Background WP T4

A Virtual Museum Without Walls (VMWW) was developed as part of workpackage T4. It provides easy to use interfaces that enable community engagement and SME participation in the creation, curation and management of digital exhibitions. It integrates the treatment of spherical, 3D and other audio visual data enabling the creation of virtual and mixed reality exhibitions. It enables data to be curated and reused within multiple use cases and supports the creation of location aware applications. It supports live virtual tours and smart tourism. In realising these objectives we addressed the following issues:

1) The creation and capture of digital scenes, artefacts and narratives.
2) The ingestion of data and its associated meta data.
3) The archiving of data and associated meta data within digital repositories.
4) The augmentation of physical exhibits and the creation of virtual exhibits.
5) Support for the intuitive curation of exhibitions by domain experts.
6) Support for digital resources to be reused across multiple use cases.
7) Support for live interactive virtual tours.

The system is engineered to ensure user quality of experience. We created toolkits and organised training to empower SMEs, museum staff and community members to create digital objects, spherical media and digital scenes. We developed a application profiles to define metadata and provide a simple ingestion mechanism through form upload. The data archive system associates source materials with items, e.g. a spherical image can be associated with its source images. The VMWW uses and extends OMEKA to support the creation of mobile apps, web exhibitions, museum installations, virtual and cross reality apps as well as map, social media and wiki interfaces.

Transferability

The VMW2 was made using open source components and software. It uses open standards. This protects against software being discontinued or changes in proprietry software. Digital content has been released and made available under Creative Commons licenses. The VMW2 is connected to the Internet enabling content and systems to be available to organisations and individuals across the region. The VMW2 archive associates sources with digital items, enabling them to be rebuilt for new formats and platforms.

Durability

During the lifetime partners will make use of the VMW2. This will enable the systems to be tested and embedded in the organisations workflows. The provision of a package for local standalone installation, will be taken forward as a product available from all partner institutions. Use of the VMW2 as a service. Point and click user interfaces will enable the creation of applications. This ease of use will enable widespread adoption of the product. Output will be a fully featured virtual museum, available as a combined hardware software package available in configurations suitable for community groups, museums large and small and small to medium enterprises. The museum will be

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hosted on dual redundant servers based at the University of St Andrews in temperature and power regulated green machine room. The servers will be maintained live for a minimum of five years after the project. Self help guides will make it easy to engage with project software, media and data. Meta data that conforms with or maps to Internet, ICOM and Europeana standards will provide context

Target Groups

We worked with the two partner SMEs to develop the VMW2 so that it lowers the technology barrier for SMEs to engage with mobile and immersive technologies. We adopted a process based approach to research. We reflected on and measured the technologies we create, with particular respect to user engagement, user experience and system quality of service. We wrote and presented papers about our work to engage with higher education and research. An essential component of the virtual museum is the development of and support for digitization, archiving and dissemination of digital artefacts, digital scenes and related media. We held workshops in parallel with partner meetings in each country. These equiped partners to engage with: the general public, schools and SMEs as well as education and training centres.

Through supporting the creation of Virtual Tours, Location based apps, museum installations and Web Virtual Musuems we enabled access to digital media through mobile devices and the Internet. In this way we reached both the general public and target groups across the whole region. Target groups include: local public authority, regional public authority, national public authority, sectoral agency, higher education and research, education/training centre and school, SMEs, business support organisation and the General public.

Trans-national Collaboration

The work package has been lead by the team from the University of St Andrews including Alan Miller, Sarah Kennedy, Catherine Anne Cassidy, Iain Oliver and Bess Rhodes with participations and support from all project partners and beyond. Contributions include interface design from Anna Vermehren (Museum Nord), meta data design Johanna Clements (TS), Mobile Apps, Mapping and Games Skuli Björn Gunnarson and Skota (GST), Location apps (LOC), videos, images and digital modelling (AB), digital reconstructions Jacquie Aitken from (TS), community heritage guides, reconstructions and digital content Niall McShane (UU) and Situated Simulation (IMK). Of course many other organisations and people have contributed as can be seen in the content.

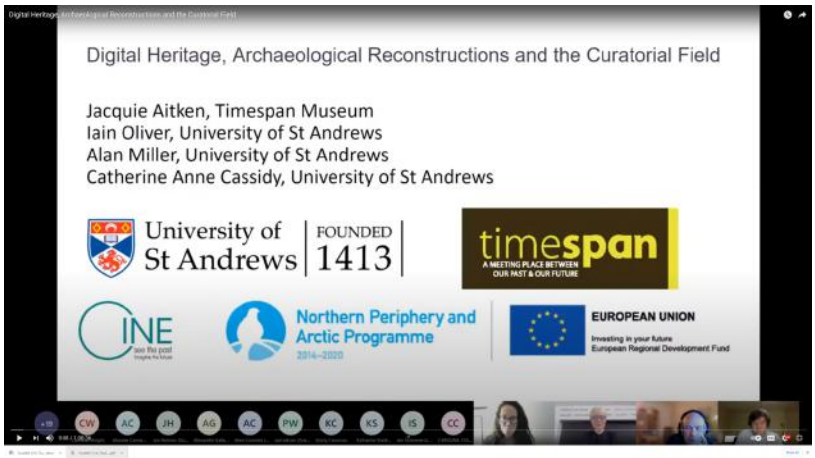

Figure 1 Digital Heritage, Archaeologicl Reconstructions and the Curatorial field featured on CINEGATE ***https://www.youtube.com/watch?v=CBb2koyu0dU***

OT 4.1.2. Output Evidence

The Virtual Museum Infrastructure and Toolkit has Galleries, Archives, Toolkits and Exhibition (GATE). It showcases the achievements of the CINE project. There are galleries of 3D objects, Virtual Tours, Interactive Maps, historic simulations, mobile apps, live heritage events and reflective discussions. Through CINEGATE we connect with Social Archive sites like Vimeo, Youtube, share to Social media sites like Facebook and Twitter, support live events promoting Heritage at Home and deliver "Museum at Home" experiences.

Virtual Museum Infrastructure and Toolkit is

1. an infrastructure to support the creation of virtual museums,
2. a toolkit of digital outputs,
3. the CINE virtual museum CINEGATE.

All content is accessible via cineg.org.

The VMI is described as an "infrastructure" because it is extensible and provides support for organisations to create their own archives, galleries, maps and exhibitions.
It contains the following features:

- It is an archive which holds data and metadata about cultural and natural heritage.
- it allows organisations or individuals to create accounts, to log-in and create their own resource repository. Content can then be seen in the VMI directly, embedded in web pages shared through social media.
- it allows content to be viewed through the International Image Interoperability Framework (IIIF), digital galleries, interactive maps and virtual timelines.
- it provides services which enable heritage organisations to connect with community and visitors at homes.
- it contains services for automated processing of images into 3D models, live guided collective distributed exploration of digital reconstructions and tools for creating VR Exhibits and Apps
- it connects with the EU Zenodo archive system, and with social media accounts. It is Europeana ready.

CINEGATE as a virtual museum for CINE includes digital galleries of 3D artefacts from the National Museum of Iceland, digital reconstructions of the case study sites, virtual time travel media (content for the Digitourist toolkit), workshop content and interactive maps connecting with rich media, among others. The VMI is available as a package to install. This allows organisations to set up their own VMIs and networks of VMIs. This facility has been used to set up galleries for organisations like The West Highland Museum, the CUPIDO North Sea Region INTERREG project and the Scottish Civic Forum to provide digital suppot for Doors Open days.

Figure 2 This image embedded on Google Maps has recieved 277k views during CINE

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OT 4.1.2 Output Indicators

Number of research institutions participating in cross-border, transnational or interregional research projects (CO42)

1. Coventry University: testing the VMI as a framework for the REACH project
2. Glasgow University: Peer review