



mtm

Digital R&D Fund for the Arts

Participants two years on

December 2017

nesta



Supported using public funding by
**ARTS COUNCIL
ENGLAND**

Acknowledgements

Participants

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1

Executive summary

1.1 Introduction

In January 2017, Nesta and Arts Council England commissioned MTM to undertake new research to understand the longer-term impact of the Digital R&D Fund for the Arts, a three-year programme by Arts Council England, Nesta and the Arts and Humanities Research Council. This is additional to the original programme evaluation, by Tom Fleming Creative Consultancy, published in 2016.

1.2 What has happened to the projects in the two years since the Fund ended?

Two years on, 11 of the 13 organisations we revisited (out of the 52 who received R&D funding) reported that their project has continued to some degree:

- Five have secured additional funding to continue their R&D project.
- A further four projects created a product or service that has remained 'live' and in use, although often with minimal updates (e.g. bug fixes only) and with no extra funding.
- In a number of cases, the project has lived on in other ways: through evolving partnerships, or a subsequent generation of projects inspired by the Fund.

Where projects did not continue, the most commonly cited reason was lack of funds or resources secured for subsequent iterations of the project. Different business priorities were also sometimes cited.

1.3 How has the Fund influenced perceptions of the importance of digital?

In one-to-one interviews, the majority of organisations emphasised that they already regarded digital as important pre-Fund. However, several noted that the Fund had increased the breadth of people within their organisation who regarded digital as important:

A broader range of people within the programming team and senior management team now appreciate the importance of digital as a result of being a Fund Participant.

Bristol Museums

Several described how the Fund had increased their view of the importance of digital for creative output, distribution and data-driven marketing. However, several said it had made them more cautious about the scale of the opportunity to generate revenue through digital products and services, which in turn led to them thinking that digital was less important to their organisation, either overall or in terms of their business model.

1.4 What has been the impact of the Fund on participants?

Nearly half of the interviewees said that in the two years since the Fund closed they have continued to reap benefits from their projects in terms of reaching and engaging audiences.¹

Beta products and services had often helped increase audience reach, such as the Tyne & Wear Archives & Museums new digital collection interface Past Paths:

Our primary objective was to provide an interface to our collections and it is still live today. It has trebled the number of visitors who accessed our public collections.

Tyne and Wear Archives and Museums

Five interviewees emphasised the role of the Fund in helping them generate rich user and audience data:

We are sharing data, and then using this data to market more effectively and reach a wider and more diverse set of audiences – audiences that previously would have been the domain of the organisations we share data with, but not us.

Dance City

The 2017 findings show a more mixed picture in terms of new business models. A small number of interviewees reported transformational outcomes:

"It helped accelerate a transformation in our business...to put software-as-a-service (Audience Finder) at the heart of our model, evolving us from a consultancy and market research agency to a data and digital products driven agency...now we want to see this transformation at the heart of the sector...."

The Audience Agency

However, the majority had not seen a long-term impact on their business models, with many beta products free at the point of use, and/or limited opportunities to capitalise on the product developed:

The app we created could in theory have created new revenue streams if other organisations had adopted it – but this looks unlikely. Other organisations do not have the budgets or want to do their own things.

London Sinfonietta

The majority of interviewees described the impact of the programme on collaboration as being extremely positive, with several describing how they have grown relationships well beyond the scope of the original project:

The Fund has played a key role in us developing a longer-term commitment to embedding partnership into our work.

NYAMZ

Participation also stimulated culture change on a number of different levels, including new working practices, and an increased interest and confidence in digital technology – both overall and amongst senior management:

It has changed our culture – everyone in the service knows what agile development is...working in smaller sprints, having clearer ownership and greater prioritisation of user research.

Bristol Museums

Finally, Interviewees described a number of different ways in which the influence of the R&D Fund in terms of digital capacity has continued in the two years since the Fund ended

- Multiple examples of new assets being created that have potential to increase capacity throughout the sector – e.g. bodies of research, audience data-sets (Dance City audience database), and platforms and services (the Art Tickets platform)
- Capacity building within business as usual, as organisations have developed opportunities for longer term, sustainable new business models (NYAMZ remote learning service)
- Improved skills and capabilities:

We have learnt new skills in all sorts of areas, including research. If you ask people do you like my app, they will always say yes, if you watch them use it you learn a whole load more.

Bristol Museums

Looking beyond just the Fund participants, based on the findings from the Digital Culture survey, it seems that overall, the Fund has not helped to encourage an increase in the proportion of arts and culture organisations overall who undertake digital R&D activities. For example in 2013, 27 per cent of arts and cultural organisations stated that they partnered with technology providers on collaborative projects, however this figure has dropped to 22 per cent in 2017, a statistically significant decrease.

2

Introduction

The Digital R&D Fund for the Arts, England, was a £7 million funding programme that supported collaborations between arts and cultural organisations, technology providers, and academic researchers funded by Arts Council England, the Arts and Humanities Research Council and Nesta. Its main purpose was to enable the arts sector to engage audiences with art in new ways and/or to create opportunities for new business models using digital technologies.

Over a three-year period, 2012 to 2015, the Digital R&D Fund for the Arts supported 52 projects to develop and test new products and services combining digital technology and the arts.

This report evaluates the longer-term impact that being a Fund Participant has had on organisations supported by the fund. It references and adds to the original programme evaluation, by Tom Fleming Creative Consultancy, published in 2016.

2.1 Methodology

This evaluation is based on depth interviews with key staff from 13 of the 52 arts organisations who lead R&D funded projects.² These organisations were selected for review by Nesta and Arts Council England as exemplifying a range of different types of interesting projects. The research purposefully did not look at the nine projects that went on to participate in the Digital Arts and Culture Accelerator.³

As a condition of their funding, Participants were required to complete both a pre-R&D Fund and post-R&D Fund questionnaire about their use and perceptions of digital technology. In 2017, a significant sub-set of these organisations (37 of 52) responded to a further Digital Culture Survey.⁴ This report analyses their journey since the R&D Fund by comparing their pre-project (collected across 2013 and 2014) and post-project (collected in 2015) survey responses with the 2017 responses.

The FP survey responses make up a small cohort of organisations (37 from a possible sample of 52) and none of the changes observed from pre-project to 2017 are large enough to be detected as statistically significant at a 95 per cent confidence level.

3

What has happened to the projects since the R&D Fund ended?

3.1 Individual outcomes for projects since completion

Five of the 13 organisations interviewed secured additional funding to continue their R&D project:

- Two projects secured funding and have subsequently become part of the arts partner's core business: the NYAMZ Connect:Resound, that provides remote music learning opportunities, and the MeYouandUs TILO digital screen service.
- Three organisations secured additional funding to develop a Beta product or service that they produced as part of the project. Art Fund's Art Tickets platform and Dance City's The Unusual Suspects data pooling project both secured additional external funding, and the Tyne and Wear Archives and Museum's Past Paths project secured internal capital funding for a 2016 update.

A further four projects created a product or service that has remained 'live' and in use, although often with few updates (e.g. bug fixes only) and no extra funding – Bristol Museums' The Hidden Museum, London Sinfonietta's Steve Reich's Clapping Music, Cambridge Junction's Sonic Pi and Nottingham City Museums and Art Galleries' Riot 1831.

In a number of cases, the product or service created was only a part of the project legacy, and the influence of the R&D fund has lived on in other ways:

- Research or technology partnerships sustained beyond the life of Digital R&D Fund (see Section 5.3 for further detail).
- A subsequent generation of R&D and/or digital projects directly inspired by the R&D Fund project – for example, a subsequent round of digital park sculptures created by Metal as a follow up to the ten they were originally funded to create.

There are also examples of assets created through the Fund being made available to other organisations - although often with limited take-up. For example, The Tyne and Wear Archives and Museums project (Past Paths) created a software development kit (SDK) to enable other museums to use the archive tool and interface – but with no take-up to date.

Figure 1: Overview of what happened next for each project interviewed

Arts partner	Project	Continued post-project? (Y/N/Partial)	Additional funding? (Y/N)	Commentary
Bristol Museums	<u>Hidden Museums</u>	Partial	No	App still live for use by visitors, minor updates, but not funded for major re-release.
Art Fund	<u>Aggregated Museum Tickets Feasibility</u>	Yes	Yes	Secured private funding for Art Tickets, the aggregation site, from Fidelity Foundation plus two individual donors.
Tyne and Wear Archives and Museums	<u>Past Paths</u>	Yes	Yes	Interface to archive is still fully operational. Internal capital funding in 2016 for round of updates (but no subsequent external funding).
London Sinfonietta	<u>Steve Reich's Clapping Music</u>	Partial	No	App is live. Did not apply for accelerator funding as didn't have the internal resource to make it work. A few minor iOS bug fixes, but no additional funding to develop next generation version.
The Audience Agency	<u>Arts Data Impact</u>	Partial	No	Did not secure additional funding from the Arts Council England/Nesta Accelerator. Current bid out to Innovate UK. Both of the Data Scientists have taken prominent data roles within the sector, one (Alison Whitaker) with another former-R&D Fund project, Quality Metrics.
Metal Culture Ltd.	<u>Net Park</u>	Yes	No	Net Park is still live. Metal commissioned other digital sculpture works with core funding.
Cambridge Junction	<u>Sonic Pi</u>	Partial	No	The Sonic Pi tool for creating music by writing code is still live – but no funding to develop further.
NYMAZ	<u>Connect: Resound</u>	Yes	Yes	Received Arts Council Grants for the Arts and Prosper funding to test with four other music hubs.
MeYouandUs	<u>Digital Signage</u>	Yes	No	Unilever has installed ten of the screens in their office; secured European funding.
Dance City	<u>The Unusual Suspects</u>	Yes	Yes	Two years of additional funding from Esmée Fairbairn to continue the project, testing a new round of campaigns.
Nottingham City Museums and Art Galleries	<u>Riot 1831 @ Nottingham Castle</u>	Yes	No	The AR experience is still live, but no additional funding and has not been updated. Interviewee believed that participation helped them secure a large capital grant in 2016 as knowledge from the project enabled them to write a more informed bid.
Stage text	<u>Automated Captions</u>	No	No	Have discussed other funding options but not pursued them.
Film London	<u>We are Colony</u>	No	Yes	Platform still live following the Fund, and secured additional round of private sector funding, ⁵ but the Colony platform is about to cease offering its Video On Demand (VOD) service to the film sector due to insufficient demand for its services.

3.2 What were the key barriers to projects continuing after the R&D Fund ended?

The most common reason cited for projects either ending, or only continuing in part, after the R&D funding period was lack of funding, or resources to apply for funding. The Bristol Hidden Museums App, Nottingham Riot 1813 and Cambridge Junction Sonic Pi projects all failed to secure funding (whether from the Digital Arts and Culture Accelerator⁶ or other sources) for subsequent development.

We Are Colony cited a lack of demand for not continuing with their video on demand platform – both on the B2B side and on the B2C side:

We struggled to recruit rights holders as the sector is risk-averse – IP is valuable, and the industry has seen lots of new models launch and fail.

We Are Colony

On a related note, London Sinfonietta submitted an EOI for the ACE/Nesta Accelerator funding but then did not proceed with a full application because they did not see the commercial potential for the product:

We could see opportunities to sell the app, and we also had interest from a concert hall overseas to use it. But by the time any revenue would be shared amongst the multiple rights holders, there was no significant return to be made, and so we decided to prioritise free use of the app to as many people as possible worldwide over trying to earn income back from the investment of making it.

London Sinfonietta

4

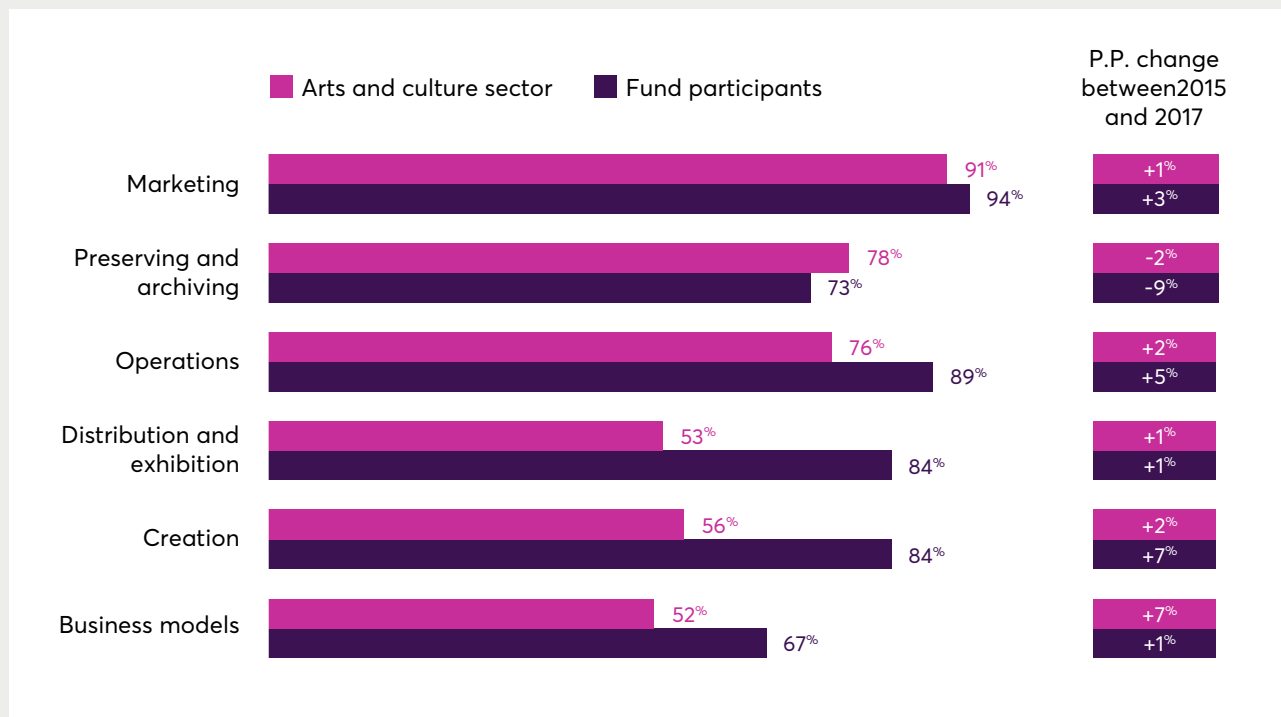
How has the Fund influenced perceptions of the importance of digital, and activities undertaken?

4.1 Importance of digital

Before their projects, Fund Participants tended to place more importance on digital technology than the majority of other arts and culture organisations. This was especially true in distribution, creation and business models, where 70 per cent of Fund Participants reported digital technology was important for distribution, 75 per cent reported digital technology was important for creation and 77 per cent reported digital technology was important for business models. This compares to 62 per cent, 64 per cent and 34 per cent respectively among the sector as a whole.⁷

In 2017, the proportion of Fund Participants who see digital technology as important to distribution and creation has risen, whilst the proportion who see it as important to business models has fallen. The gap between Fund Participants and non-Fund Participants has grown for distribution and creation, and fallen for business models.

Figure 2. Percentage of FPs and non-FPs that see digital as important, along with a comparison of change over time⁸



How important is digital technology to your organisation overall, at the present time, in each of the following areas?

Base: 2013 – all respondents (n = 891); Pre-project – FPs (44), 2017 – all respondents (1,391), FPs (37)

These findings broadly reflect key messages from the Fund Participant (FP) interviews. Firstly, the majority of interviewees emphasised that they already regarded digital as important to their organisation – hence their interest in submitting bids to the Fund. Several saw the Fund as having re-affirmed their belief in digital’s importance, rather than fundamentally changing their view:

We already regarded digital as important – that is why we applied to the Fund. But it has impacted on our aspirations...it has made us more ambitious...

Tyne and Wear Archives and Museums

Five of the 11 organisations interviewed emphasised, though, that a key impact of the Fund was to increase the breadth and depth of people within their organisation who regarded digital as important. Bristol Museums typifies this:

A broader range of people within the programming team and senior management team now appreciate the importance of digital as a result of being a FP.

Bristol Museums

Where organisations did say the Fund had increased their view of the importance of digital, the focus was on three areas: distribution, digital creative output, and marketing (and, specifically, the role of data in enabling them to understand audiences more clearly):

It reinforced the importance of our bespoke data analysis... our USP became more confidently and overtly the data and insight-driven approach at the heart of our business.

The Audience Agency

A more mixed picture emerges regarding the perceived importance of digital to business models. Several organisations described how being an FP had made them more realistic about the role digital had to play in generating revenue, which perhaps goes some way to explaining the reported decline in importance found in the data. For example, Cambridge Junction, who were not able to create a sustainable model for their Sonic Pi project, said:

The Fund has made us more aware and informed about the importance of digital in evolving our business model and generating revenue.

Cambridge Junction

4.2 Digital activity

Before their projects, Fund Participants tended to be more digitally active than non-Fund Participants: on average they undertook 13.4 different activities compared with 9.5 for other organisations, with the biggest gaps between Fund Participants and the rest of the sector relating to creation and distribution activities. For example: 51 per cent of FPs reported producing standalone digital exhibits or works of art (compared with 22 per cent non-FPs) and 31 per cent producing VR or AR experiences (compared with 8 per cent of other sector organisations).⁹

In 2017, Fund Participants remain much more digitally active than non-Fund Participants:

- Fund Participants undertake 11.7 types of digital activity, compared to 8.1 among non-Fund Participants.
- Three times as many Fund Participants as non-Fund Participants report creating VR experiences (28 per cent of Fund Participants vs 9 per cent of non-Fund Participants). Twice as many are undertaking other creative activities: digital experiences to be used alongside the artwork or exhibition (47 per cent of Fund Participants vs 22 per cent of non-Fund Participants) and digital works connected to an exhibition or artwork (53 per cent of Fund Participants vs 26 per cent of non-Fund Participants).
- Seventy-three per cent of Fund Participants use data to understand their audience better, compared to 46 per cent of non-Fund Participants.
- Slightly more Fund Participants undertake key revenue-generating activities such as ticket sales and online donations, but the gap is smaller compared to creative and data-driven activities (e.g. 67 per cent of Fund Participants do online ticket sales compared to 55 per cent of non-Fund Participants).
- There is only one activity area that more non-Fund Participants report doing, which is using crowdfunding platforms (14 per cent of Fund Participants vs 19 per cent of non-Fund Participants).

Although Fund Participants are more active in comparison to other organisations, the overall number of activities they are involved with has reduced over time – Fund Participants were undertaking an average of 13.4 types of digital activities before their project began and this has dropped to 11.7 in 2017.¹⁰ One interviewee offered declining budgets as a reason:

I'm not sure that being a Fund Participant will have increased the amount of digital activity amongst the Fund Participants per se – everywhere I look digital teams are being reduced and activity is being honed back to its core due to austerity.

Bristol Museums

In contrast, several other organisations appeared to buck this trend – especially in creation activities:

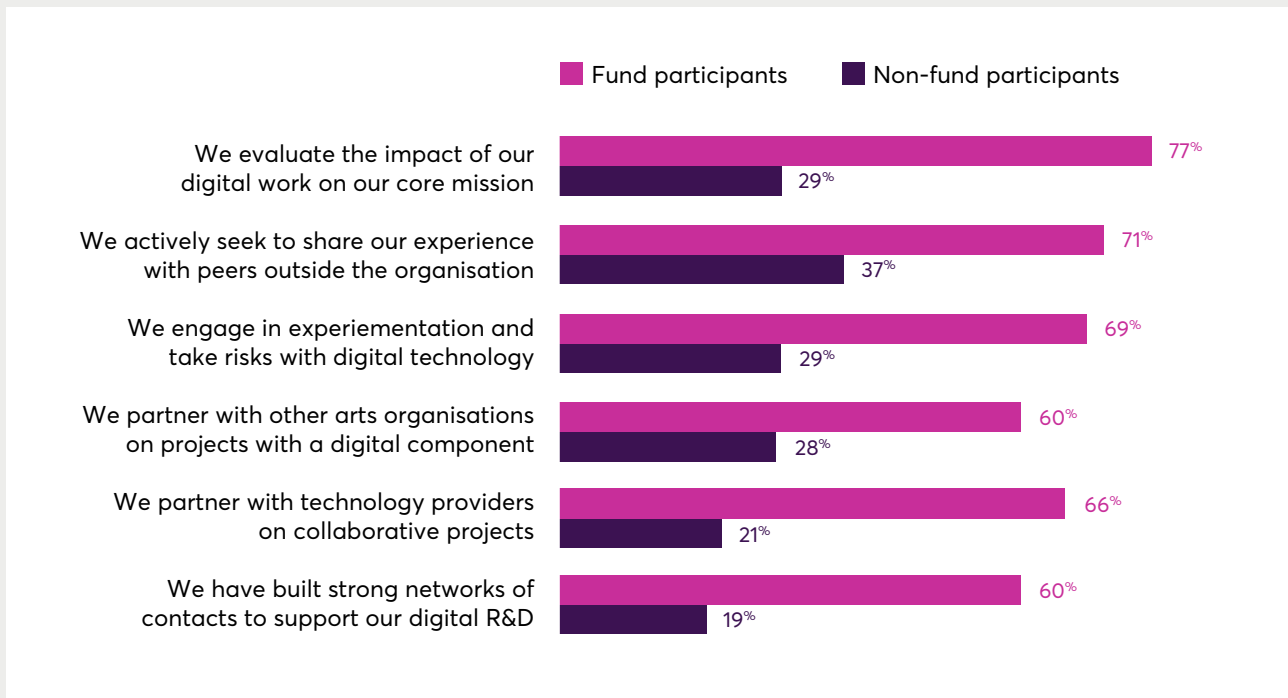
We have commissioned another four digital art works since the ten that the R&D Fund covered, creating a 21st century digital sculpture park. This is not something we could have done prior to the Fund, and is a direct result of [our participation in] the R&D Fund.

Metal Culture Ltd

4.3 Are Fund participants more likely to undertake R&D activity?

The *Digital Culture 2017* survey suggests that R&D activity in the arts sector as a whole has remained largely stable, with just a few specific activities decreasing slightly. In contrast, these behaviours remain far more widespread amongst the R&D Funded cohort (as they were in 2013). In 2017, between two and three times as many Fund Participants are undertaking key R&D behaviours such as engaging in experimentation and taking risks (69 per cent participants compared to 29 per cent for non-participants), and partnering with technology providers (66 per cent versus 21 per cent).¹¹

Figure 3: R&D activities – Fund Participants vs non-Fund Participants (2017)



How well do you think the following statements describe your organisation's behaviour with regard to digital research and development (R&D)? Fund participants are statistically significantly higher than non-Fund Participants

Base: 2017 – FPs (35), non-FPs (1,148)

Although uptake of R&D activities is higher amongst Fund Participants than other organisations, it has remained relatively stable since 2013. It seems that overall, the Fund has not helped to encourage an increase in the proportion of arts and culture organisations who undertake digital R&D activity.

However, a number of interviewees said that the Fund had raised awareness of the value that can be generated when arts organisations embark on R&D activities, and that, for them, this had led to greater R&D activity in the two years since the Fund closed:

We didn't previously have user research. But as part of the project we were able to do qualitative and quantitative user research. Teams throughout (e.g. marketing) are now big users of this research.

Bristol Museums

We continue to keep up with digital innovations that might prove to be invaluable in making arts and culture accessible to d/Deaf, deafened and hard of hearing people. We are currently partnering with the National Theatre to help them test new technology that they have designed from a d/Deaf and hard of hearing user perspective.

Stage Text

Similarly, Dance City described an increased willingness to adopt a research-based approach to their marketing activities:

It has made us much more likely to test new ideas. Our project is marketing focused, so we are now minded to test what different campaigns or activities will result in sales...it has given us a test bed.

Dance City

5

What has been the impact of the Fund on participants?

In 2017, the positive impact of digital for achieving the organisation's overall mission is almost unanimously felt by Fund Participants, with 74 per cent of Fund Participants claiming that digital has a major positive impact. This is significantly higher than the arts and culture sector overall.

Figure 4: Impact of digital on organisations achieving their overall mission (2017 Fund Participants vs the Arts and Culture Sector)



Overall, how great an impact do you feel digital technology has had on your organisation's ability to fulfil its mission effectively? Arrows show statistical significance between main arts and culture sector and Fund Participants

Base: 2017 – all respondents (1,234), FPs (35),

In 2017, interviewees remain uniformly positive about the impact of taking part in the Fund. They reported impact in a variety of different ways – from transformation of the entire organisation through to impact on specific business areas, especially audience development and creative output.

These findings are discussed in more detail below, structured around the five outcome areas where the Fund set out to make a difference.

5.1 Reaching and engaging audiences

The 2016 evaluation concluded that:

The Fund has had most impact for audience development. It has enabled new ways of working which have opened up richer, more diverse, interactive and personalised relationships with audiences....¹²

In the two years since the Fund closed, the majority of interviewees said they have continued to benefit from their projects in terms of reaching and engaging audiences. An example of this is the Tyne and Wear Archives and Museums Past Paths new digital collection interface:

Our primary objective was to provide [an] interface to our collections and it is still live today.

Five of the 11 interviewees said the Fund had helped them generate rich user and audience data, which provided new insight into audiences and their needs. Bristol Museum described how the Hidden Museum app has stayed in use, and continues to generate data on how audiences engage with their building and displays, which has enabled them to continue to re-design their museum spaces:

The Hidden Museum app is still in use. It has allowed us to produce a heat map of how people move through the building...and gives us the potential to re-design those spaces.

Bristol Museums

5.2 New business models

A number of interviewees reported transformational outcomes in terms of their business model. At the most positive end, Audience Agency and NYAMZ described how participation has transformed their business model:

It has transformed our business...it put software products at the heart of our offer, changing us from a consultancy and market research agency to a data products driven agency...now we want to see this transformation at the heart of the sector.

The Audience Agency

Participation has impacted us hugely. It opened up a whole new area of work, across different geographies, adding a whole new dimension to our offer... Connect:Resound has become part of our core business.

NYAMZ

Two other organisations reported outcomes that have strong potential to support business model development – although their products are still evolving:

The original investment from the R&D Fund enabled us to test out a beta model for the Art Tickets platform which has attracted a further £140,000 of charitable funding for development. We believe it now has the potential to be truly transformational for museums around the UK.

Art Fund

The TILO digital screens have become part of our core offer, although they are still at pilot phase and the revenue they generate is not yet transformational.

MeYouandUs

Beyond these four instances, examples of R&D projects leading to new business models or revenue streams are more limited.¹³ The majority of beta products are free at the point of use (either for audiences or the software development kit made available to other developers) – this is the case with The Hidden Museum app. Other organisations saw the potential to re-sell the assets they created, but have found limited demand in the market. This was true for London Sinfonietta, who saw potential for other organisations around the world putting on performances of Steve Reich's *Clapping Music*:

The app we created could in theory have created new revenue streams if other organisations had adopted it – but this looks unlikely. Other organisations do not have the budgets.

London Sinfonietta

5.3 Collaboration in order to support innovation

Six of the 13 selected interviewees said that the relationships they formed with research and technology partners had continued in some way.¹⁴

Bristol Museums described how their relationship with Bristol University has grown well beyond the scope of the original project, to the extent that they now take on two cohorts of students a year to work with them on a variety of technology projects:

We have had five to six cohorts of students working with us so far, including one group of Computer Science students who have spent over 100 hours building an alpha VR app for use with the Oculus Rift headset.

Bristol Museums

NYAMZ and Nottingham City Museums and Art Galleries also described how their partnerships from the programme had sustained and developed beyond the lifetime of the fund:

We are using research partners [University of Hull] in subsequent phases of work. We will offer the work on subsequent phases out to another evaluator.

NYAMZ

We still work with the partners. One academic partner has evolved into a three-year part-time residency, whilst Hot Knife [the technology partner] have done a subsequent VR project with us...in some respects, this has been the biggest success of the Fund.

Nottingham City Museums and Art Galleries

Nottingham City Museums and Arts Galleries described how they had continued to work with research partners beyond the fund's lifetime because *"it has made us realise how important the evidence is in supporting our innovation work"*. NYAMZ described how working with the University of Hull *"is helping us develop a stronger offer for Connect:Resound"*. Overall, the impact of the programme on collaboration supporting innovation seems to have been extremely positive – participation in the Fund introduced many organisations to the challenges and benefits of working with research and technology partners, and in many cases gave them the confidence and belief to do so again:

The Fund has played a key role in us developing a longer-term commitment to embedding partnership into our work.

NYAMZ

5.4 Culture change

Participation also stimulated culture change on a number of different levels. The Fund prompted a review of existing working practices and helped legitimise the development of new ones in some organisations, with Bristol Museums, for example, describing how participation has increased confidence in, and knowledge of, agile development:

It has changed our culture – everyone in the service knows what agile development is...working in smaller sprints, having clearer ownership and greater prioritisation of user research.

Bristol Museums

In addition, interviewees talked about culture change at a more general level, in terms of an increased interest and confidence in digital technology – both overall and amongst senior management in particular:

It has changed us as an organisation...It has showed us that it is possible to use digital technology, so it is taken more seriously by the board as a result. We've just made an application to The Space as a result.

London Sinfonietta

Importantly, the culture change felt by many partners goes beyond a willingness to undertake digital and R&D projects.

Even in non-'digital' projects, it has helped us think differently from a cultural point of view – thinking about our audience's needs. How they want to encounter our sites, objects and their stories.

Nottingham City Museums and Art Galleries

5.5 Increased digital capacity amongst arts and cultural organisations

Interviewees described a number of different ways in which the influence of the R&D Fund, in terms of digital capacity, has continued in the two years since the Fund ended.

There are multiple examples of new assets or resources being created that have wider applicability to other organisations. These include:

- Bodies of research that have been made available to other organisations (e.g. the We Are Colony research into the film sector).
- Audience data-sets being utilised across the sector, such as the ever-growing Dance City audience database that is currently utilised by the Newcastle-Gateshead cultural consortium, and the Art Tickets platform.
- Platforms and services that are currently being utilised (albeit to various degrees) such as the Art Tickets platform.

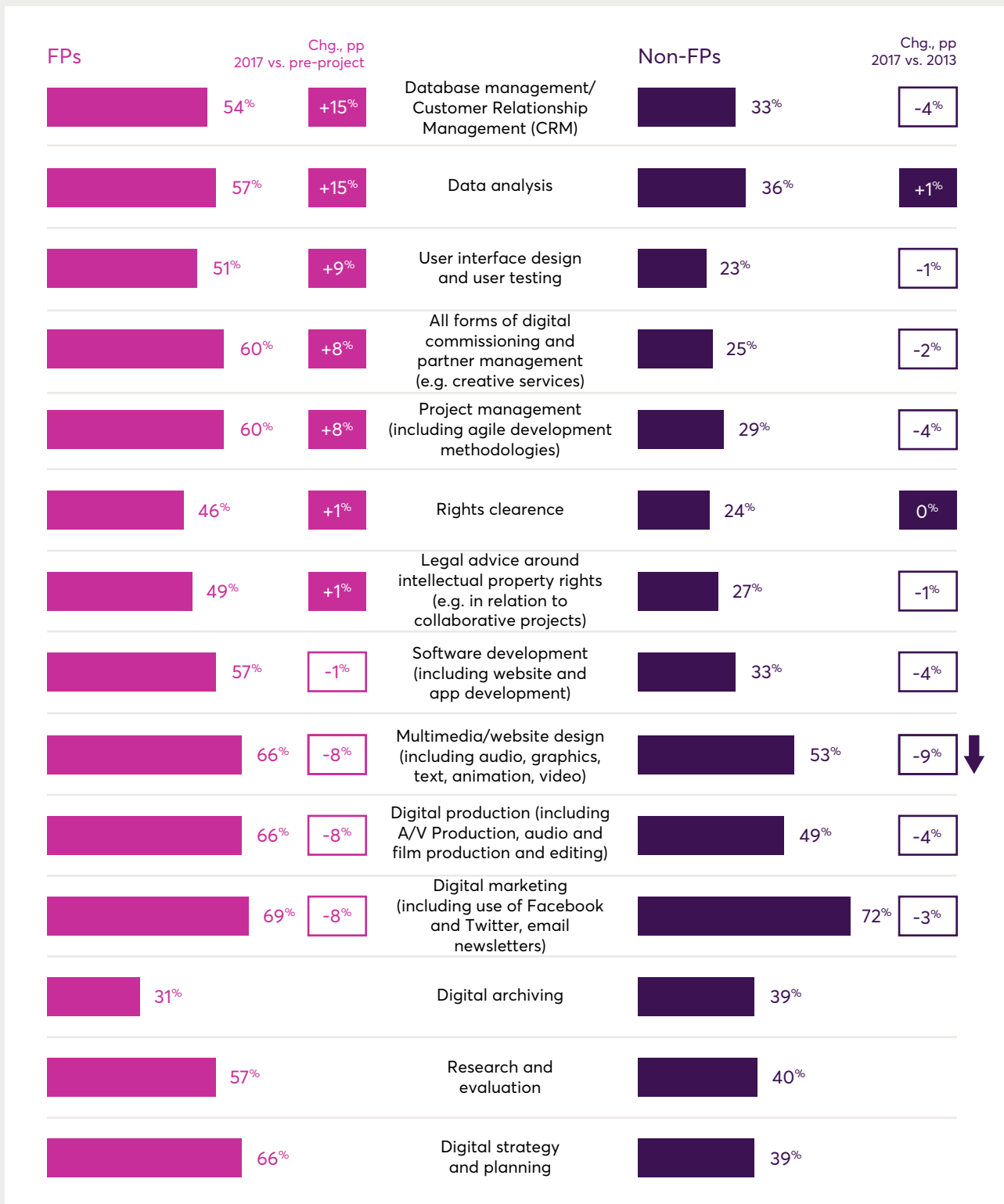
In some cases, the IP for these assets is owned by the arts partner (Art Fund own the IP to Art Tickets). In other cases, the IP is shared between a number of partners, which can limit the revenue opportunity for any one partner, especially when revenue also needs to be shared with a third party platform (e.g. 30 per cent to Apple for apps distributed through App Store).

There is some evidence that the Fund has led to improved skills and capabilities amongst Fund Participants. In 2013 the Fund attracted the most digitally skilled arts organisations (see Figure 5). Although over the course of the Fund the gap between Fund Participants and non-Fund Participants has remained largely stable, it has grown in three key areas:¹⁵ project management, data analysis and database management. Findings from the qualitative interviews corroborate a positive impact on skills levels, with almost all the organisations interviewed being extremely positive about skills uplift. Bristol Museums' perspective is typical:

We have learnt new skills in all sorts of areas, including research. If you ask people do you like my app, they will always say yes, if you watch them use it you learn a whole load more.

Bristol Museums

Figure 5: Major positive impact of project participation on skills and capabilities – showing how Fund Participants’ skills base has increased over the course of the study (2013-2017)



Which of the following skills and capabilities do you hope to see some improvement in, for your organisation, as a result of participating in the Digital R&D Fund for the Arts?

Now that your Digital R&D Fund for the Arts project has finished, which of the following skills and capabilities have you seen some improvement in, as a result of participating in the Fund?

Base: 2013/14 – FPs pre-project (n = 44), 2013 – Non-FPs (848), 2017 – FPs (n = 35), Non-FPs (1,158)

6

Five case studies

Arts Data Impact¹⁶

1. The partners

Lead arts partner: The Audience Agency. Tech partner: Magic Lantern Productions. Research partner: University of Ulster. Other arts partners: Barbican Arts Centre, English National Opera, National Theatre.

2. The project

Arts Data Impact (ADI) was a project investigating data-driven decision-making (DDD) within the arts. It had three layers:

1. Embedding data scientists-in-residence (DSIRs) into partner arts organisations.
2. Developing practical data tools for arts partners to use in prototype form.
3. Qualitative research looking at the cultural impact of audience data on arts organisations.

3. Has this project continued since the R&D Fund ended?

- A data scientist has been employed by the Audience Agency to develop their offer to the arts sector through the creation of data services and products.
- This is perceived as a commercial risk, given the relatively slow take-up of data-driven marketing across the sector; the Audience Agency is trying to reduce this through additional funding.

- There is a mixed picture – the Audience Agency was not selected by Nesta and the Arts Council to participate in the Digital Arts and Culture Accelerator.
- They have applied for additional funding from Innovate UK and are currently awaiting outcome.
- A freemium version of the data tools created has been made on a commercial but non-profit basis in order to share the tools more widely.

"We tried to bring the products to market but couldn't find the funds to do so."

Cimeon Ellerton, Chief Operating Officer

4. What barriers did the arts partner encounter when considering future options for the project?

Due to a lack of available and relevant data sets, the Audience Agency has been less able to explore the use of open data than it had originally intended.

In addition, there has been a relatively slow take-up of data-driven marketing by arts and cultural organisations.

"The structural recommendations we made about how organisations should change haven't been taken on across the sector"

Cimeon Ellerton, Chief Operating Officer

5. How has being part of the fund impacted the participant?

Business models and strategy change as data is brought to the heart of the organisation

The Audience Agency are re-inventing their business model around a set of data products and services that can be applied to other arts organisations.

A new strategy and business plan was developed in the year after the Fund finished, putting software products at the heart of this offer. This is important as it has the potential to take the business from being a service business to offering both professional services and a range of products, with greater growth and profit growth potential.

Clapping Music¹⁷

1. The partners

Lead arts partner: London Sinfonietta. Tech partner: Touchpress. Research partner: Queen Mary University of London.

2. The project

London Sinfonietta and its partners developed an iOS game to engage audience in the music of Steve Reich, a contemporary composer, and to develop musical skills through participatory, interactive experiences.

3. Has this project continued since the R&D Fund ended?

- The *Clapping Music* app is live, with 180k downloads to date. However, there has been no development of a next generation product – just a few minor iOS bug fixes.
- London Sinfonietta chose not to apply to the ACE/Nesta Accelerator Fund due to a lack of internal resource.
- Consideration was given to developing the Clapping App Community by running a new set of clapping competitions through the app, and inviting the winners to attend other London Sinfonietta concerts – but this was not progressed beyond the planning stage.
- Consideration was given to releasing an Android version, but this has not progressed beyond the planning stage.

"We have thought about a next version of the app... we've under-realised the potential of the project."

Andrew Burke, Chief Executive

4. What barriers did the arts partner encounter when considering future options for the project?

- The main barriers to progress have been a combination of lack of internal resource and a perceived lack of returns available to justify additional investment.

- It was not considered as commercially viable because there was a perception that whilst there was some demand out there it was unlikely to meet a six or even five figure annual sales target going forwards, and that what revenue was generated would have been split between multiple rights holders, including Steve Reich and in particular with Apple.

5. How has being part of the fund impacted the participant?

Audience development

Clapping Music has generated a very significant audience response. Still live, the app has massively exceeded the original audience target of 20,000 downloads, with over 180,000 downloads.

Culture and capacity

Participation has driven culture change in terms of an increased interest and confidence in digital technology – both overall and amongst senior management in particular:

We are now more willing to consider digital products [as a means to] increase our profile round the world.

London Sinfonietta

New business models and revenue streams

The success of the app in reaching audiences has generated interest from around the world. Music organisations internationally have showed interest in developing similar products. London Sinfonietta was invited to present the project to the Association of British Orchestras and share how the approach could be applied to other pieces of music. There were several meetings with the Department for Education and Skills to explore how the app could be developed for schools. The conversations showed potential to lead to new projects and collaborations, but this has not been realised. In terms of business model development, the overall legacy for London Sinfonietta has been to make them more aware and realistic about the range of new revenue opportunities available through digital, in addition to those they are already exploiting, such as tickets and online donations.

Connect:Resound¹⁸

1. The partners

Lead arts partner: NYMAZ. Tech partner: UCan Play. Research partners: The University of Hull.

2. The project

The partners developed a model that would trial cost effective video streaming technologies and online communication tools, to deliver instrumental tuition and music performances to pupils in primary schools in North Yorkshire, as well as access to online CPD for music teachers.

We were aiming to address problems created by ruralisation in North Yorkshire, where large distances have to be travelled and the cost of travel is high, so kids were missing out on instrumental teachers. We used the Digital R&D Fund to test out online ways of reaching those communities.

Heidi Johnson, Director

The aim was to identify a new delivery model for music education, in which digital delivery complements live instrumental lessons, which could be shared and incorporated into Music Hub business plans and used by music development organisations nationwide.

Connect:Resound provided an opportunity to explore, refine, and test approaches to online music teaching, and ultimately diversify, extend and enrich music education locally and nationally. With the addition of live broadcast performances and CPD opportunities it also aimed to explore the possibilities for broadening access to high-quality music performances and training events, especially to those whose rural locations restrict such access.

3. Has this project continued since the R&D Fund ended?

- NYMAZ secured funding to continue developing Connect:Resound (Arts Council England Grants for the Arts, and Prosper Funding).¹⁹ In addition, NYMAZ has bid for funding from the Paul Hamlyn Foundation.
- Connect:Resound has subsequently become part of their core business. Since January 2016 NYMAZ has worked with music hubs in the East Riding of Yorkshire, Durham, Cumbria and Cornwall to further pilot the model and learn more about the strengths and weaknesses of remote music learning.
- NYMAZ has also worked with 12 other music hubs across the country on a consultancy basis to help embed online tuition into their business model.

"After we published our project report we got a sense from the response to it that there was interest from other rural areas, which we're been exploring in subsequent phases"

Heidi Johnson, Director

4. What barriers did the arts partner encounter when considering future options for the project?

- The main barriers faced by NYMAZ were technological, especially as working in rural areas meant that broadband was often not adequate to support teaching via video.
- Working with video software continues to generate issues about how to protect student privacy during use. This was a barrier during the pilot but remains a barrier to adoption in subsequent roll-out across other music hubs, as participants need reassuring (the LAs, who commission the service, schools, and parents).

"Strength of broadband connection was key for success and it was a bit of a lottery with the different areas."

Heidi Johnson, Director

5. How has being part of the Fund impacted the participant?

Business model and new revenue streams

Their R&D Fund project has had a fundamental impact on NYMAZ's business model, their perceptions about collaboration and their attitude towards digital.

First and foremost, Connect:Resound has become a core part of their business, with two models for teaching via video piloting well. As a result, there has been considerable interest in Connect:Resound, enabling NYMAZ to widen the geographical regions in which they operate:

Participation has impacted us hugely. It opened up a whole new area of work, across different geographies, adding a whole new dimension to our offer...Connect:Resound has become part of our core business.

Heidi Johnson, Director

Capacity and culture change

Before the R&D Fund, NYMAZ did not see themselves as digitally advanced and weren't seen as pioneering by their peers. The Fund has allowed NYMAZ to evolve so that they are recognised as a digitally innovative organisation within their sector:

We weren't digitally sophisticated before. Some of our music activities made use of music tech, mostly for editing and promoting. However, we weren't particularly pioneering. The R&D Fund helped us move into that pioneering space.

Heidi Johnson, Director

Collaboration

Prior to their R&D project, NYMAZ had not worked with a research partner. Going forward, they are working with the University of Hull on their live projects:

We are using research partners in these subsequent phases of work – University of Hull for the Arts Council England Grants for the Arts role out and an external partner for evaluation. We are still committed to that learning.

Heidi Johnson, Director

Riot 1831 @ Nottingham Castle: Mobile augmented reality (AR) app²⁰

1. The partners

Lead arts partner: Nottingham City Museums and Galleries. Tech partner: Hot Knife Digital Media. Research partner: Nottingham Trent University.

2. The project

Riot 1831@ Nottingham Castle is an augmented reality (AR) permanent exhibition and application that uses digital technology to present accounts of real people who witnessed, or were involved in, the attack on Nottingham Castle during the 1831 National Reform Bill Riots. AR and storytelling opened up new possibilities for recounting the history of the riots in new and engaging ways, from the perspectives of different people involved. The mobile AR application used advanced object tracking technology to superimpose 3D real-time computer environments and animated first person 'performances' onto the museum objects. This allowed visitors to simultaneously interact with the museum objects and experience the events that took place on the night of the riots through the voices of the people present.

3. Has this project continued since the R&D Fund ended?

- The AR experience is still live, but the app has not been updated since completion of the project.
- The technology partner (Hot Knife) has worked with Nottingham City Museums and Galleries on subsequent projects, including a mapping of the 500 city caves.
- Participating in the R&D Fund helped provide some of the skills required – and the credibility – to secure a large capital grant from HLF in 2016: *"being part of the R&D Fund helped us secure this [HLF capital] funding because it provided us with the knowledge to demonstrate that we were serious about the use of technology on site at Nottingham Castle"*.

"We are still working with the technical project partners – developing these relationships is the biggest success of the project."

Adrian Davies, Team Leader, Design & Display

4. What barriers did the arts partner encounter when considering future options for the project?

The project has encountered a number of barriers. Firstly, AR output is expensive to maintain and develop. It also requires careful integration with the live exhibition, which can be disruptive to exhibition development and time-consuming in its own right. Finally, maintenance of the basic hardware in the gallery is challenging and an additional ongoing cost – for example, the iPads are frequently out of order and need to be replaced regularly which is disappointing to users, and expensive.

"We have five suspended iPad's in the gallery...often some of them are out of order"

Adrian Davies, Team Leader, Design & Display

5. How has being part of the fund impacted the participant?

Audience development

The Augmented Reality experience is still engaging audiences two years on and is considered a success as an end user experience.

Culture change and increased digital capacity

The project has resulted in a number of profound changes to the way Nottingham City Museums and Galleries work. The 1831 Riot project has been a catalyst for developing a digital media strategy for the wider service, which includes the training of staff in digital media and the development of a new, more engaging website. The learning from

the project also helped with the credibility and quality of a major successful capital funding bid to Heritage Lottery Fund (HLF) which includes proposals for onsite AR content. This project will look at the thousand-year history of Nottingham through 11 key moments, using stories of people to explore the history from different perspectives. The individual story approach was trialled through the 1831 project. Another significant culture change is that Nottingham Museum and Galleries now carry out more external research on what others are doing to inform their own development. They generally take a more open approach to

exhibition development, with less of a fixed idea about what the outcome will be at the start. The R&D project has made them less risk averse.

Collaboration

The collaboration was a major positive for all partners and the relationships are still live. Hot Knife has been commissioned by other members of the Museums and Galleries team, since Riot 1831, to work on an app and trail of the Nottingham Caves. They are now in discussions about extending this to a trail across the city.

The Hidden Museum²¹

1. The partners

Lead arts partner: Bristol Museums, Galleries and Archives. Tech partner: Aardman Animations. Research partner: The University of Bristol Graduate School of Education.

2. The project

The Hidden Museum project centred on the development and testing of a tailor-made mobile application for use in Bristol Museum & Art Gallery that was aimed at encouraging families to explore areas of the museum that were known to be under-utilised. The application took the form of a game played by groups on hand-held devices. Its defining technological aspect is that it relies on iBeacons (small Bluetooth devices) to both locate and help users navigate the museum building.

3. Has this project continued since the R&D Fund ended?

- The Hidden Museum app has remained live and available for use.
- Bristol Museums have updated the app once to ensure that it stays relevant and up to date and to fix any bugs found.
- However, there hasn't been new funding to allow for further development of the app – it is currently available at just one of Bristol's five museums. Bristol Museums would like to develop it for each of the five museums.
- Bristol Museums weren't expecting any additional funding and so created the app 'small and perfectly formed'.

"The Hidden Museum app is still in use. It has allowed us to produce a heat map of how people move through the building...and gives us potential to re-design those spaces"

Zak Mensah, Head of Transformation

4. What barriers did the arts partner encounter when considering future options for the project?

Bristol Museums haven't yet carried the project forward due to a lack of funding – although they are positive that they will be able to secure funding in the future.

Lack of resource within their own organisation is also seen as a major barrier: *"although we see this as a priority, resources are tight"*.

"We're very likely to get funding for further development, we're just trying to make sure our project fits the right brief."

Adrian Davies, Team Leader, Design & Display

5. How has being part of the fund impacted the participant?

Audience development

The app has generated a new level of understanding as it provides data about how audiences move around the museum and gallery (e.g. direction of travel, areas most visited). This in turn has enabled them to re-design the exhibition space.

Collaboration

The original research partnerships have grown well beyond the scope of the original project – especially the partnership with Bristol University. Two cohorts of students a year now undertake digital projects to help further develop what Bristol Museums has to offer.

We've taken in two cohorts of students a year to solve problems, so we've had around five to six cohorts come in. We've done projects on tracking people, using an Oculus Rift, using an Xbox Connect to use hand gestures to trigger reactions, etc.

Zak Mensah, Head of Transformation

The relationship with Aardman remains strong, but there is no funding for a new project to work with them on.

Culture change and capacity

The focus on user research that was fundamental to the R&D project has impacted the Bristol Museums organisation as a whole, with teams across the organisation embracing the importance of user research.

It has changed our culture – everyone in the service knows what agile development is... working in smaller sprints, having better ownership, greater prioritisation of user research.

Zak Mensah, Head of Transformation

The overall digital culture of Bristol Museums has also been affected, as perceptions around the importance of digital have been reaffirmed across the whole organisation.

A broader range of people within the programming team and senior management team now appreciate the importance of digital as a result of us being a Fund Participant.

Zak Mensah, Head of Transformation

It's given proof that digital is worth investing in and it's helped other people understand this. It's gone right through to the minister to show how well it can work to bring the public and private sector together.

Zak Mensah, Head of Transformation

7

Appendix

Fund Participants who took part in the research in 2017

Name	Title	Organisation	Project name
Amy Ross	Development Director	Art Fund	Aggregated Museum Tickets Feasibility Project
Zak Mensah	Head of Transformation	Bristol Museums	The Hidden Museum
Daniel Brine	Director	Cambridge Junction	Sonic Pi Live
Nina Byrne	Communications Manager	Dance City	The Unusual Suspects
Sarah Tierney	Chief Executive	Film London	We are Colony
Andrew Burke	Chief Executive	London Sinfonietta	Steve Reich <i>Clapping Music</i>
Colette Bailey	Chief Executive	Metal Culture Ltd	NetPark
Alastair Eilbeck	Director	MeYouandUs	Digital Signage
Adrian Davies	Team Leader, Design & Display	Nottingham City of Museum and Galleries	Riot 1831 @ Nottingham Castle
Heidi Johnson	Director	NYMAZ	Connect:Resound
Rosie Holmes	General Manager	StageText	CaptionCue
Cimeon Ellerton	Chief Operating Officer	The Audience Agency	Arts Data Impact
John Coburn	Digital Programmes Manager	Tyne and Wear Archives and Museums	Past Paths

Endnotes

1. Reaching an international audience: Fund Participants - pre-project (36 per cent), 2017 (46 per cent); All respondents - 2013 (33 per cent), 2017 (33 per cent); Boosting public profile: Fund Participants - pre-project (50 per cent), 2017 (69 per cent); All respondents - 2013 (58 per cent), 2017 (67 per cent); Reaching a more diverse audience: Fund Participants - pre-project (32 per cent), 2017 (37 per cent); all respondents - 2013 (32 per cent), 2017 (40 per cent); Base: Pre-project - FPs (44), 2013 - all respondents (891), 2017 - FPs (35), all respondents (1239).
2. Funding was given to arts and culture organisations to lead projects, each of which involved an academic institution and a technology company as partners.
3. For more detail on the Digital Arts and Culture Accelerator see: <https://www.nesta.org.uk/project/digital-arts-and-culture-accelerator>
4. Digital Culture Survey is a survey of arts and culture organisations in England, funded by Arts Council England and Nesta, run in 2013, 2014, 2015 and 2017.
5. Raised £1.3 million from New York media VC fund Archer Gray, UK fund Firestart (which has in the past backed TransferWise), Essex Innovation, and several angel investors.
6. A pilot programme of next stage support for projects from the Digital R&D Fund for the Arts, which focused on investment readiness and economic viability.
7. Base: 2013 - all respondents (891), Pre-project - FPs (n=44).
8. Demand expressions measured by Parrot Analytics provide a single measure comparing demand for content, identifying the programme properties that consumers are most interested in viewing in each market.
9. Base: 2015 - all respondents (n=939), FPs (n=45).
10. Base: Pre-project - FPs (44), 2017 - FPs (37), Non-FPs (1,387).
11. Base: 2013 - all respondents (891), 2017 - FPs (35), Non-FPs (1,178).
12. Tom Fleming Consultancy (2016) 'Digital R&D Fund for the Arts: Evaluation.' London: Tom Fleming Consultancy. pp 16-18.
13. Considerably more fund applicants specified audience reach as an objective (27) compared to business models (15). Ten specified both.
14. Others included Bristol (Bristol University); Dance City (continuing to work - albeit light touch - with Morris Hargreaves Macintyre); Cambridge Junction still close to Raspberry Pi.
15. Project management (2013 52 per cent among FPs and 27 per cent among non-FPs, in 2017 60 per cent among FPs and 29 per cent among non-FPs); data analysis (2013 42 per cent among FPs and 36 per cent among non-FPs, in 2017 57 per cent among FPs and 36 per cent among non-FPs) and database management (2013 39 per cent among FPs and 39 per cent among non-FPs, in 2017 54 per cent among FPs and 33 per cent among non-FPs).
16. Sources: MTM - Interview with Cimeon Ellerton (2017); Digital R&D Fund for the Arts: Evaluation (2016); The Audience Agency: Arts Data Impact Research and Development Report (2015).
17. Sources: MTM - Interview with Andrew Burke (2017); Digital R&D Fund for the Arts: Evaluation (2016); London Sinfonietta: Steve Reich's Clapping Music Research and Development Report (2015).
18. Sources: MTM - Interview with Heidi Johnson (2017); Digital R&D Fund for the Arts: Evaluation (2016); Digital R&D Fund (Nesta, Arts Council England, AHRC) - NYMAZ: Connect:Resound, Research & Development Report (2015).
19. Prosper is a business advice programme run by Creative United in partnership with the Arts Marketing Association (AMA) and the Centre for Business in Society (CBiS at Coventry University), following an Arts Council England (ACE) award of £400,000.
20. Sources: MTM - interview with Adrian Davies (2017); Digital R&D Fund for the Arts: Evaluation (2016); Nottingham City Museums and Art Galleries: Riot 18:31@Nottingham Castle Research and Development Report (2015).
21. Sources: MTM - Interview with Zak Mensah (2017); Tom Fleming Creative Consultancy - Digital R&D Fund for the Arts: Evaluation (2015); Digital R&D Fund (Nesta, Arts Council England, AHRC) - Bristol Museums: iBeacons & Visitor Engagement, Research & Development Report (2015).



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