, publishers, literary organisations) – the visual rebrand and the statement of intent as “Ireland's literature channel” alone will create excitement and momentum among those already invested in the project. Of course, our ambition is to go beyond that group and create lasting impact with the public. Every curatorial and design decision we have made has been with that public engagement in mind, and with the right approach to curation and communications, we believe the project will achieve very significant audiences in the near future.

### Limits & Drawbacks

Our greatest limitation throughout the project was our own time: the team leading the project is very small, and runs a large amount of activity at the museum, including exhibitions, all of MoLI's programming and digital work. This, combined with the ambition and scale of work demanded by RadioMoLI 2.0, meant that we were often working under significant pressure and we had to revise the timeline many times. That said, we are very happy with what we have achieved in the context of the programme, and realise that the infrastructural work completed with support the efficient management of the platform in the future.

We enjoyed and benefited from the workshops provided – and this was a lovely way to meet colleagues from around Europe, but at times found it challenging to commit the time required to attend – again, because we are a small team with many projects and responsibilities in the organisation. Perhaps a future version of the programme could look at reducing the time commitment to a degree.

### Future Prospects

The more we have worked on RadioMoLI 2.0, the more we have realised that it has potential beyond our original expectations. As we launch RadioMoLI: Ireland's literature channel, we anticipate that interest in the platform from potential partners and new audiences will grow rapidly. This, we expect, will open up new possibilities for the collection, while potentially supporting new funding opportunities from both state grants and corporate sponsorship.

Funding allowing, we would hope to continue investing in the platform. Key areas where we would hope to focus investment would include: technical improvements to the site such as auto-transcription and additional modules to represent content; investment in the curatorial and production team to ensure that the platform is sustainably managed; and investment in marketing to bring new audiences in contact with RadioMoLI.

We're also excited by the prospect that the museum's digital work – in any context – will find a home in RadioMoLI, from materials produced for exhibitions to commissioned films to documentation of events. With the addition of more live audio streams from events, RadioMoLI should feel closer to the activity and mission of the museum than ever before.

### Key Take-Aways

While the size of our team and the resource we could commit to the project presented a challenge, a key take-away is also how much could be achieved within a small team with the right support. The programme certainly promotes leaving one's hermetic working practices behind, engaging with like-minded partners and communicating consistently about your work – all of these things helped to drive RadioMoLI 2.0 forward.

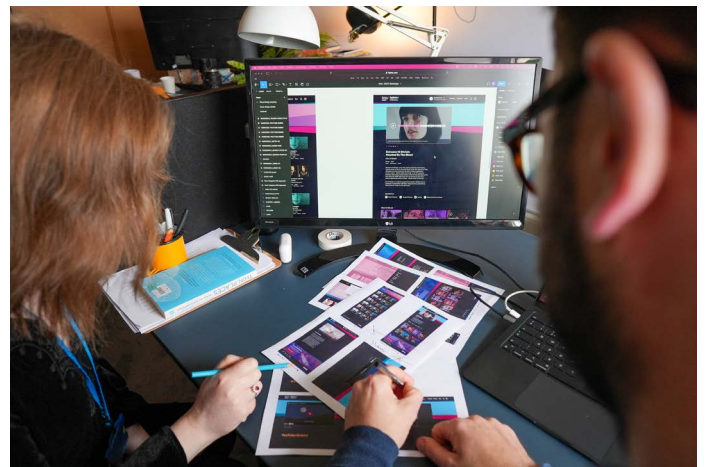
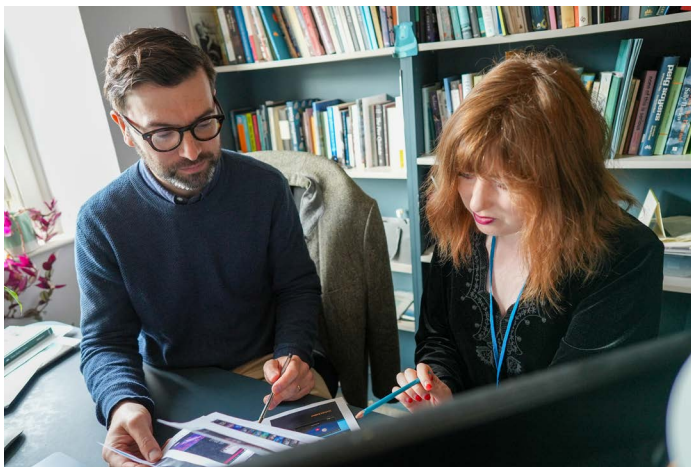


Engaging with the funding and reporting structure was challenging at times, largely because there was a steep learning curve – this being one of our first EU-funded projects. However, the support of the DOORS team made this easier, and we do feel much better prepared to operate within a similar funding context in the future as a result.

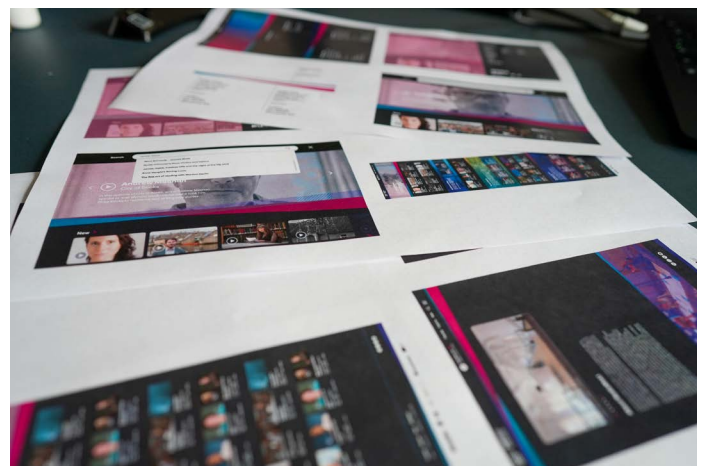
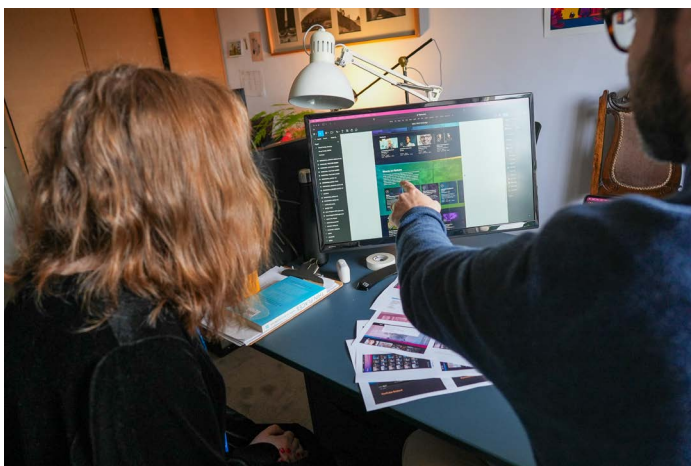
Finally, we're proud of the result. We believe RadioMoLI: Ireland's literature channel has a very significant role to play in the world of Irish and international literature – as well as more broadly in the cultural life of our audiences. As the project develops and becomes both more visible and more integrated in cultural life, we hope that the platform will provide inspiration to cultural organisations and museums seeking new ways to engage the public in their digital collections.

### Involved Parties

- [National Library of Ireland](#)
- [Ebow](#) (the digital agency)
- [David Donohoe](#) (design)
- [Stuart Cusack](#) (development)



RadioMoLI, Team at work, Museum of Literature Ireland, photo by Ian Dunphy



RadioMoLI, Team at work, Museum of Literature Ireland, photo by Ian Dunphy



SEARCH

MENU

HOME

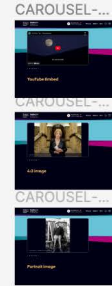
CURATED LANDING

SEARCH RESULTS

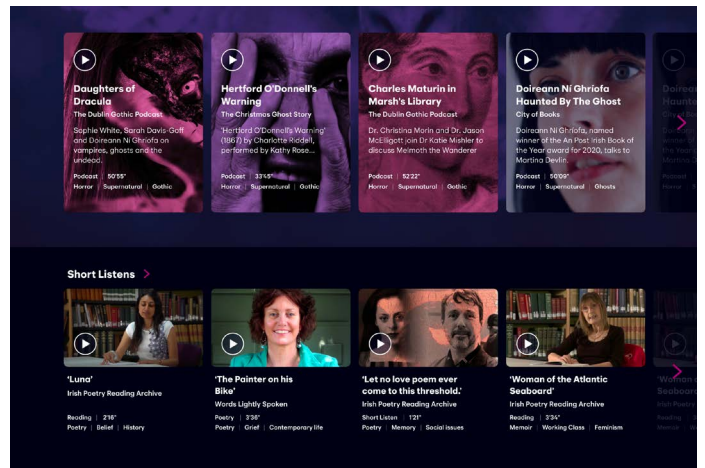
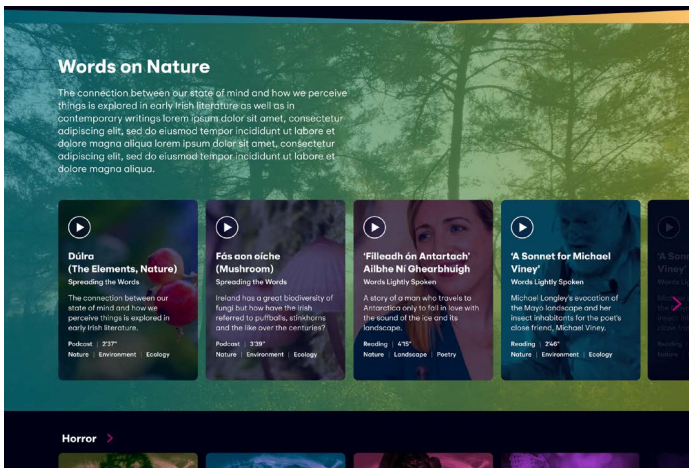
INDIVIDUAL ENTRY

BASIC PAGE

CAROUSEL Media



RadioMoLI, Design, Museum of Literature Ireland



RadioMoLI, Design, Museum of Literature Ireland

# Strategies for Integrating Infrastructures

This innovation area addresses the importance of inhouse infrastructure in the process of digitalisation, to ensure that the museums are less reliant on external stakeholders and have more opportunities when it comes to digitising their collections, expanding their use, and making it available to wider audiences.

# The Europeana Initiative and the Data Space: A Story About Interoperability and Openness

## Europeana's story

Europeana's foundations were laid in 2005 by a letter from French President Jacques Chirac and other five EU Heads of States urging the European Commission to create a publicly-funded counterpart to the then-new Google Library project, which proposed the wholesale digitisation of library collections in Europe and around the world.

Europeana was conceived as open and commons-oriented. It was Europe's response to the increasing commercialisation of digital platforms, and its technological and legal frameworks are designed and built accordingly. Museums, audiovisual archives and galleries joined the libraries, creating a common access point to Europe's cultural heritage.<sup>1</sup> From 4.5 million digital objects at its launch in 2008, [Europeana.eu](https://europeana.eu) now gives access to 57 million digital objects from around 4,000 institutions across Europe, the majority of which can be reused without any restrictions. We also provide expertise and tools to support cultural heritage institutions to open up their collections and make them available to be used, shared and mixed in new ways.

As of 2022, the Europeana Initiative - together with its partners - deploys the [common European data space for cultural heritage](#), a flagship initiative of the European Union to accelerate the digital transformation of Europe's heritage sector and foster the reuse of cultural heritage content. Together with other 13 sectoral data spaces - covering different strategic domains from health and energy to manufacturing -, it's central in Europe's ambition for a thriving data-driven society.

In this new chapter of our history, the Europeana Initiative becomes the steward of the data space for cultural heritage - this doesn't mean we *own or control* the data space. Rather, it means that we are responsible and transparent operators of this shared space, while upholding and nurturing common goals, values and principles.

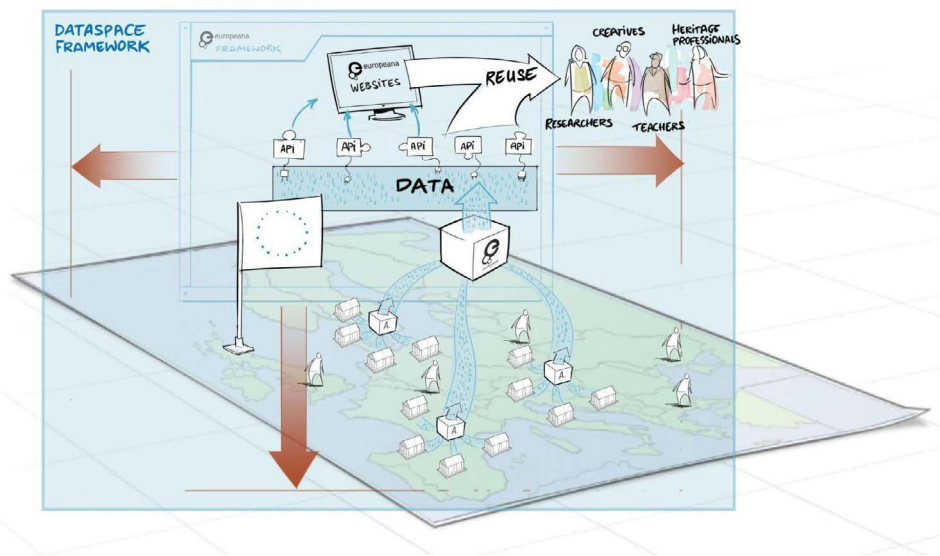
## Our vision for the common European data space for cultural heritage

The data space is to be a sovereign data ecosystem — an open and resilient commons for the users of European cultural data. *Sovereign* means that data owners - as opposed to platforms - have control of data. The data space will thus provide an ecosystem in which we nurture interconnected applications, communities and data as a federated whole. It will be *open and resilient* in that we emphasise open models of sharing and innovation. And finally, it is a *commons* in that we'll design and manage the system around shared, open values for the public good.

The data space doesn't replace the Europeana Initiative; rather, it builds on its accomplishments in open data, community building, and data aggregation and challenges the Initiative to grow.

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<sup>1</sup> The Europeana Initiative is formed by three 'pillars'. Firstly, by the [Europeana Foundation](#), a team of around 60 based in the Netherlands and across Europe. Secondly, the [Europeana Network Association](#) (ENA), a strong and democratic community of over 4,000 experts working in the field of digital cultural heritage and related disciplines. Finally, the [Europeana Aggregators' Forum](#), a pan-European and cross-domain network of 40 aggregators who work with cultural heritage institutions to gather authentic, trustworthy and robust data and make it accessible through Europeana.



With the data space, decentralisation, openness and interoperability are ever more important to our work. The data space for cultural heritage will be fully interoperable with the whole data space ecosystem to facilitate cross-sector data sharing and reuse. It will explore opportunities for cooperation with other data spaces - in particular media and tourism -, and with other initiatives that, like ourselves, are committed to societal change through digital culture.

## Transforming technical infrastructures and mindsets in the data space

Drawing on Europeana's definition of [digital transformation](#), we are committed to building a vibrant data space that is not only about technology but rather also people and values. In this, we acknowledge that mindsets are just as important as technical change, and that technical advancement is intimately connected to skills, agency and impact. As we move into the data space, this holistic approach continues to inform our work and vision and the partnerships through which we improve and develop new interoperable and accessible products and services.

## Promoting interoperability and openness

Since our early days, interoperability has been at the heart of Europeana. We have led the development of internationally accepted frameworks and standards that support interoperability and openness in both [licensing](#) (copyright) and [publishing](#) (data quality). [The Europeana Data Model](#) (EDM) transcends different domain-specific data models to provide a single model that has been used as a heritage-wide standard for high quality and reusable data. Together with experts from our network and beyond, our frameworks and standards have guided the development of products and services that are widely interoperable and that can be integrated freely across Europe.

And yet interoperability and widespread integration is a constant challenge. Integration of, for example, 3D content, requires specialised formats. Working on solutions that respond singularly to, for example, the complexity of 3D content, can lead to a duplication of effort and wasted resources. Instead, an interoperability-led strategy drives our work and desire to make rich, multifaceted experiences with digital cultural heritage.

## Collaboration in developing infrastructures and technical innovation

Just like with 3D, technical developments like extended reality (XR) and artificial reality (AR) require us to evolve our products and services in response to hard-to-predict changes in how users engage with and reuse heritage data. But we don't do this alone. Partnership working is key to improving and developing new infrastructure that meets the changing needs of our stakeholders.

We participate in EU-funded projects - covering topics from data enrichment and technological innovation to reuse and capacity-building - that align with our vision. In the spirit of the EU, we partner with others, commercial and non-commercial actors alike, to develop knowledge and infrastructure that benefits from insights from

different geographies, experiences and expertise. As the environment in which we operate is getting richer and more diverse, joining forces with other actors is key for a cohesive and jointly-owned digital heritage ecosystem. In doing so, we spread knowledge. We support new centres of expertise. We work democratically and move forward together. This pays off in terms of the democratisation of access, integration and reuse. That initial investment affords, in the longer-term, free and wider access to all European institutions and the public.

## Training and skills for digital transformation

Our partnership-led approach to creating interoperable products and services couples technical development with the training needed for professionals to adopt, integrate and harness the value of what we develop. We focus on building the capacity of heritage professionals and increasing the access to the knowledge and skills that are needed to benefit from and contribute to the data space. We can't predict what skills the digital heritage practitioner of the future will need and how the digital discovery of cultural heritage collections might change, but partnerships with bodies like the [European Students' Association for Cultural Heritage](#) (ESACH) help us to prepare for tomorrow while delivering the skills to use the products and services needed today.

## Assessing and learning from our impact

We don't build new products and services for the sake of it. Guided by the [Europeana Impact Framework](#), we work to deliver [our vision](#) for a cultural heritage sector powered by digital and a Europe powered by culture. We set in place mechanisms to collect data that helps us learn from the experience of our stakeholders, whether they are researchers, educators, creatives, the general public, our aggregators or data providing organisations. What we learn helps us to adapt our business model as the context in which we operate evolves.

## Our vision for the future

The data space is an exciting opportunity to advance the vision of digital culture as a global public good, while upholding the values Europeana stands for and which led to our very existence.

In the upcoming years, we'll be working to integrate new and different kinds of data and in higher quality, and we will develop new products and services that create value for our professional audiences, reuse communities and the public at large. We will explore and develop new data-sharing mechanisms that enable reuse in a wide range of scenarios and will work towards a more decentralised data ecosystem. This will allow more people to discover new value in data that was once held in siloed, inaccessible or non-interoperable systems.

As we deploy the data space, and in line with our mission-driven nature, we look forward to advancing our vision for Europe's digital future: one that is open, democratic and commons-oriented. Where data owners - as opposed to platforms - have control of data, public institutions function in the public interest, and where people have a say in how their digital environment functions and are able to participate more fully in its creation and use.

**Lorena Aldana**

serves as Head of External Relations and Advocacy at the [Europeana Foundation](#). In this role, she works on building meaningful relations with EU policymakers, ensuring the Europeana Initiative's lead and influence on key policy issues and strengthening awareness of its added value in the cultural and political landscape.

Before joining Europeana, Lorena worked in EU cultural affairs at non-governmental, international and intergovernmental organisations including the European Commission and the Organisation for Economic Co-operation and Development (OECD).

**Nicole McNeilly**

is the Impact Advisory to the [Europeana Foundation](#). She leads the development of the Europeana Impact Framework and its core tool, the Impact Playbook. She works to improve how impact is thought about, planned for and measured across the whole of the Europeana Initiative. She also works as a consultant researcher, advisor, evaluator and facilitator across the wider cultural and creative industries.



## Who | Institutional Profile

<b>Institution</b>	<u>University of Tartu Natural History Museum and Botanical Garden</u>
<b>Location</b>	Tartu, Estonia
<b>Short Description</b>	<p>University of Tartu Natural History Museum and Botanical Garden were historically separate institutions, going back more than 220 years. In 2014 they were united. The Natural History Museum is the oldest museum in Estonia. There are ca 1.3 million objects in its collections, more than 8,000 of which are on public display.</p> <p>Nowadays, in addition to traditional specimens, the institution also holds DNA samples and runs a biodiversity data management system called PlutoF. PlutoF is used by several institutions for their daily data management and can be also used freely by any researcher worldwide to collect, manage and publish their research data.</p>
<b>Ownership</b>	Public
<b>Size</b>	16,000 visitors to the Natural History Museum and 118,000 visitors to the Botanical Garden in 2021

<b>Approach to Digital</b>	<p><i>Input by Veljo Runnel, Martin Vipp</i></p> <p>Digital tools are used extensively in our work - organising collection data, keeping track of loans, sharing collection information with researchers and the general public. Together with other biodiversity collection-holding institutions in Estonia we have developed a biodiversity data management system called PlutoF. Several museums and institutes use it for collection management; we have also taken advantage of its capabilities and widened the scope to citizen science. We use PlutoF-linked applications for recording nature observation and share the collection data to the general public on the web, including images.</p>
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## What | Case

<b>Project Title</b>	<b>3D Scanning Infrastructure for Nature Education and Remote Research</b>
<b>Timeframe</b>	December 2022 - August 2023

<b>Concept &amp; Approach</b>	<p>Ideas are born from people, and for us the concept was born from interactions between people. We had a co-worker doing his PhD on 3D scanning, and another who organises citizen science events. A third person has programmed educational software. And we had a biodiversity data management system with developers in-house. What a nice combination! So after seeing the DOORS announcement, and reading that it is about the 'digital' we soon had some exciting ideas aligning with our work – using 3D images for real study and work, not just for entertainment, and in a sustainable system of existing software. We already had some</p>
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experience in 3D, however it was the challenge connected to stepping up and accomplishing something new that probably gave us the last push to apply.

As a result we blended three cornerstones of our concept into a defined project. First - integrating 3D standards into the PlutoF biodiversity data system. When a 3D scan is connected to a specimen in a collection or to an observed object in nature, it also links a lot of additional information which can be used for further studies:

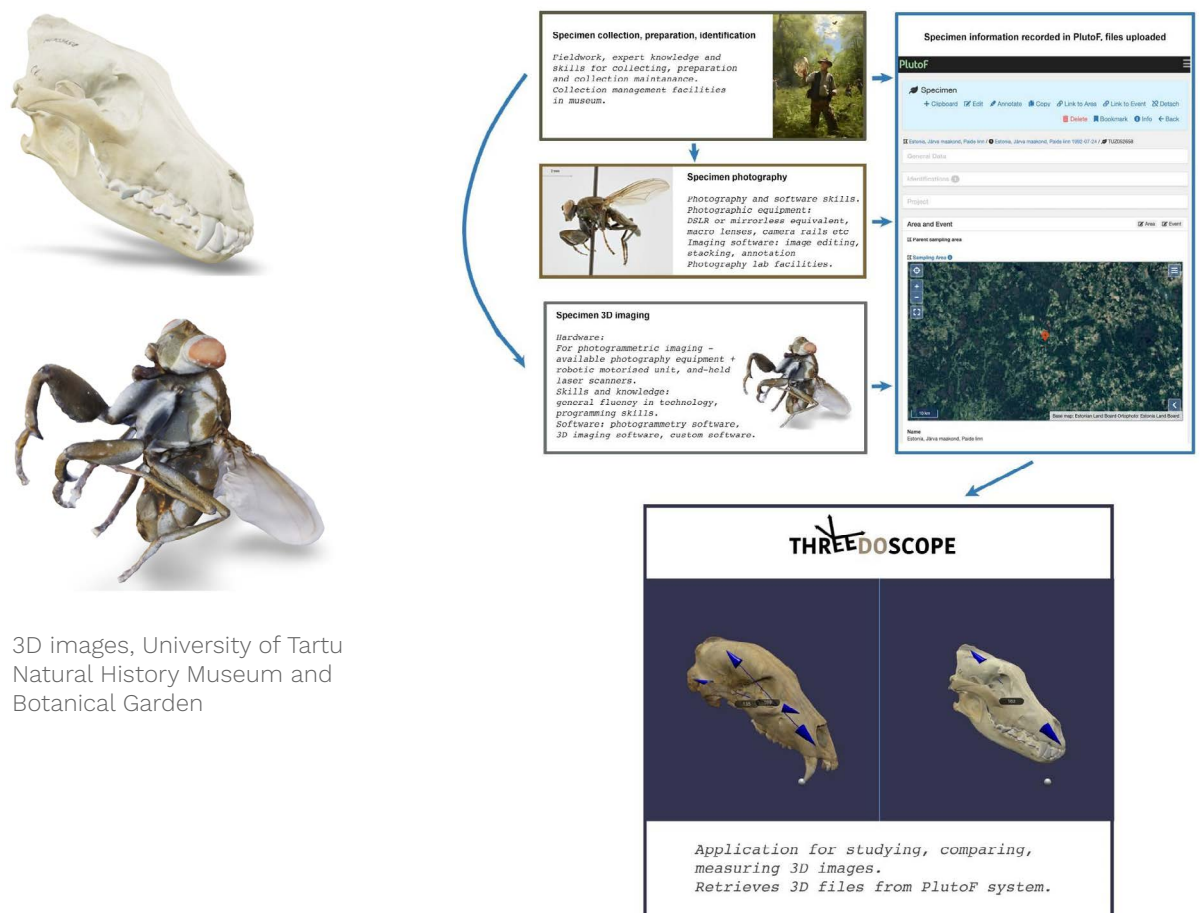
- specifics of the object: when and where it was found, who identified it etc:
- specifics of object taxonomy - how is it related to other species, what is similar and what is different between them. Such connections get just a couple of clicks apart in the PlutoF system.

The second cornerstone was building a 3D image study software. 3D files need specific software treatment to make them usable. We figured that simultaneous study of two 3D files in one screen will offer numerous ways to use them in education or research, coupled with measuring and annotation tools. The name of the application is Threedoscope, hinting at 3D images and a visual study feature.

The DOORS project was helpful in building the first version of software and mapping the needs for future developments. In fact, during the DOORS project lifetime we already secured a new update of software in another digital project.

The third cornerstone entailed finding the ways to 3D-scan biological objects, building some standardised methodology and scanning the initial batch of different 3D models for Threedoscope. For the initial batch we chose the skulls from the zoology collection, as they are used in our museum educational programmes. The insects, which have large diversity in size and shape and are also well curated in our collections, were also selected.

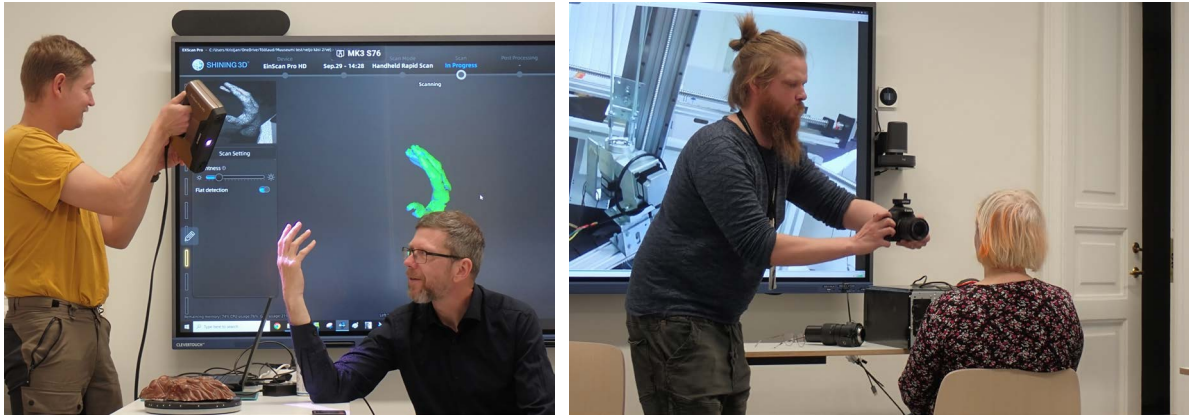
By the end of the project we should have a clear, workable 3D-image pathway from objects to a data management system and to practical applications.



3D images, University of Tartu Natural History Museum and Botanical Garden

Threedoscope, University of Tartu Natural History Museum and Botanical Garden

As part of the project we also organised a public workshop mostly directed towards memory institutions (museums and other) which can leverage the usage of 3D in their everyday work.



Public workshop, University of Tartu Natural History Museum and Botanical Garden

## Benefits & Impact

The biggest apparent benefit of the project is that we have implemented 3D file handling capabilities into our collection management system. We have also worked through several pathways from scanning the objects to the final file. Overall, we have now gained new experience, which has resulted in several tangible products.

- 3D functionality implementation in PlutoF system comprises the following:
- 3D files can be uploaded to PlutoF system and linked with specimen data; the system will automatically recognise the file type;
- specimen search for the attached 3D files;
- 3D files will have permanent url so they can be used by external applications.

The project resulted in the web application Threedoscope. From the beginning the application was designed to be very simple – to be able to compare visually and measure 3D files provided by the PlutoF system.

Most of the project's beneficial features run in the background. It is like when your phone automatically opens and displays a document file; you take it for granted. From now on, we can take 3D file management in our collections for granted, although this is mostly hidden from plain view and reveals itself only when needed.

What was revealing during the project and workshop in May: with the DOORS project we stepped in the doorway of new exciting opportunities, using realistic 3D images for edutainment or printing 3D images of objects which otherwise cannot be touched by the general public. This is a whole new world which waits to be explored.

## Limits & Drawbacks

Time was the most precious resource in this short project and when it was lost, the future started to look ominous. One of the activities in our project was to build an innovative but at the same time experimental automated robotic 3D scanner. This was at the same time exciting and scary. The delays in getting the mechanical parts from China was clearly messing with our timetable. One of the reasons for this is the worldwide crisis in logistics and availability of electronics, caused by the Russian invasion of Ukraine. Nobody could have foreseen this challenge in the autumn of 2022.

Internally it was very tough when several activities collided in our most busy time of the year - May and the beginning of June. It was clear that we had to reschedule some deadlines.

During the project we discovered that 3D expertise and knowledge is very scattered in Estonia. Although some museums have been using the technology, it has largely been undocumented and not handled sustainably. We did not have time to analyse the situation, but one of the reasons is that 3D scanning can be technically challenging for some museums.

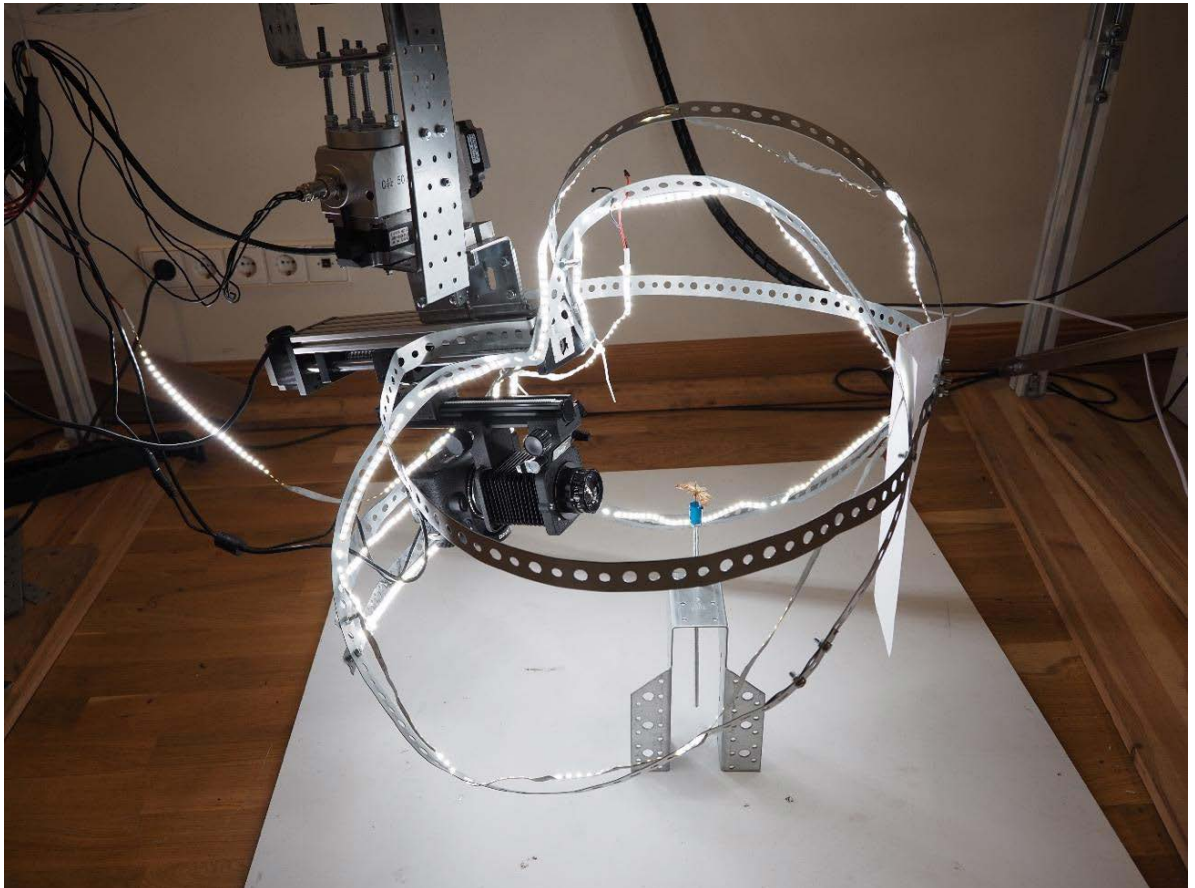
We did not achieve full capacity for scanning of collection specimens at the critical phase of the project because of the delays in scanner assembly. Updating PlutoF and developing Threedoscope was done with a minimal set of scans and we were limited in educational applications.

## Future Prospects

Automated, robotic scanning can be a key element in the 3D digitisation of a natural history collection. Developing on your own can be challenging and there are not many people around capable or qualified to do it. Cooperation is important! Also, operating this kind of scanner will probably need continual maintenance capabilities on the part of the institution.

Once the collection has reached a sufficient number of 3D scans (of a certain group of objects - for example, beetles), a digital identification guide can be built based on the scans.

For certain museum objects, realistic printed versions can be highly desirable – as for educational or for commercial uses. Selling replicas of fascinating collection specimens can help museums financially.



Robotic 3D scanner prototype, University of Tartu Natural History Museum and Botanical Garden

## Key Take-Aways

- With a novel approach or technology, you must leave enough time for learning and unexpected delays.
- With unfamiliar formats or technology, applications can have pretty simple functionality and still be useful for the end user.
- As long as there is somebody in your team who is still excited about the idea – there is hope!
- With natural history collections you are serving treasures to the general public. Create your application in such a way that the treasures can be appreciated to their best advantage!

## Involved Parties

- Toivo Ylinampa (development of a 3D scanning station as part of the PhD work)
- [5D Vision](#) (software company, developing Threedoscope)

## Experimental ICT Programmes

This is an area of experimentation with shared information and communication technologies. The museums in this innovation area have been working with others to set up digital platforms that re-design the curatorial process or develop infrastructure that can be adopted across the sector.



# A 'CALM' Approach to Cross-Sector Collaboration in Uncertain Times

The scale of change facing our sector today is unlike anything we've seen before. Rising costs, shrinking public funding, and global issues like climate change and pandemic recovery stretch limited resources thinner than ever. At the same time, new digital technologies offer opportunities to reinvent how we work and better serve our communities. But to fully leverage these opportunities, no single organization can do it alone. We must come together across institutional and sectoral boundaries through new collaboration models.

Within the DOORS Incubation programme I introduced the cohort to the concept of a 'CALM' approach to digital transformation, meaning the method cultural organizations can take to nurture collaborative relationships and practices that will help the entire sector weather ongoing disruptions and thrive in an uncertain future. A 'CALM' approach focuses on **C**ollaborative and **A**nticipatory practices, embracing letting go of hierarchies to allow **L**eadership practices to emerge and establishing a **M**indful rhythm of reflection.

DOORS cohort experienced the benefits of a CALM-inspired model both through skill-sharing workshops and hands-on project work. While subject matter experts from various specializations broadened perspectives on common challenges, the participants also gained valuable cross-pollinated feedback by opening their work-in-progress to the group through documentation, status updates, and collective learning. As the cohort had the opportunity to interact with diverse contexts and needs, strengthening project resonances, it was also noted how these transparency practices accelerated progress by pushing thinking inward and outward through fresh lenses.

Perhaps most impactful was how DOORS participants cultivated horizontal professional networks that transcended institutional boundaries. Regular show-and-tell sessions and social gatherings helped participants recognize shared interests and objectives, cementing peer relationships and outlasting the DOORS incubation program. Many mentioned this incubation environment eased experimentation through a psychologically safe "failure is okay" culture that thrives on open-sourced learning. Participants took collaborative mindsets back to their home institutions, instilling reinvigorated approaches to problem-solving across the sector.

## Collaborative practices for distributed resourcing

By openly and transparently engaging with peer organizations, we can identify opportunities to share expertise, experience, and resources across institutions. Developing networks of practice external to and across our organizations breaks down silos and cultivates communities where staff can turn to peers for assistance and continued learning. Working openly through channels like extranets and online forums multiplies our combined skill sets. Alongside in-person events, these digital spaces are where we might document work-in-progress and solicit feedback from colleagues in other institutions. Working-out-loud helps shorten our learning paths and make the most of our precious resources. Regular showcases of ongoing projects could help spark new ideas. Our human and technical resources go much further when shared through deliberate, collaborative interactions.

## Anticipatory planning for multiple futures

As trusted stewards of cultural heritage, we must stay attuned to changes in our communities and anticipate how to respond to shifting needs over the long term. We might coordinate efforts and resources across the sector through open planning practices like shared calendars and project management platforms. By facilitating regular future-focused conversations, we might scan the horizon for patterns in societal, technical, economic,

environmental, and political trends and forces. New working groups might research potential disruptions like climate change impacts or economic shifts to model various scenarios and pilot innovative solutions. Together we gain foresight to influence outcomes proactively through agile experimentation and resilient cooperative projects.

## Letting go of silos to foster emergent leadership

Traditional hierarchies concentrate power and siloed work within single institutions. Through the DOORS program, participants broadly explored the distribution of leadership to lead effectively in a complex, fast-changing world. New solutions and more robust networks emerge organically by valuing all voices and nurturing relatedness between organizations and staff. When we make time for regular collaboration, informal leaders step up at every level across organizations to solve novel problems. Collective ownership of sector-wide goals keeps us rowing together even during disruptions. Together, through open communication and shared governance, our innovative capacity multiplies as knowledge and skilled professionals cross-pollinate institutions.

## Mindful reflection for a stronger skilled workforce

Just as in life, our sectoral work benefits from regular pauses to evaluate what's working, what needs adjusting, and how to improve together continuously. We might routinely examine our progress against shared objectives through planning and reflection rituals. By benchmarking skills acquisition across partner institutions, gaps can be addressed through communities of practice and just-in-time training. Our combined efforts go further when the workforce behind them is cared for and consistently learning, growing, and supported through change. Regularly reflecting on outcomes from a joined-up systems perspective keeps collaboration efforts evolutionary and impactful despite the challenges outside our control.

## In conclusion

The DOORS program exemplified the power of a 'CALM' approach to strengthen individual skills and cross-institutional partnerships. Participants noted how practices like transparent documentation, collective learning, and routine showcasing accelerated capacity-building through diverse feedback and idea-sharing. Networking events helped diffuse expertise laterally while deepening understanding of shared challenges. Perhaps most impactful was the incubation of enduring professional relationships that transcended organizational boundaries. DOORS participants can tap into this vibrant community network long after the program concludes, finding support and inspiration for innovative initiatives at their home institutions.

Emphasizing collective learning and flexible leadership fosters resilience across the sector through distributed knowledge, emergent problem-solving prowess, and a strengthened skilled workforce. DOORS illustrated how cultural organizations of any size can achieve more through collaborative relationships built on principles of openness, shared reflection, and foresight. No single cultural organization can foresee or overcome today's challenges alone. By nurturing a culture of openness, anticipation, and reflection between ourselves and our sector peers, a 'CALM' approach puts the strength of collaborative relationships and distributed leadership to work for our shared resilience. As trusted community anchors, we hope this approach might serve as a model for weathering disruptions and thriving through uncertain times.

[Dr. Lauren Vargas](#)

Invaluable mentor and workshop leader of the DOORS Incubation Programme

By day, a digital dragon wrangler with over 20 years of experience assisting organisations with their community, communication, and collaboration strategies. Dr. Lauren Vargas is the principal of [Your Digital Tattoo](#) and operates at the intersection of community and technology. She uses her research and consulting practice to further meaningful connection, purposeful inclusion, and digital civility.



## Who | Institutional Profile

<b>Institution</b>	<u>Alonissos Museum</u> of K. and A.MAVRIKIS
<b>Location</b>	Patitiri, Alonissos island, Greece
<b>Short Description</b>	The Alonissos Museum was founded in 2000 by Kostas Mavrikis and his wife Angeliki Agallou. It was the result of much personal work and an immense desire to preserve the island's cultural heritage spanning – literally - thousands of years. The museum functions only during the summer months (May-October) and attracts over 4,500 visitors. In the winter the island of Alonissos is inhabited only by locals and visiting is rather difficult as it is only connected to the port of Volos, which is only accessible through a 4.5-hour boat trip in often rough weather conditions. Among the museum's highlights are the Underwater Archaeology gallery and the Piracy Gallery, the latter being unique to Greece.
<b>Ownership</b>	The museum is privately owned and managed by the Association of Friends of the Museum.
<b>Size</b>	The Museum spreads over three floors, is run by the director and president of the Association of Friends. It has a staff of three people and is assisted by several volunteers. The annual number of visitors is about 4,500-5,000 people, all during the summer months.

<b>Approach to Digital</b>	<b>Input by Kostas Mavrikis</b> <i>"Digitising remote museums is the stepping stone to keeping them open: only through approaching their audience in winter months and through reaching out to expats or summer visitors who live abroad/in the cities can the small museums remain in touch with people, a first step to securing visibility and revenue"</i>
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## What | Case

<b>Project Title</b>	DigiSmALL: Digital Curator for Small Museums
<b>Timeframe</b>	2022-2023

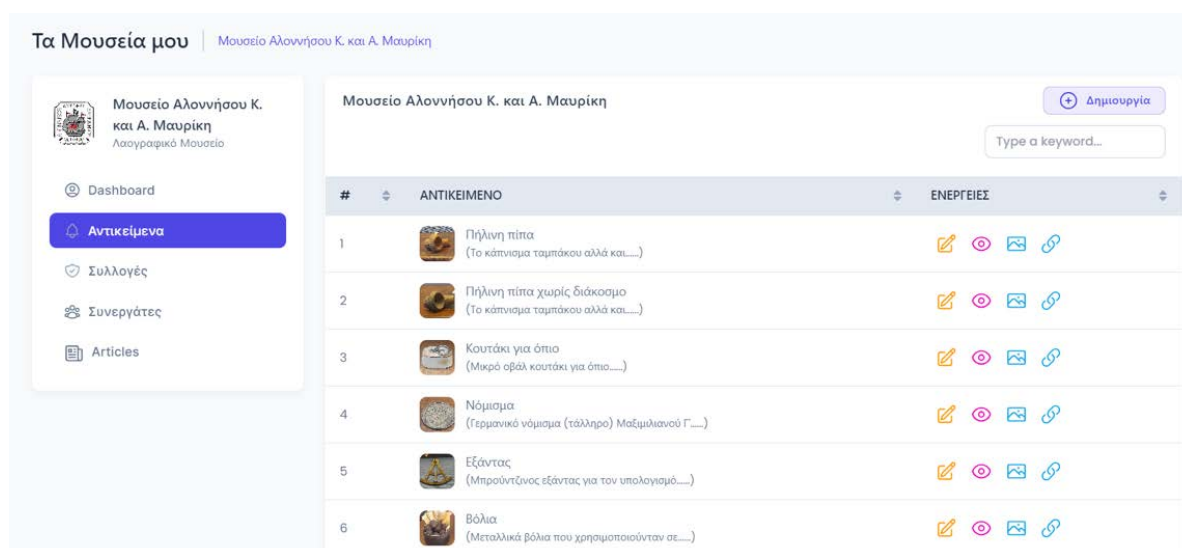
<b>Concept &amp; Approach</b>	<p>DigiSmALL was born out of the need to support small museums of Greece, most of them in remote areas, to have a digital presence and make their material (or at least part of it) available online. Through the plans and efforts to digitise the assets preserved in the Alonissos Museum, we came upon the idea of creating something more than just a digital platform - a digital ecosystem where small museums can find not only display for their 'inner world' but also a friendly community of professionals and peers who will help them take the leap forward, providing the support they have been lacking for a long while. Unfortunately, without this leap their very existence can be jeopardised in an era in which digital presence is no longer a choice but a prerogative.</p> <p>Our story is thus focusing more on connections and mentoring rather than merely on the creation of a 'product'. IT experts, historians, archaeologists, museologists and conservators</p>
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are already gathering at one end of DigiSmALL. At the other end the small museums of Greece are gradually coming in, reluctantly at first, but in definite need of support and solutions. The Alonissos Museum believed that it could evolve into a modern, open museum. It now wants to convey this self-confidence to more museums across the region of Magnesia to begin with, but gradually all over Greece.

During the DOORS pilot implementation period, DigiSmALL built the digital platform which offers small museums (starting from an initial group of four museums led by the Alonissos Museum) the potential to digitise their exhibits, create collections, present themselves through an internet webpage and link it to their social media. Furthermore, the DigiSmALL team has contacted an initial group of experts who are willing to continue supporting the ecosystem and who have undertaken research (through questionnaires) on the digital needs of small museums.

It now aims at enlarging its range of activities through linking up to museologists and conservators who can offer further advice and support.

The ambition and aspiration of all the members of the DigiSmALL team is to see small museums open up and become more trustful, communicative and creative. We have reached a point in which cultural heritage is not just to be preserved for preservation sake. It needs to be an inspiration for future creation, for building new identities based on the older ones and making the past(s) our guide for the future(s). We see DigiSmALL as a valuable tool in this process.



DigiSmALL, Alonissos Museum

### Benefits & Impact

The project-product DigiSmALL has created a reliable and affordable solution for the digitisation and digital enhancement of small museums, four to begin with. Based on the feedback of the museums themselves, we were able to create a priority hierarchy of the digital needs of museums and to address each one in perspective.

Thanks to DOORS we understood that we need to shift the small museums' attention to the development of audiences rather and not only to funding (which is usually what the museums are looking for). Visibility is the future-proof asset that will help small museums survive in a competitive era.

### Limits & Drawbacks

The main challenge for DigiSmALL is to persuade small museums to join this ecosystem and collaborate with the experts for an enhanced shared outcome and a more robust function of the network. Our aim is to reach at least 40 member museums (from Greece or other countries) within the first year after the official launch of DigiSmALL. This will enable us to continue building more functions and services of the DigiSmALL platform. Without any doubt a very active year lies ahead of our team but we are confident and sparkling.

## Future Prospects

DigiSmALL is a platform based on community and collaboration. We plan to endow it with digital saleable items, digitally enhanced learning programmes, open online meetings and monthly mentoring offer, digital storytelling space and a collective e-shop. It will thus be a unique museum management system with a low cost threshold and ongoing escort of the museums' advance and progress. As the development and kick off was boosted with the support and mentoring of DOORS programme, we foresee the 'sequel' to be facilitated through Greek national or international projects. And even if no funding comes through, we are now in a position to enlarge the ecosystem of the museums that can benefit from DigiSmALL and work out more solutions activating our collective efforts.

## Key Take-Aways

- If we could start DigiSmALL one more time from scratch, we would start with a tandem of museums from inception on. As of now, we have still managed to secure the collaboration of four more museums, alongside the Alonissos Museum, who can test the MVP, openly share experiences and feedback and contribute to the further development.
- We have conducted quantitative research through SurveyMonkey and it was relatively successful (20% responses); however, we would be more successful if we timed it better and with more context-sensitivity in mind, i.e. if we started it in wintertime, when museum staff (in Greece at least) has more time and therefore more available to try new approaches and tools.
- In terms of digital assets and formats, the videos taken in the Alonissos Museum (where Kostas Mavrikis explains his motivation, the origins and aspirations behind the collections) proved to be most efficient and emotionally engaging.
- The first B2B meetings with representatives from the other museums were very touching as they were really happy that they finally had a way to both digitise their exhibits and collections and activate them for the audiences.

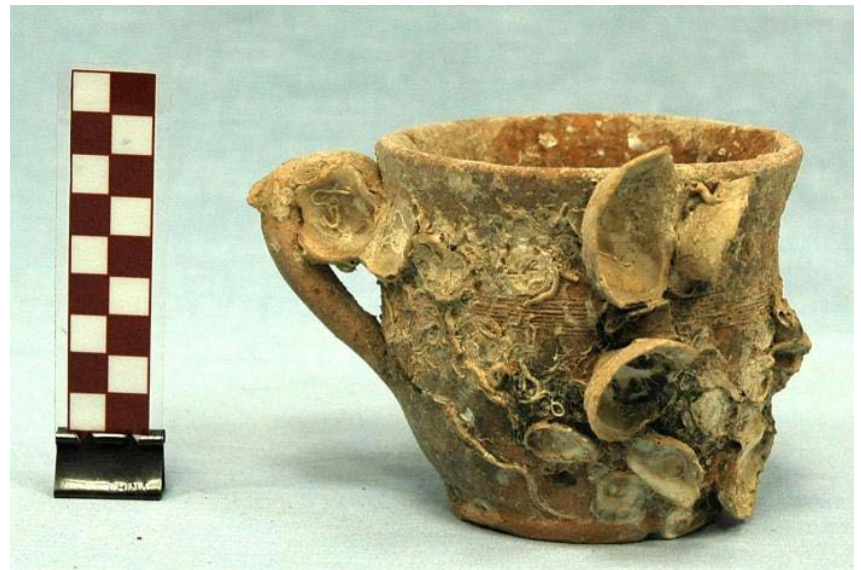
## Benefits & Impact

- [Time Heritage](#) (the initial concept)
- [FAB LAB](#) (DSP provider)
- [Simple Lab](#) (sharing the idea and planning its sustainable development)

Examples of some typical exhibits from different museum 's sections  
**Underwater Archaeology section**



Byzantine plate from the shipwrecks of Peristera, Alonissos museum, photograph by Hellenic Ministry of Culture



Byzantine jug (with shells' deposits), Alonissos Museum, photograph by Hellenic Ministry of Culture



Ethnography section



Agricultural tools, Alonissos Museum, photograph by Afrodití Kamara



Shoes made of seal's leather, Alonissos Museum, Photographs by Afrodití Kamara

National Memory section



Binoculars and picture of a deceased soldier, Alonissos Museum



## Who | Institutional Profile

<b>Institution</b>	<a href="#">St Ives Museum</a> and <a href="#">Cornwall Museums Partnership</a>
<b>Location</b>	Cornwall, UK
<b>Short Description</b>	<p>St Ives Museum has sought to tell the history of St Ives for the last 100 years. Run purely by volunteers, it highlights the rich stories of the town's art, mining, farming and fishing heritage. It's first art exhibition in recent years opened in the Spring and underlines the exciting changes that have happened in the last 2 years.</p> <p>Cornwall Museums Partnership (CMP) is a Cornwall-based team of museum and heritage sector experts who are passionate about the role and importance of collections, heritage, and museums. We operate both technically and strategically to support museums day-to-day, while looking at current and future needs and global trends to help inform and invigorate practice.</p> <p>Museums are a significant contributor to our creative economies and communities. CMP are advocates for enabling rurally dispersed museums to drive change with communities and organisations, to enhance what they can do to create meaning, knowledge, understanding, and positive social change. We support museums to exceed their ambitions and make informed responses to local need and national policy.</p>
<b>Ownership</b>	St Ives Museum and Cornwall Museums Partnership are UK registered charities
<b>Size</b>	St Ives Museum has 2500 annual visitors although this has risen this year. There are no paid employees. CMP has 8 FTE employees.

<b>Approach to Digital</b>	<p><b>Input by Phil Jones</b></p> <p>St Ives Museum has had a very traditional small museum approach to technology, in that it generally ignored it. A new team of volunteers in 2021 changed that and began looking for new ways to engage and increase audiences using technology. Although mindful that the look and feel of the museum was central to its appeal, the team reached out to CMP to provide support in this area. The last 12 months has seen digitisation projects, a revamped website and the first steps at truly innovative practise with the READ project.</p> <p>CMP's digital innovation seeks to provide funding streams, capacity, and expertise in the field of digital technology that small, rural museums often feel excluded from. Our team of experts have been involved in projects across the entire spectrums of the heritage and technology including VR (Virtual Reality) installations and AI (Artificial Intelligence). Both innovation and inclusion are core values at CMP and we are constantly seeking to provide digital bridges to physical barriers. When St Ives Museum approached us, we were keen to help fulfil their vision.</p>
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## What | Case

<b>Project Title</b>	<a href="#">R.E.A.D- Responsive EPaper Adaptive Dsplays</a>
<b>Timeframe</b>	2022-2023

## Concept & Approach

The READ project was born when 2 conversations collided. Firstly, St Ives Museum were looking to increase visitor numbers and serve underrepresented audiences. Secondly CMP were looking at alternatives for museum labels as while previous accessibility projects had led to extra text around artifacts, this was not a sustainable or scalable approach.

We had been interested in E-Paper screens as an alternative to LCD screens in museums given their low power consumption but had been put off by their lack of colour and refresh times. However, when we workshopped these ideas with the museum, we found that we had the perfect use case for them. Instead of replacing LCD screens we were replacing paper labels. Combined with the increased use of NFC contactless cards following the COVID-19 pandemic we believed we could combine the two to create a label that changed depending on the visitor's needs.

The basic concept was exciting but very unproven and we could only find a few examples of EPaper use in museums. Lots of our usual funding streams would have been hesitant to fund proof of concept and minimum viable product schemes but thankfully we were eligible for the DOORS/Museum Booster phase 1 project with Ars Electronica.

The phase one funding allowed us to develop our basic idea to something that had the possibility of existing. It also taught us the importance of framing the device around the audiences needs and not getting carried away with the tech!

There was a lot of enthusiasm around the project when we discussed with partners and with the DOORS museums. It seemed that every time we showed it to someone, they came up with another great use case for it. This led to us incorporating more conceptual ideas, like alternative perspectives on artifacts rather than just simpler reproductions of the original label (e.g. larger text, different languages).

When we started phase two, we clearly understood that the project timeline would effectively be split in two, with one strand focusing on the hardware/software design (in conjunction with the museum volunteers who would use the system) and the other focusing on the audience (in conjunction with experts in the relevant accessibility fields).

This then culminated in an agile style feedback loop when all the strands were combined and refined based on the feedback from all the stakeholders. The READ team were keen from the outset that this should be scalable to other museums as well as open source so that anyone (including us!) could adapt and improve on our core system.

## Benefits & Impact

We have seen an increase in local interest in the museum thanks to the audience surveys and focus groups. These events seem to have sparked a wider conversation about the museum and the changes that have been made recently. This was on top of the promotional work we have put in place at the end of the project as we saw this happen sooner.

The museum has new relationships with several providers of accessibility services that we will build on with future projects. There are several innovative ideas in the pipeline and prospective funding bids. We have also taken part in knowledge transfer activities with wider CMP partner networks, and this has enhanced the reputation of the museum in the regional heritage sector.

We are expecting an increase in the number of visitors but that will not be confirmed until the end of the summer season. Anecdotally though, the volunteer team have reported that the current exhibition is busier than usual. The implementation of the READ system has also led to wider discussion with the volunteers about accessibility and the importance of making the museum available to all. This in turn has led to more discussions about what we can do, some of which have been implemented already!

There has been a lot of interest in READ from CMP partners and the wider museum sector. Several of the other DOORS museums and session facilitators are keen to be kept up to date on the progress of the project. CMP is looking at the possibility of a funding an expansion of the system to another local museum and to enhance the system even further. We are expecting to see strong interest in the open-source repository of the code when it is finalised and when the wider DOORS projects are reported on.

## Limits & Drawbacks

We certainly underestimated the time it would take to develop the hardware. Working in an extremely specific, innovative area meant that there was little online support.

Hardware shortages globally had an impact and the supplier of the Inkplate screens that we used had modified their design to take this into account. This meant that we had to adjust the design a little from the progress we had made with the proof of concept in phase one.

We also scaled back some of our ambitions based on the relatively short timescale of the project. As mentioned in the approach section of this report, there were so many great ideas of how READ could be used that we became slightly overwhelmed! Thankfully, a well-timed workshop with Loic Tallon helped us focus on a few specific audiences rather than spreading the work too thinly at this point.

The timescale was also a factor when working in the museum with a team of volunteers. Their time is limited and often led to delays when we wanted to hold training or audience exploration events with a good majority of them. We have taken learning from this to allow for more time in future projects.

## Future Prospects

Both the code and the hardware will be made open source at the end of the project and given the interest in READ, we are extremely excited to see what the wider museum/tech community can build with it. The DOORS project has enabled to overcome many of the barriers that had to this point frustrated the development EPaper screens in museums.

CMP will be looking at promoting the system with its partner museums given the improvements in accessibility that it leads too. We hope to build in the system to future projects. The READ system is extremely flexible and lends itself well to the addition of tours. We expect to see more languages, more interpretive tours and uses that we have not even thought of yet.

Future software developments could look at a system for multiple pages on a time delay, increasing the amount of text that be added. Small children could be engaged with the system if it were modified to show pictures instead of text- a kind of treasure hunt through the museum.

The NFC tags themselves come in a range of sizes and formats. Small, sticky tags could be integrated into replica artifacts (such as a paintbrush or miner's tool) that visitors wield to immerse them further.

## Key Take-Aways

- EPaper can provide a viable alternative to museum labels.
- NFC contactless technology is well adopted, and people are happy to use them.
- Technology when used to increase accessibility works best when it is subtly implemented and not seen as a “tech” project at all, at least with older volunteer demographics.
- The audience is key when creating projects based around accessibility and can provide challenges when we want to “promote” them in traditional ways.
- Involving the volunteer teams in the museum at the design stage led to larger commitment to the project throughout its lifespan (and beyond).
- Community audience focus groups and other research can work as effective marketing at least with local visitors.
- Both environmental and financial sustainability is key to the longevity of a project.
- When developing hardware and software simultaneously there can a lot of delays that have impacts that roll into other aspects of the development process and have larger consequences
- When working on short timescales, you cannot for every eventuality and must work as agile as possible in order to minimise risks.



## Involved Parties

### Lead Partners:

- [St Ives Museum](#) (Particularly Andy Smith (Curator), Peter Garratt and the volunteer team)
- [Cornwall Museums Partnership](#) (Phil Jones and Ellie Smith)

### Helpful suppliers and website:

- [Soldered.com](#) (makers of the Inkplate Screens and extremely helpful documentation)
- [Cornwall 3D Printing](#) (Michael Hunt and Maeteo Pearce - Designers and producers of the 3D printed case)

# R.E.A.D- Responsive E-Paper Adaptive Displays

## Cornwall Museums Partnership

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### Introduction

Museum labels are ubiquitous ever-present gatekeepers limiting engagement and accessibility. They are largely unchanged since the earliest museums and any attempted reforms simply involved multiple labels or cumbersome guides that took away from the simplicity of the museum experience. Utilising a combination of E-Paper screens and contactless NFC tags, we sought to create a label that could change quickly and subtly depending on the visitor's needs.

### How it works

READ E-Paper displays are mounted in place of traditional paper labels. Visitors pick up smartphones or tablets or request for the specific text or image they require.

Visitors tap their cards on the bottom of the screen.

The label responds to the tap and changes the text, link to a larger sign, different languages, new perspectives etc.

### Approach

#### Audience Identification

The flexibility of the system lends itself to many uses. It wasn't until everyone we spoke to, had a new idea for what could be done with the system that we began to shape the final idea for primary, digital visitors. We used an initial alpha approach to refine our software design based on feedback from both focus groups and accessibility experts from local charities.

#### Hardware Adaption

E-Paper as a medium has interested the Digital Innovation team at CMP because of its low power demands and ease of reading. Our research in previous projects has also shown that there is a pushback against having more traditional LCD screens in small room museums as they are more likely to be removed from the experience. We discovered E-Paper devices during an incubation stage. They allowed us to move forward quicker as they have E-Paper integration built in. Combined with low cost NFC readers we were able to contact them with their respective Android OS version.

#### Team Co-Design

St Ives Museum is run entirely by volunteers and has traditionally had a low level of digital literacy. CMP worked with the team there to ensure that they were involved in every stage of the design process. The system was also designed to be flexible for use in other settings. Icons and links are simply updated with a standard CMS that is hosted on the device and updated centrally using standard spreadsheet software.

#### Environmental Impact

As we were essentially starting from scratch with this project, we used a formal environmental impact assessment throughout in line with CMP's core values. The E-Paper screens are produced from recycled Amazon Kindle and as they only use power when changing the display are run on small rechargeable batteries. These are charged by a solar powered battery with motion copyright. Finally, the cases are 3D printed from recycled plastic by local manufacturers.

#### Open Source

R.E.A.D will be entirely open source, not only the software libraries and code but also the hardware design and 3D printed case files. We hope to use it in other projects with partner museums, but perhaps more exciting is what the CLMAMP Tech community can produce building on these first steps.

### Future Uses

As it simply replaces a museum label with a flexible space there are many possible future usage scenarios:

- Hands-free language friendly text
- Images for a closer look
- Artifacts as seen from different perspectives
- Touchscreen based tours
- Guest information boards

### Cornwall Museums Partnership

CMP is a Cornwall-based team of museum and heritage sector experts who are passionate about the role and importance of collections, heritage, and museums. We operate both historically and strategically to support museums day-to-day while looking at current and future needs and global trends to help inform and innovate practice.

Museums are a significant contributor to our creative economies and communities. CMP are advocates for enabling really dispersed museums to drive change with communities and organisations, to enhance what they can do to ensure thriving, innovative, understanding, and positive social change. We support museums to exceed their ambitions and make informed responses to local needs and national policy.

The Digital Innovation Team support this by providing expertise and support around technology by navigating the latest advances in the tech sector and bringing it to the heritage world we help our partners spread their stories further than they ever thought possible. Previous projects have included work on digitisation, VR installations and adapting existing music into immersive experiences. We firmly believe that high-tech can still be low-cost and give providers an enriching experience. With an ever eye on all forms of sustainability, we believe that digital bridges overcome physical barriers.

Logos for the European Union, Cornwall Museums Partnership, and Digital Incubator of Museums (DOORS) are visible at the bottom of the poster.



Project Poster for Oxford University DHO Event, CMP

READ installed, CMP



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