

Chapter 3

Guidelines for entrepreneurship and innovation

CREative MAKing in Lifelong Learning (CREMA) is a three year project (2019-2022) funded by the Erasmus+ Programme of the European Union.

CREMA explores the concept of creative spaces for adults in museums. Through mapping of best practices, developing and testing innovative working methods, this project aims at learning how to make better use of museum collections for creative making as part of the overall Erasmus+ lifelong learning vision. The far-reaching aim of the project is improved museum services that deliver new skills and competences, which can assist adults to stay creative throughout their lifetime. Encouraging creative and entrepreneurial spirit across generations and developing guidelines for creative making in connection to museum collections are among the objectives of the CREMA project.

The project is carried out by seven different European organisations: The Regional Museum of Skåne (Sweden), the Finnish Museum Association (Finland), History & Art (Denmark), the Hungarian Open Air Museum (Hungary), Creative Museum (Latvia), Radiona Zagreb Makerspace (Croatia) and BAM! Strategie Culturali (Italy).

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This chapter describes a number of methods and corresponding outcomes in view of applying the concept of makerspace in a museum with a special focus on innovation and entrepreneurship.

Along with such an experimental method as hackathon, a more traditional method of a competition for the best idea with potential to be turned into a product or service with high added value is featured here. The workshops for makers 'from idea to project' complete the picture.

Abstract

Heritage as an everyday experience is growing in popularity across Europe. According to 2017 Eurobarometer survey^① about cultural heritage more than seven out of 10 (73%) respondents declared living near some form of cultural heritage, in particular historical monuments or sites (60%), traditional events or festivals (37%) and works of art, e.g., in museums or galleries (32%).

Promoting European values and responding to the EU's overall political goals^② for smart, sustainable and inclusive growth, both European and national cultural policies in the last decade have been designed to strengthen the bond between cultural and creative economies.

Backgr und

O

① Creative Europe Programme (2014-2020) European Implementation Assessment (update)
[https://www.europarl.europa.eu/RegData/etudes/STUD/2018/627127/EPRS_STU\(2018\)627127_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2018/627127/EPRS_STU(2018)627127_EN.pdf)

② The European Commission's priorities
https://ec.europa.eu/info/strategy_en#:~:text=The%20European%20Commission's%20priorities%20include,promoting%20and%20strengthening%20European%20democracy

Though not always acknowledged and widely regarded as such, museums have an important role to play in the Cultural and Creative Industries (CCIs) ecosystem in Europe.

In the capacity as coordinator of the working group Museums and Creative Industries within the Network of European Museum Organisations (NEMO), Creative Museum has published several reports^③ which looked at this subject. Drawing on theory and best practice, these reports advocated for museums as a rich resource for creative industries in the light of the European cultural policies^④ of the day, and serve as a contextual background for this chapter.

Generally, as a resource of quality content, museums are in a good position to become a more visible player in the CCI sector within the Creative Europe framework. Basic requirement for this to happen, though, is openness to new forms of partnerships with creative individuals such as makers.

③ Network of European Museum Organisations Publications
<https://www.nem-o.org/about-us/resources.html>

④ Creative Europe Programme 2021-2027
<https://www.consilium.europa.eu/en/policies/creative-europe-2021-2027/>

Besides, in the autumn of 2019 when the CREMA project started none of the participants from six European countries could have imagined how complicated it would be to implement this concept in a museum given that much work in 2020 and 2021 had to take place remotely. For the time being, digital coworking provided a viable solution to the problem bringing along broadening the concept of a makerspace.

Arguably, working in a digital environment shifted the focus to digital hacking and prompted setting up a digital makerspace instead. Creative Museum together with its partner Žanis Lipke Memorial in Riga from 2019-2022 had a chance to gain experience from participating in two hackathons, each accounting for one case study in the field of museum innovation and entrepreneurship described in detail below.

The concept of a community driven creative space where innovation can originate, take root and eventually lead to entrepreneurship, is still a novelty in museums.

Approaching
the concept of a
makerspace in
broad terms as

a community driven space for coworking and creation

allowed us to frame
it, for example, as a
one-off digital event
such as **hackathon**,
but also as a
competition of ideas
and a series of
workshops for makers
at a museum.

A selection of case studies
resulting from such pilot testing
towards eventual permanent
makerspace in a museum along with
conclusions of each case study and
recommendations for practitioners
are provided in this chapter.

Method NØ1 Hackathon: one-off maker space event

The method of a hackathon is thoroughly experimental. It presumes risk taking with a high probability of failure. Hackathons as such cannot guarantee an outcome in the form of an end product or a service even if there is a proper follow up on a winning idea. Sometimes it is just down to luck for all components to fall in place for a bright idea to keep growing. The methodology itself is generic and with a dose of risk appetite, some forward planning and organisational flexibility, it can be applied by museums too as exemplified in selected two case studies.

Method NØ2 Competition of ideas

Realising that there aren't many examples of creative making in museums, and even less examples of innovative end products with potential to be monetized that were developed this way, an example of a coworking project *Food we Cook* from the Creative Museum's report *Museums and Creative Industries: Case Studies from Across Europe* is featured here. This method was successfully applied by the Estonian National museum in connecting traditional cooking with aspiring entrepreneurs to develop gastronomic products for the museum's new souvenir line.

Method NØ3 Workshops for makers

STEM/STEAM workshops for makers 'from idea to project' was developed by the CREMA project partner Radiona - Zagreb Makerspace for the Nikola Tesla Technical Museum 2021 summer programme. This classical community driven makerspace methodology is designed to bring together different generations in a creative activity under a stewardship of a mentor.

Apart from Radiona's organised workshops in Zagreb, Croatia, the rest of the examples are from the Baltics. These projects mostly started from one-off makerspace events or workshops, which were followed up by coworking with external partners so as to develop the end product or service. These methodologies are generic and can be applied elsewhere in museums.

Creative Case Studies

Hackathon N^o1 Riga IFF goes VR

Riga International Film Festival (Riga IFF) takes place annually in the capital of Latvia. In 2018 for the first time RIFF program included a VR section with an aim of bringing the film and tech industries together. Alongside screenings, lectures and networking events, the central element of the program was a pioneering VR hackathon. Here 6 creative teams for 24 hours worked on developing prototypes of educational VR solutions for younger audiences. The Žanis Lipke Memorial was invited by the Riga IFF organisers to participate in organising the VR hackathon, as the festivals' opening film *The Mover* was inspired by the Riga dockworker Žanis Lipke who risking everything rescued more than 50 Jews during the Nazi occupation

in several hideouts in the capital of Latvia and on the countryside. Over 3 years of coworking with the winning team of the hackathon, testing and evaluating the VR experience through focus groups of young adults, by fall 2022 the *Lipke Bunker VR* was incorporated in the Žanis Lipke Memorial as a new educational program. A specially designed VR Room was created to accommodate school groups for VR experience. The VR Room was equipped with all necessary for continuing developing and presenting to the audience different VR experiences: a VR gaming PC, VR headsets, beamer and bespoke furniture for equipment and optimal VR experience. Working on the *Lipke Bunker VR* from the hackathon as a one-off

makerspace event to the end product in the form of an educational program in a specially designed VR Room was seen by the Žanis Lipke Memorial as a pilot towards permanent makerspace in the planned new educational centre.

Image: RIGA IFF GOES VR. MAGNETIC LATVIA HACKATHON
<https://rigaiff.lv/en/forum-sections-2019/riga-iff-goes-vr-hackthon-2/>

RIGA IFF GOES VR

MAGNETIC LATVIA HACKATHON



Images: Hackathon process, winning team, VR prototype *The Living Room*, Lipke Bunker VR, opening event at Žanis Lipke Memorial fall 2020







Hackathon N°2 HackCreative: An Industry Transformed –

**Creative and Cultural
Industries hackathon to
tackle the current crisis**

This entirely remote hackathon explored the notion of a digital makerspace as it took place from 1 to 3 May 2020, during the strict lockdown period in Europe. It was organised by the Northern Dimension Partnership on Culture with financial support of the Latvian Ministry of Culture in order to look for solutions in the cultural sector to mitigate devastating effects of the global pandemic. At this international 48 hour hackathon, the Creative Museum developed a proposal for a museum booking app. Using data from the centralised

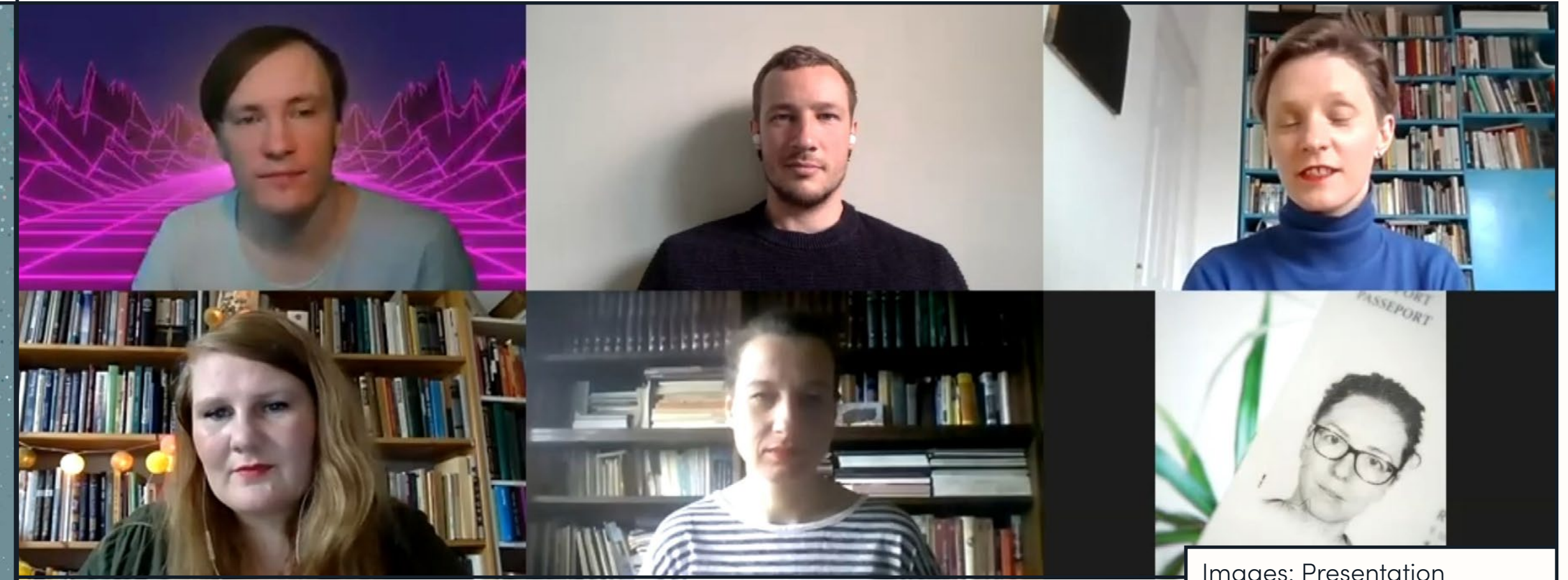
Latvian culture data pool, it would eventually make it possible to calculate optimal visitor flow in each museum, offering possible visiting slots alongside online ticket purchasing, thus matching health safety regulations. The idea gained 2nd place at this major international competition. The concept made use of the layout plans for the Žanis Lipke Memorial. It demonstrated that even modern museum buildings (opened in 2012) are not ideal for ensuring physical distance and safety and that reservation of time slots for individual and group

visits would solve the problem. As a result of the hackathon, by 2021 Latvian government sponsored online museum ticketing functionality was in place in cooperation with [Mobilly](#). A competing app [Bookla](#) provides both an online ticketing and a time slot reservation function proving the monetizing potential of the winning hackathon idea.

Image: HackCreative:
An Industry Transformed
May 1-3 2020
<https://ndpculture.org/projects/hackcreative-an-industry-transformed-creative-and-cultural-industries-hackathon/>

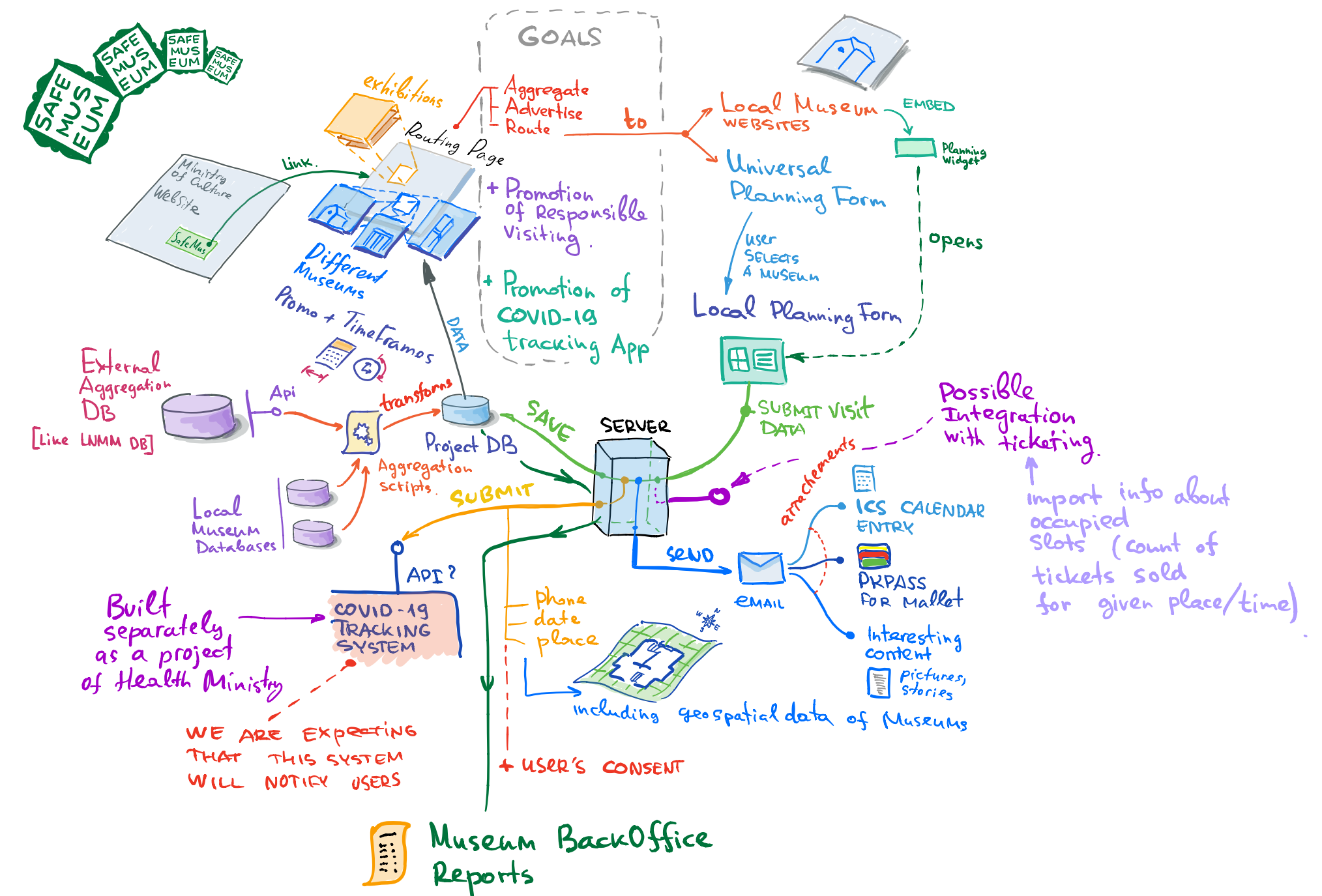
HackCreative: An Industry Transformed

May 1-3



Images: Presentation
#visitmuseum team
<https://www.youtube.com/watch?v=Lzmt9la8aOs&t=17s>

Informal Data Flow / Goals / Interactions



HackCreative: An Industry Transformed

May 1-3

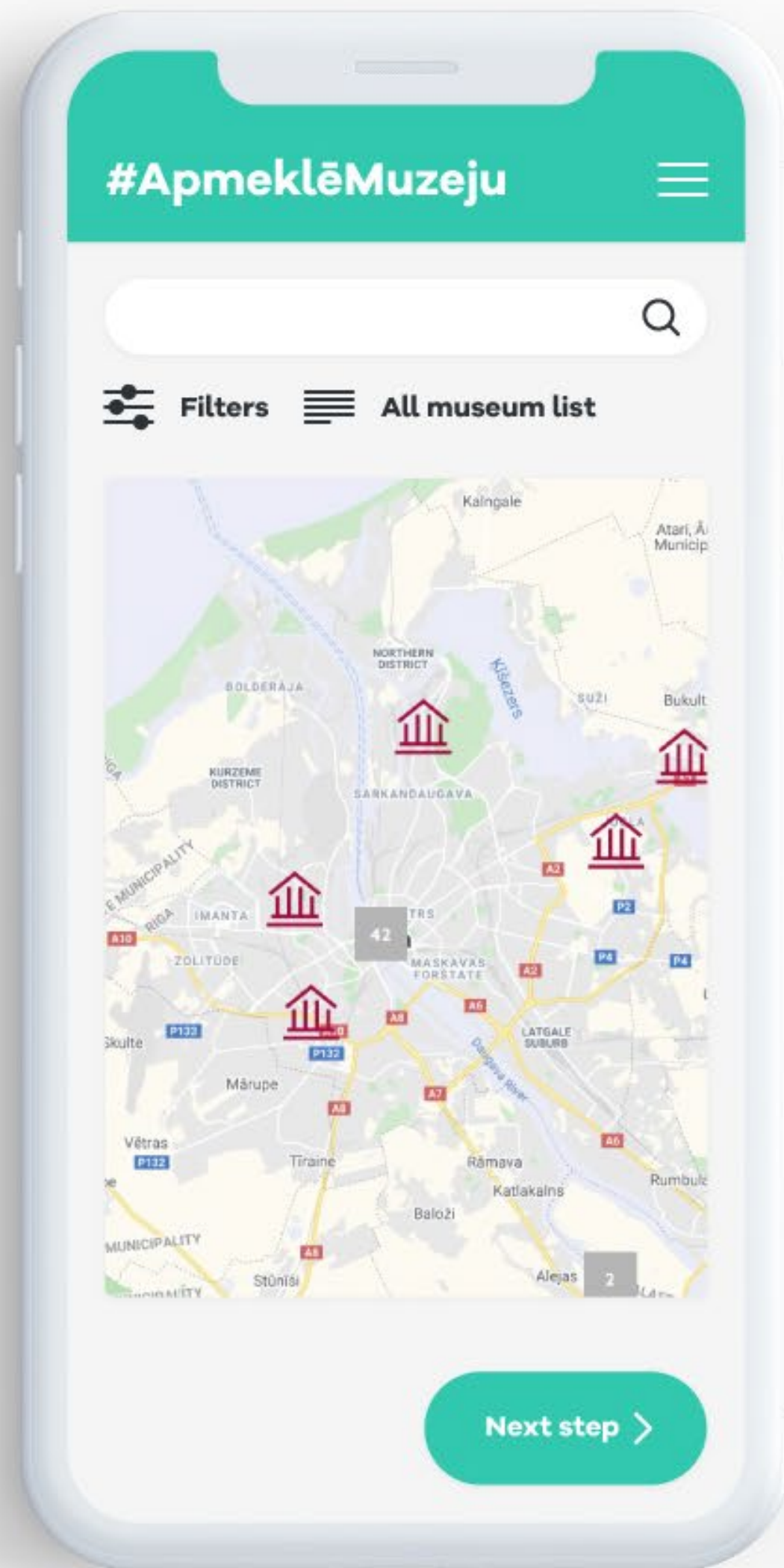
48h hackathon

1. BRAINFOOD
2. #visitmuseum
3. Cosimo

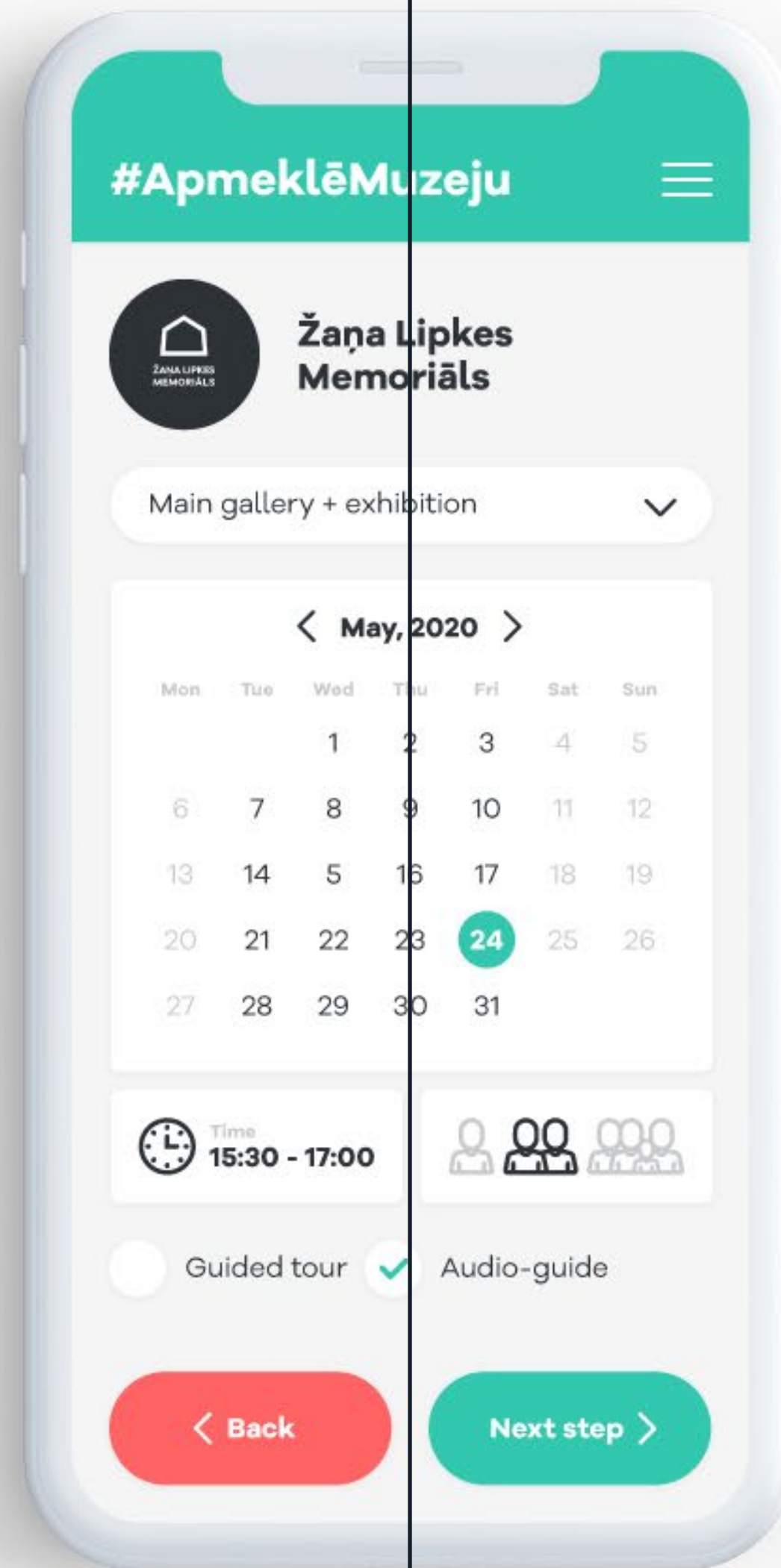


Image: Winners of the HackCreative: An Industry Transformed
<https://ndpculture.org/news/winners-of-the-cultural-and-creative-industries-hackathon-hackcreative-an-industry-transformed-announced/>

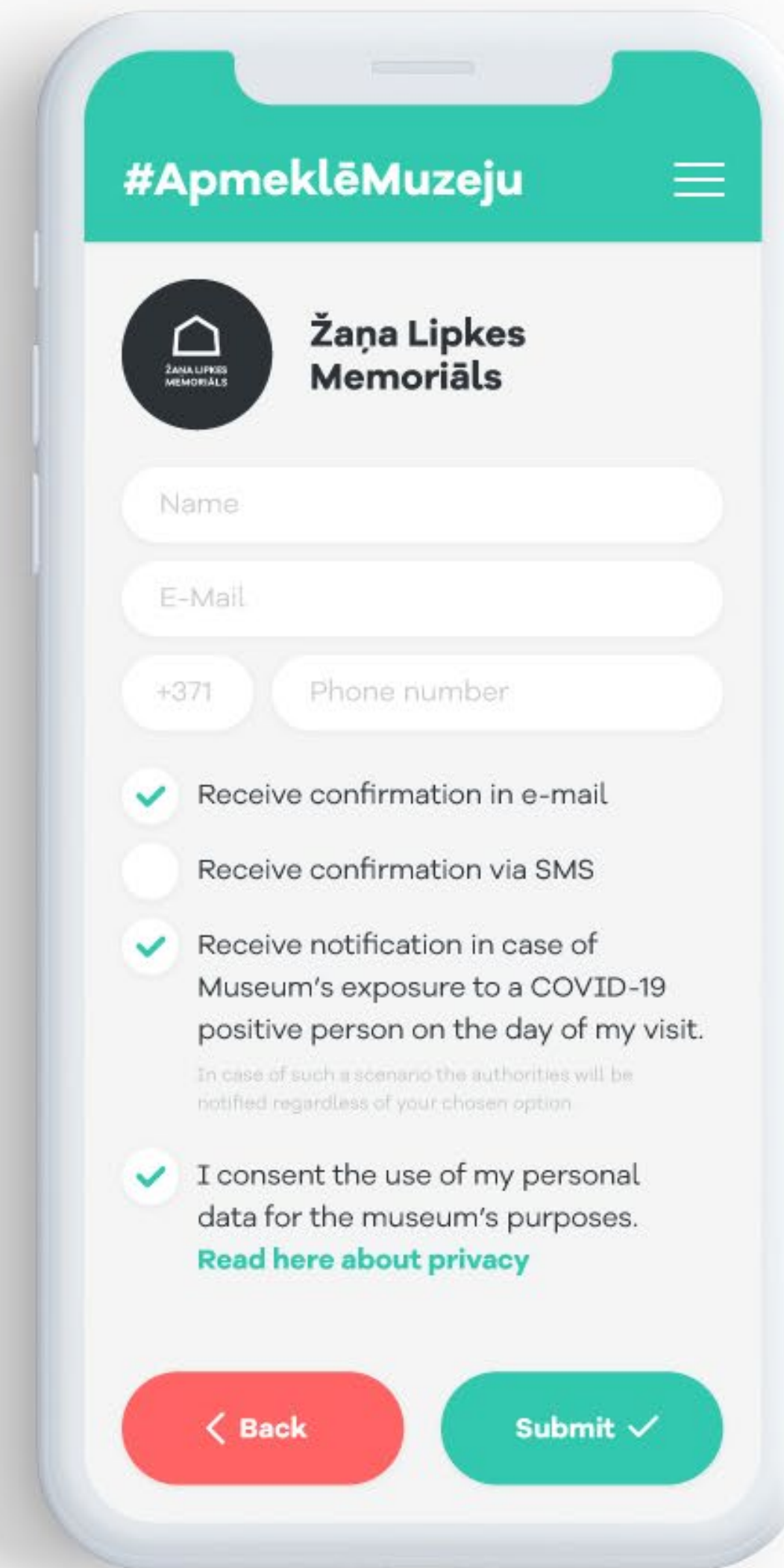




Step 1



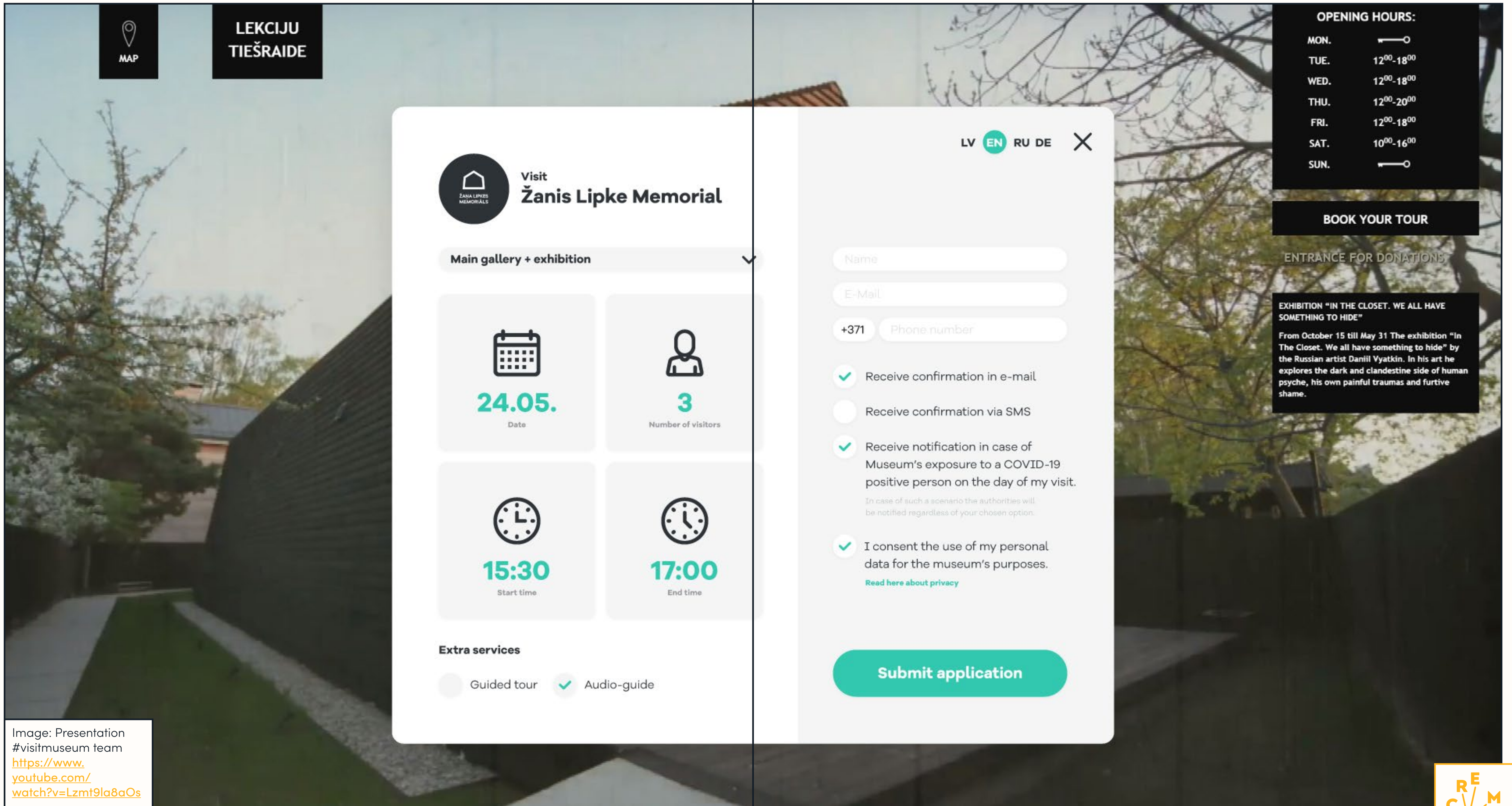
Step 2



Step 3

Image: Presentation #visitmuseum team <https://www.youtube.com/watch?v=Lzmt9la8aOs>





OPENING HOURS:

MON.	—
TUE.	12 ⁰⁰ -18 ⁰⁰
WED.	12 ⁰⁰ -18 ⁰⁰
THU.	12 ⁰⁰ -20 ⁰⁰
FRI.	12 ⁰⁰ -18 ⁰⁰
SAT.	10 ⁰⁰ -16 ⁰⁰
SUN.	—

BOOK YOUR TOUR

ENTRANCE FOR DONATIONS

EXHIBITION "IN THE CLOSET. WE ALL HAVE SOMETHING TO HIDE"
 From October 15 till May 31 The exhibition "In The Closet. We all have something to hide" by the Russian artist Daniil Vyatkin. In his art he explores the dark and clandestine side of human psyche, his own painful traumas and furtive shame.

Image: Presentation #visitmuseum team
<https://www.youtube.com/watch?v=Lzmt9la8aOs>



Competition of ideas – Food We Cook

In 2016, as part of the new permanent display, an exhibition entitled *Food We Cook* was opened at the Estonian National museum. This became the springboard for a cooperation project among museum curators and entrepreneurs. In the summer of 2018 a food souvenir *competition* took place. Its aim was sourcing and promoting the traditional food, presenting traditional recipes with a modern touch and helping aspiring entrepreneurs promote their products. Altogether 28 products were submitted to the competition and the producers received feedback on their gastronomical quality, design and their connection with food heritage. The winning products are on sale at the museum shop and can use the museum brand as part

of their promotion and labelling. The cooperation also continues to extend museum collections in the field of contemporary food culture through fieldworks and collection campaigns. All in all, competition of ideas remains a proven method of bringing together the CCI sectors in developing products and services with high added value. Promotion that a new product can get through selling under a respectable museum's brand, is a lucrative prospect for starting and established entrepreneurs.

Images from Museums and Creative Industries: Case Studies from Across Europe (2018)
https://www.ne-mo.org/fileadmin/Dateien/public/NEMO_documents/NEMO_2018_Publication_Museums_and_Creative_Industries_Case_Studies_from_across_Europe.pdf





STEM/STEAM workshops

In 2021 [Radiona.org](https://www.radiona.org) was coordinating a program *Summer at Tesla* as part of the [Nikola Tesla Technical Museum](https://www.nikolatesla.com) piloting of its future Makers' Community Hub. 23 STEM/STEAM workshops for makers 'from idea to project' in the following spectrum were carried out:

- A. STEAM: Biology, Environment, Recycling / Upcycling, Green Crops, Renewable Energy, Design, Creativity, Electronics
- B. STEM: Engineering, Model Making, Programming, Computing, Mechatronics, Robotics, Mechanical Engineering, Computer Game Industry
- C. Design Thinking, Entrepreneurship

Workshops gathered 193 participants aged 4 to 55+ in the period of 11 weeks. The program also included specialised areas such as working on prototypes through design thinking to raise awareness of the entrepreneurial mindset and specialised professional programs for craftsmen. The implementation of the pilot project Makers' Community Hub allowed [Radiona.org](https://www.radiona.org) to bring together a range of Zagreb organisations, institutions and independent artists. The program showed the state of the art of the maker culture in Zagreb and opened further prospects for cooperation in view of the future Makers' Community Hub at the Nikola Tesla Technical Museum.

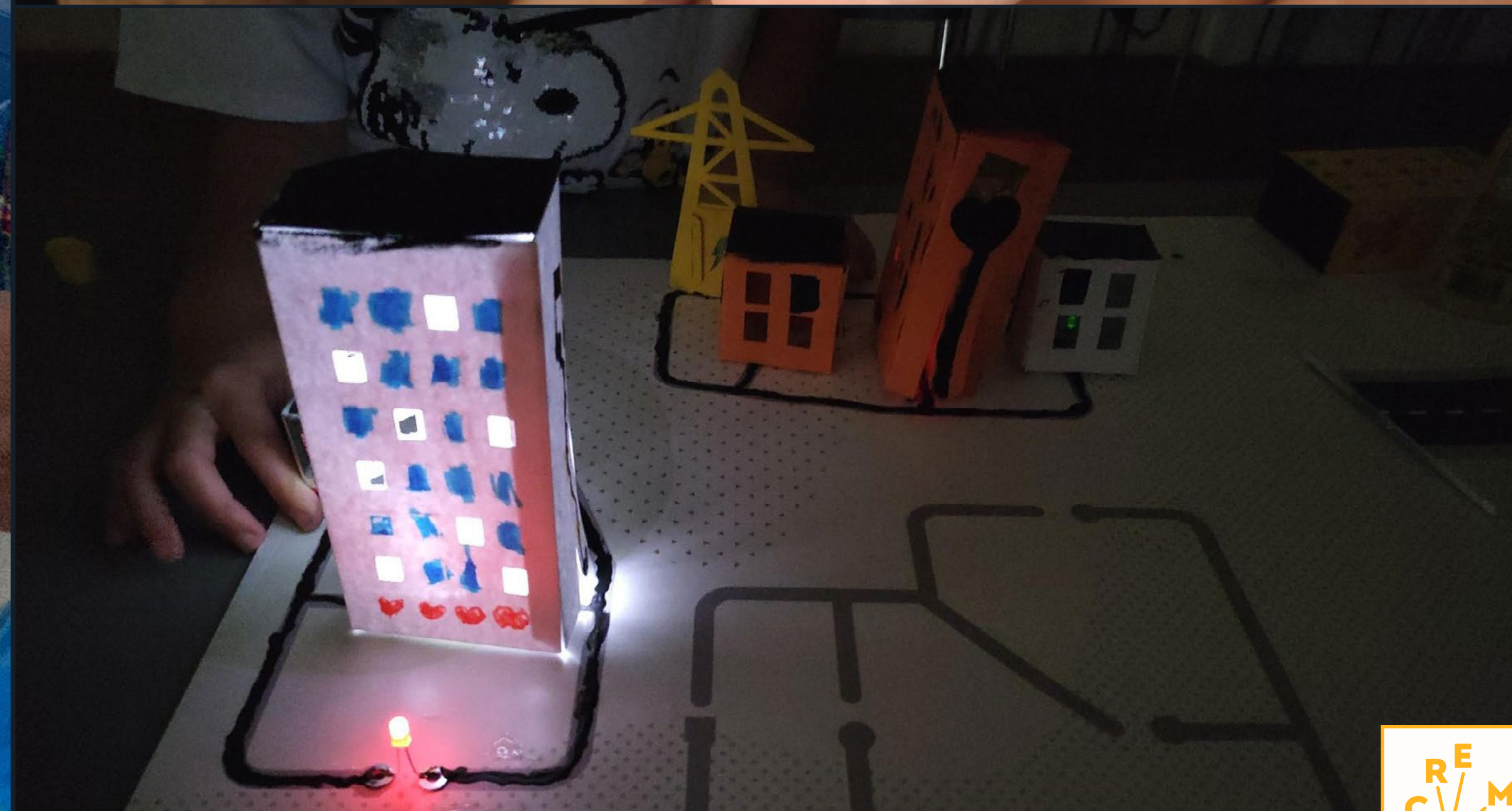
Summer at Tesla.
Logo designed
by Ivan Klisurić

LET KOD TESLE





Raspberry Pi Hack
Workshop by Croatia
Robotic Society
Photo: Radiona.org



An average museum or heritage organisation on its own would hardly tap into VR potential as it would be beyond its know-how capacity.

A hackathon, in turn, as a one-off makerspace event with a chance of a follow-up gives at least a shot in trying out this experimental method. Here are some points to think about when preparing for a hackathon as a one-off makerspace event.

Recom **m** endations

Case study N°1

Riga IFF goes VR

Task N°1:

Get inspired and come up with your own idea

An inspiration for an educational VR based on a memorial museum's collections was provided by Europe's probably most well known memorial museum [Anne Frank House](#) award-winning *Secret Annex VR*. Another such example was the [Red Cross VR War Through the Eyes of a Child](#).

These and a few more popular educational VR experiences inspired [Žanis Lipke Memorial](#) to think of its own VR educational product.

Task N°2:

Define the problem and formulate the task

In the field of memory, there is always the problem of forgetting or ignorance at hand. Thus the need for modern mediation tools. The growing VR market presents new opportunities for educational content to reach global audiences. The task for the hackathon teams was formulated so as to use VR in reconstructing a fragment of the historical situation in Riga Ghetto in October 1941 – November 1941, when all Riga Jews were forcibly located there by the Nazi authorities. The Žanis Lipke Memorial educationist and VR curator formulated the task but didn't intervene in the creative process.

Task N°3:

Provide resources and consultation

As an organiser you need to not only formulate the task but also provide the creative teams with resources so they can 'hack' the problem. This can mean e.g. providing access to the museum's collections and digital database and to on-site premises. Consulting the teams during the 48 hours of the hackathon is also part of the co-organiser's responsibility. As a small museum, Žanis Lipke Memorial doesn't have an autonomous online electronic collection management system. A solution had to be found for making a selection of collections available online. The Memorial chose to make a selection of the museum's collections relevant to the task digitally available on google drive. Access to this resource was agreed to be granted upon request by the hackathon teams.

Task N°4:

Follow up on the hackathon

It is important to follow up on the success of a hackathon. This requires switching the mindset from an extremely short term to possibly very long term in order to work towards an eventual end product or service. Accordingly, following up on the hackathon in September 2019, Žanis Lipke Memorial continued working with the winning team on developing the *Lipke Bunker VR*. Its 1st iteration was shown to the public in fall 2020. It was followed by a series of social anthropological focus groups with young people aged 16 to 25. These focus groups were organised in cooperation with the University of Latvia. The final Lipke Bunker VR version was installed at the iconic Žanis Lipke Memorial as a mixed reality experience (physical and virtual) in a specially designed VR room in fall 2022.

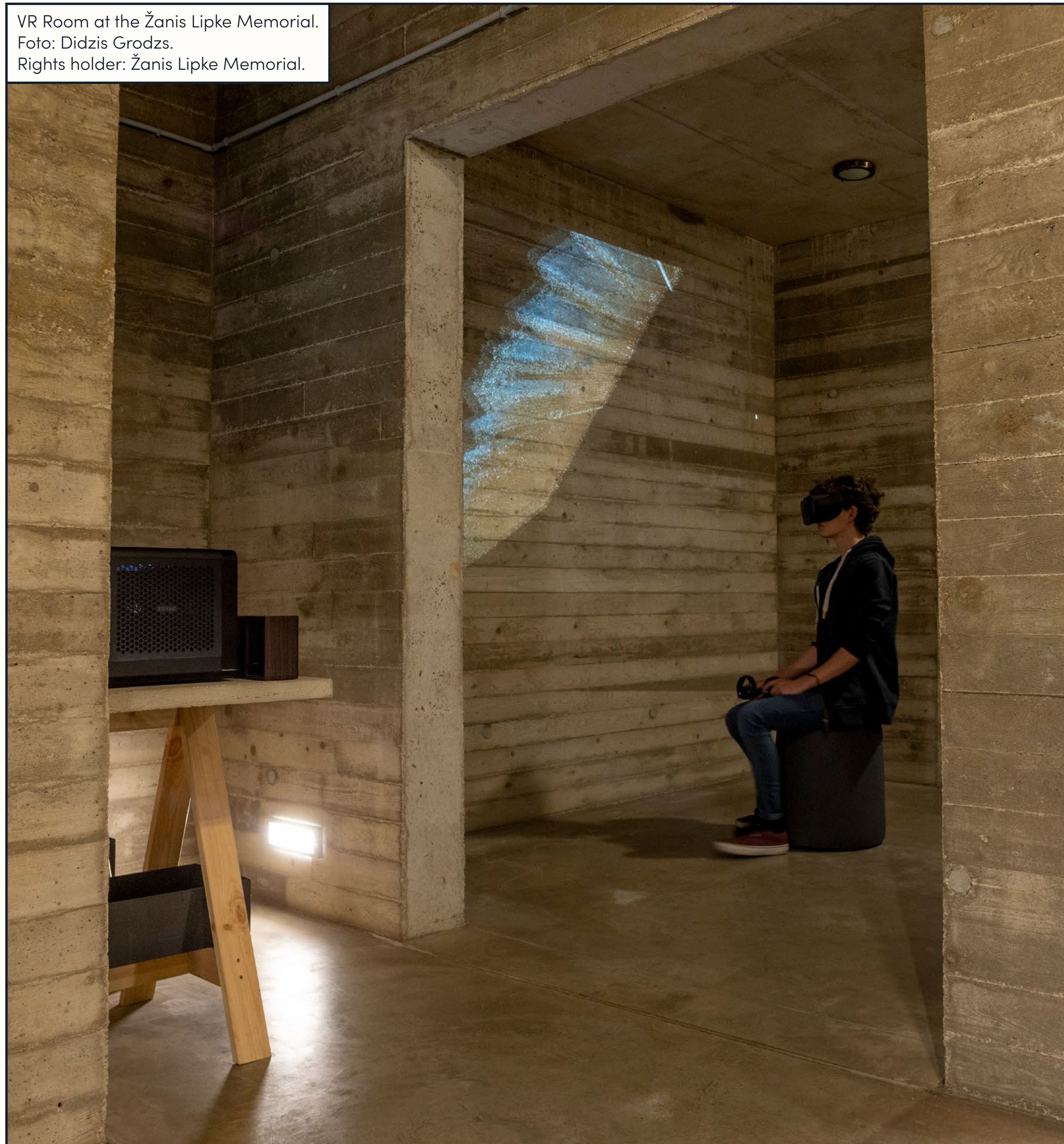
As a result of this work over a period of 3 years, the Žanis Lipke Memorial decided to design a special VR Room on its premises adjacent to the exhibition as an extension of museum experience. For the time being it is designed as pre-booked educational program for school group visits.

Equipped with a VR computer, projector, 3D headset and tailor made furniture, it can be regarded as the first step towards a permanent makerspace/ mediaspace for digital story-telling.

Case study Nø1

Conclusions

VR Room at the Žanis Lipke Memorial.
Foto: Didzis Grodzs.
Rights holder: Žanis Lipke Memorial.



Case study N°2 HackCreative: An Industry Transformed –

**Creative and Cultural
Industries hackathon to
tackle the current crisis**

Task N°1:

**Do a homework and
come up with an idea**

Creative Museum knew from the start that it would work on a prototype of a museum booking app in this hackathon which looked for solutions to overcome the Covid 19 effects in CCI sectors.

Task N°2:

**Define the problem and
formulate the task**

The task we gave ourselves was to prototype a booking app for museums, libraries and archives which would not only allow the visitor to buy (where applicable) or register a ticket but also book a time slot for a visit. This way the problem of visitor flow would be solved after lifting the restrictions and allowing the opening of museums in line with the public safety regulations.

Task N°3:

**Make sure you can access
resources and relevant data.
Consult the experts**

Ahead of the event, we prepared the floorplans of the Žanis Lipke Memorial which was used for the visuals of the prototype, and studied the Latvian national data system of the cultural institutions. In the process of the hackathon, we consulted an IT expert on the feasibility of the prototype we had in mind. Encouraged by the assessment of the IT expert, in 24 hours we developed a sophisticated prototype which would use the data from a joint national cultural institution database to calculate an optimal visitor numbers for concrete premises in all types of heritage institutions: museums, libraries, and archives.

Task N°4:

**Follow up on
the hackathon**

After the hackathon, the Creative Museum as the winning team who came up with a realistic proposal for a visitor flow solution in museums, libraries and archives, exerted a pressure on the Latvian Ministry of culture to implement this innovation on a national level. In the result, the Ministry allocated a modest grant of 10k euros for this work and made a call of interest.

A solution that was delivered by a company who was awarded the assignment, Mobilly, provided the basic function of online ticketing in museums only. Libraries and archives were left out following the logic that they don't charge for the entry.

The booking of a time slot as a functionality was not considered at all. While it was definitely not yet a universal solution for all museums in Latvia as envisaged by the Creative Museum, the possibility of purchasing museum tickets online in fall 2020 became the first step in this direction.

A more advanced functionality offering online ticketing and booking a time slot was developed by Bookla without state subsidy and is used since 2021 mostly by small businesses.

Case study Nø2

Conclusions

Case study N^o3

Workshops for makers

Radiona - Zagreb Makerspace example

Should the makerspace be defined as community driven space, growing the community of makers turns out to be the primary task of any organisation aspiring to build one.

Regular workshops for makers is a proven method of working towards a permanent makerspace at the museum. Here are basic steps to take into account when starting a maker community building.

Task N^o1:

Target your audience and be flexible

Apart from the general rule of clearly defined target groups such as families with children, the audience at the *Summer at Tesla* program developed in response to the real situation on the ground during the implementation. For instance, in the first three weeks of the program a considerable number of children aged 4 onwards with accompanying adults were registered, so the workshops were designed according to the needs of this group. The word of mouth among children in the same apartment block, park or school friends resulted in situations when 11-year-olds came to the workshop on their own by public transport without prior registration.

Some workshops had a family intergenerational component - e.g. mothers with daughters doing fashion and material recycling workshops; fathers with sons doing workshops related to the construction industry and manufacturer of small SMEs. Catering for all age groups and reacting to the demand, 9 intergenerational workshops were held, 4 workshops for adults, 3 workshops for children aged 6 to 10, and 7 workshops for children and youth from 10 to 18.

Task NØ2:

Think about timing and adjust accordingly

During the implementation of the pilot project Makers' Community Hub Summer at Tesla, the interest peaked in the month of July when the occupancy of workshops would reach 15 or even sometimes 17 participants. After the third week in July, the number of participants was falling due to people leaving for vacation outside the town. During September, due to other programs in the museum, the workshops took place on weekends or in some cases in the afternoon on workdays. It has been noticed that with the beginning of school season, interest in workshops decreased due to family trips on weekends while the weather was still warm. For the organisers it was evident after the pilot that in the future the scheduling of such a program would be best from June 15 to July 15 accordingly.

Task NØ3:

Make a balanced program and keep observing

During the pilot testing it became evident that workshops where something is made by hand are far more popular than workshops that require working on a computer in a sitting position. Programming and robotics workshops regularly interested older children, while smaller ones were occupied with handicrafts. An increasing interest in environmental issues among girls and boys alike was observed and topics such as sewing among boys, and programming and robotics among girls. This showed changing attitudes regarding traditional division of male/female jobs. Gathering data this way gave valuable information about the interests of younger generations for future workshops.

Task NØ4:

Offer advanced workshops and monitor individual needs

Workshops for craftsmen to master more complex technologies such as working with a laser cutter or 3D printer proved popular among seasoned makers from the established ecosystem of the association Radiona - Zagreb Makerspace and the Zagreb Chamber of Crafts. Also, it was concluded that it is necessary to actively monitor individual needs of different communities within the Chamber of Crafts and design educational modules lasting no more than two hours per session.

Task NØ5:

Grow your capacity with each project

As part of the pilot project, Technical Museum Nikola Tesla purchased machinery such as a laser cutter and a sewing machine. Machines were first used at the workshops and will strengthen the capacity of the museum towards developing a permanent makerspace. It is also planned to further develop the framework of the laser cutter community and designers in order to design and create creative kits for the museum shop.

The pilot project *Summer at Tesla* at the Technical Museum Nikola Tesla explored the ways of integrating workshops for makers in museum programming towards a permanent makerspace.

It evidenced that working with different partners from the non-profit, for-profit, entrepreneurial and art sectors requires combining methodologies suitable for non-formal, formal and informal education.

In relation to timetables, through the program it became evident that there is educational content suitable even for 3-4 hour workshops, while certain program modules may last shorter due to the complexity and inability to keep children's concentration for such a long time.

The program also demonstrated the need to develop a program that will encourage the entrepreneurial mind in the direction of social entrepreneurship and social sensitivity in response to global sustainability challenges.

Case study Nø3

Conclusions

Output
conclusi

ns



This chapter presented 3 methods of creative making and coworking in museums in view to innovation and entrepreneurship. As per selected case studies, the concept of a makerspace is approached here both as a physical and digital space – a side effect of 2 years of remote working over 2020–2021.

Two of these methods – the hackathon as one-off makerspace and a series of workshops for makers – were applied by the CREMA project partner Creative Museum on its own and in partnership with the Žanis Lipke Memorial in Riga, and by the CREMA project partner, Radiona – Zagreb Makerspace.

These two methods come along with guidelines for practitioners and exemplify the aspiration to work towards a permanent makerspace at the museum.

The competition of ideas is featured here additionally as a coworking method which can lead directly to innovation and entrepreneurship in museums and is exemplified by a recent case study sourced by the Creative Museum in the Estonian National museum.



Co-funded by the
Erasmus+ Programme
of the European Union



Designed by Creative Museum, Edvards Percevs