SPARKLE case

DRS Digital Incubator for Museums

Who | Institutional Profile

Institution	St Ives Museum and Cornwall Museums Partnership
Location	Cornwall, UK
Short Description	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. 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. 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.
Ownership	St Ives Museum and Cornwall Museums Partnership are UK registered charities
Size	St Ives Museum has 2500 annual visitors although this has risen this year. There are no paid employees. CMP has 8 FTE employees.

Approach to Digital	***Input by Phil Jones*** 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. 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.

What | Case

Project Title	R.E.A.D- Responsive EPaper Adaptive Dsiplays
Timeframe	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 provides 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.

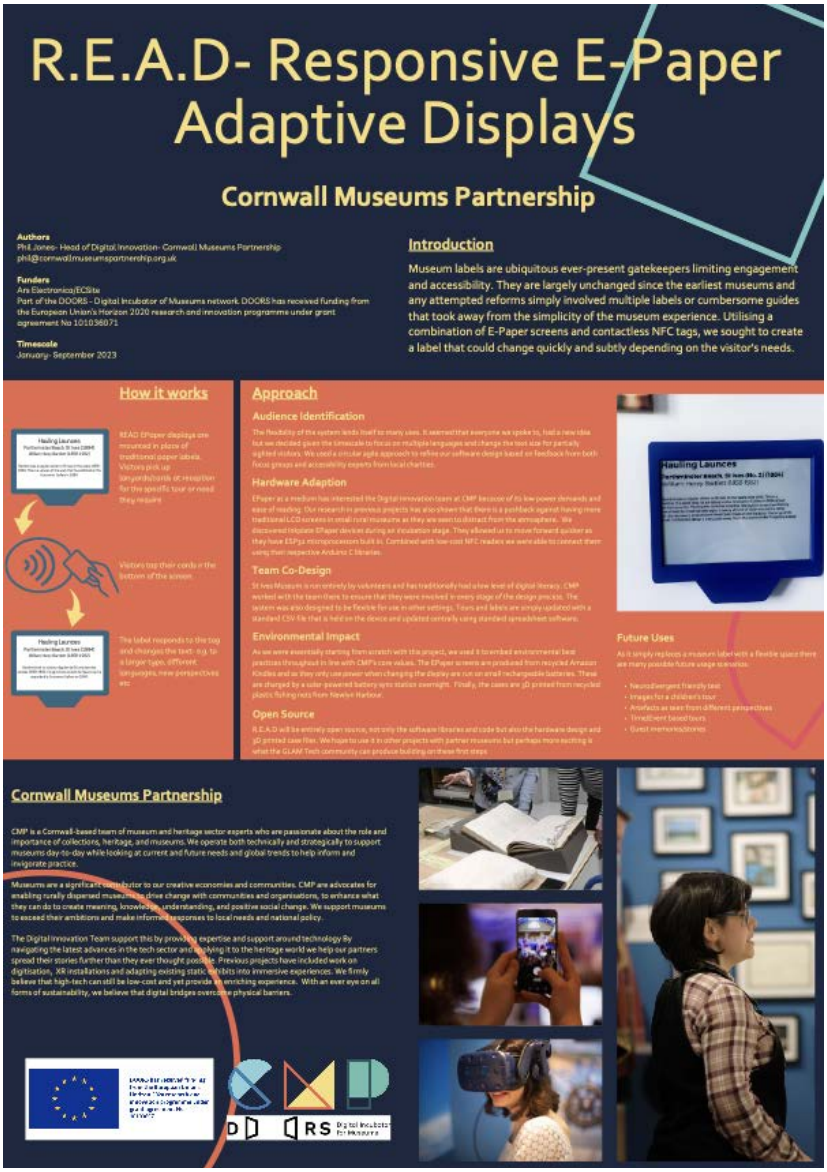
Involved Parties

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)



Project Poster for Oxford University DHO Event, CMP

READ installled, CMP