

### Descriptions and evidence of outputs

The Vágar model is a situated simulation of an archaeological site of international relevance. The medieval fishing town of Vágar was the most populated urban center in Northern Norway at the time. It is here that the organised trade with stockfish to different European countries started. To better understand this landscape and its human footprint, IMK, AB and MN have created a digital model with different layers that the user can move through:

- History layer: ice age
- History layer: 15 century with animations
- History layer: 19 century with animations
- Future layer: scenario 3 degrees increase in temperature – humid version (part of OT1.3.1)
- Future layer: scenario 3 degrees increase in temperature – dry version (part of OT1.3.1)
- Game: digital positioning of historical photographs in the physical landscape

Several tests have been conducted with members of the local community as well as pupils and students. The new model was presented and discussed at the online event "[Nye løsninger for digital formidling av Storvågans historie](#)" on the 12 November 2020.

Abid Raja, Norway's Minister of Culture and Bjørnas Skjæran, national deputy leader AP and Hanne Dyveke Søttar, parliamentary representative (Education and Research committee) have been impressed to visit the case study site in 2020 and to learn about the digital model. Abid Raja has planned a second visit to SKREI in 2021 at which MN will invite him to test the simulation in person.

### Target audience

General public, schools and education, interest groups, higher education and research, sector agencies.

### Durability

The model will be made available to the public as soon as covid19 restrictions allow to test the final version. MN has invested in equipment that can be lent out to those without smart devices.

The partners have concrete development plans for the model for the coming 5 years. The building of the national museum SKREI is becoming a reality (in April 2021 the Ministry of Culture has expressed that SKREI is the number 1 priority for capital development in the museum sector in Norway). This means that the model will be integrated into the new visitor experience, both in the building and in the landscape.

## Description of the final state of the output

The Vágar app was tested on location with 40+ visitors (a group of 9th grade school children, adults affiliated with the Lofoten Museum and students from Oslo University) in 2020. The testing and evaluation generated positive and constructive feedback. During the autumn 2020 IMK continued to expand the content and complexity of the app enriching the 15th century period, relocating the gamification part and preparing and implementing the climate change parts (T1.3.1) to provide better contexts. The needed revisions of the basic framework has been completed and the current version is ready for publication when the Covid19 situations allows.



Testing at Storvågan (photo: AB)



C15 model with animations (image: IMK)



Research examples bringing relevant content together to communicate to technology partners (images IMK).

Further visual examples of the model are uploaded to Lead Partner report, T.1.2.1, period 6.

## Papers published

Bøe, Espen Johnsen, 'Remediation of Historical Photographs in Mobile Augmented Reality', accepted for publication in Condell, J. and McCartht, J. (Eds.) special issue of *Journal of Media Innovation* 7.1 (2021), pp 29–40, in press.

Kjellin, Elisabeth, 'Augmented Authenticity – Expanding the authentic through augmented reality' (22 pages) submitted to ACM's *Journal on Computing and Cultural Heritage*, possible publication in fall of 2021.

Liestøl, Gunnar, 'Museums, Artefacts and Cultural Heritage Sites. Using Augmented reality to bridge the gap between indoors/outdoors and center/periphery in Cultural Heritage Communication' publication in Cindell, J. and McCartht, J. (Eds.) special issue of *Journal of Media Innovation* 7.1 (2021), pp 19–28, in press.

### OT1.2.1 Output Indicators

MN, IMK and AB have engaged with several research institutions to create the content of the model. Number of research institutions (output indicators):

1. Tromsø University - Professor Reidar Berthelsen provided historical and archaeological content and knowledge
2. SALT, Independent Marine Research Company in Svolvær - provided under water drone photography that influenced the creation of the ice-age model element
3. University of Verona - Dr. Stefania Montemezzo from the University of Verona researched a paper on the topic of how Italian merchants traded with Northern Europe during the renaissance. This will inform the model when plotting connections to wider Europe
4. Angela Huang from the Research Centre for Hanse and Baltic History (FGHO) / European Hanse Museum - created research map of the stockfish trade during the Hanseatic League. This will inform the model when plotting connections to wider Europe
5. University of London - Dr. Nafsika Papacharalampous (University of London) undertook 5 oral history recordings. These local voices of today are ready to be utilised as sound profiles in the model.