Digital R&D Fund for the Arts

HOME: Quality Metrics

Research & Development Report

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Digital R&D Fund for the Arts

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The foundations of this project draw inspiration from a project initiated in 2010 by the Department of Culture and the Arts in Western Australia, which commissioned the Technology Partner to work with arts and cultural organisations to develop a metrics system which uses a combination of self, peer and public assessments to capture the quality of cultural experiences.

Dave Moutrey (CEO of the Cornerhouse in Manchester, now HOME) approached ACE in 2012 to ask if they would be prepared to invest some money in supporting a group of arts/cultural organisations in England to develop a similar approach. The resulting further work with a consortium of cultural organisations in Manchester underlined both the scale of the opportunity and the possible benefits of this approach.

The vital insight of these two pieces of foundation work that preceded this Quality Metrics project was that the active involvement of the arts and cultural sector is fundamental to the creation of a credible and robust measurement framework for the quality of cultural experiences.

Without their input it was going to be difficult to build greater common language and currency about the value of the arts. The attraction to the cultural organisations in being asked to frame new metrics on quality was the opportunity to shape a set of quality metrics that more fully reflected their creative ambitions and intentions. Therefore from the outset this has been a sector-led project that has sought to create a standardized and aggregatable metric system measuring what the cultural sector believes are the key dimensions of quality.

Key Objectives and Research Questions

The opportunity created by the Digital R&D award was to allow the participating cultural organisations to use and refine the metrics over a more prolonged period and to allow all partners to conduct a preliminary assessment of whether the metrics and Culture Counts system have the potential to be an effective measurement and evaluation platform

The main proposition being tested in this Quality Metrics project is the value of a co-produced metric set and system of opinion-based data collection, including the triangulation of large-scale data on how cultural organisations,

their peers and the public assess the quality of cultural work and experiences, and the extent to which in turn the data allows Data Driven Decisions (DDD) to positively shape their cultural and commercial practices.

The Research Team also aimed to provide a critical understanding of the contexts, issues, conception and use of two important innovations in this project, i.e.:

- *Co-producing cultural value*: researching the broader context of peer review, co-production and evaluation of cultural performance management

- *Big data, better data?*: A critical examination of mechanisms for establishing and using big data sets in capturing cultural experiences, and driving data driven decisions / performance appraisal processes.

Results

Our analysis and reflections on the 'Quality Metrics' project are ongoing. However, some clear conclusions can be drawn.

The novel principle of collaboration and co-production to produce more meaningful data which contributes to a feedback loop for self-evaluation and decision-making is fully adopted by the group of cultural partners in this project, and ostensibly by the wider sector.[1]

There is clear interest in finding a scalable, cost-effective way of sharing question forms and processes for data collection which allow cultural organisations to benchmark their work with their peers. Furthermore there is policy value to arts funding bodies such as Arts Council England, in trialling quantitative metrics for quality assessment which would be more cost-effective than current peer assessment processes, and which would also avoid the messiness and perceived problems of subjectivity associated with qualitative data.

This sector 'buy-in' benefits from the scrutiny of a fully tested, robust framework which originated from a reputable consortium of cross-artform partners, working with highly experienced senior arts consultants with industry backgrounds and long track-records, and a technology team that

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[1] *Globally the approach is also gaining acceptance, with trials being supported by Arts Queensland, Arts New South Wales, and Arts Victoria in Australia, and being considered by the Canada Council for the Arts*

are located in Australia and who are undertaking parallel conversations and development work with Australian policy makers and organisations.

Furthermore the post-event survey mechanics of the 'metrics systems', including automated data reporting, avoid some of the problems associated with 'big data' use across the arts and cultural sector. The collation, harvesting and aggregation of 'big data' - including transactional box office data and social media data - requires specific skills, analytical tools and expertise which are currently lacking. They also require a paradigm shift in the ways in which data can be generated through different kinds of relationships with audiences and other stakeholders made possible by social media, and the implications for how analysis of this data can be used on the ground in the day-to-day management of organisations.   Although there are plans to support the triangulation of Culture Metrics with 'open' social media platforms in future development, currently the familiar methodologies of agreement scales for short post-event questions are arguably one of the key reasons the system has been so readily adopted.

What Next? Big Data and Transparency; sharing what on whose terms?

Where our project has raised bigger and unresolved questions concerns how any burgeoning data culture across the sector might take root, particularly in terms of clarity around how data might be used by different stakeholders.

Our key findings suggest that attempts to encourage a more fully developed data culture across the arts and cultural sector need to:

• Be very clear about which 'insights' are most valuable to cultural organisations that stem from big data, and how they can acquire those insights at low cost, and in ways consistent with their expertise. For a platform like Culture Counts, and others like it, this means facilitating data driven decision-making through ensuring insights are immediately accessible (for example through intelligent automated reporting) and allowing users to focus on interpreting results rather than on processing data.[2]

• Recognise that there are likely to be closed and open patterns of sharing data – in other words cultural organisations may choose to generate and

[2] See '*Arts Data Impact: Bridging the 'Reverential Gap': Tackling Data Driven Decision-making in Cultural Organisations*' Audience Agency presentation to British Museum Conference, 'What's Data Got To Do With Me'; June 5th 2015

share relevant raw data with close peers and similar organisations, but for more public sharing and discussion are likely to only want to share analyses of their big data with any relevant interpretive context provided

- Support the cultural sector to upscale its capacity for analysis (Silver 2012), improve the quality of the data itself and find ways in which its collation and visualisation make it meaningful for both frontline/technical coordination and strategic management use (Lilley, 2015) as part of continuing investment in new practices of experimentation, production and measurement in the areas of audience and business development (Gilmore, 2011; Mateos-Garcia, 2014).

One of the animating questions of this whole project has been whether the wider arts and cultural sector is willing to shift to a more developed data culture around how it measures the quality and impact of its work? And in turn whether the market demand for data analytical tools and insights in the arts and cultural space can be increased, sparking further growth and innovation in big data applications from a range of providers. Thanks to the work undertaken under this Digital R&D award we've taken some significant steps to getting closer to that answer to the benefit of both cultural value measurement, and to the wider market development and use of data applications across the arts and cultural sector.

Background

The Quality Metrics Team

The Quality Metrics Project Team is made up of the following partners:

Cultural Partner – Lead Organisation was Home, alongside the following cultural organisations – Bolton Coliseum; Bolton Octagon; Contact Theatre; Halle Concerts Society; Imperial War Museum; Lakeland Arts; Manchester Art Gallery; Manchester Jazz Festival; Manchester Literature Festival; Manchester Museum; Museum of Science and Industry; People United; Re:Bourne-New Adventures; Royal Exchange Theatre; Royal Opera House; Royal Shakespeare Company; 20 Stories High; Watershed; Whitworth Art Gallery)

Academic Partner – Abigail Gilmore, Kostas Arvanitis and Franzi Florack – Manchester University

Technology Partner – Culture Counts, represented by John Knell, Michael Chappell, and Catherine Bunting

1. The Quality Metrics Project: The central proposition

Imagine a scenario where arts and cultural organiastions were measuring the quality of their work using a standardised set of metrics that they themselves had shaped; were taking advantage of recent advances in mobile applications and web-served databases to gather that data and results in real-time; and were gathering feedback from their creative teams, their peers; their participants and their audiences against those standardised metrics through an integrated big data platform.

Imagine too that the resulting data was as relevant for cultural programming decisions as it was for marketing and audience development. And that the arts and cultural community began to have the self-confidence to share that data widely with each other, benchmarking with other cultural organisations, and staging richer conversations with investors, cultural partners and audiences about what they do.

These propositions, and bringing this scenario to life, define the Quality Metrics Project and the work we have been undertaking over the last twelve months.

The possible prize is to help build a new type of data culture across the cultural sector, in which arts and cultural organisations become more active partners in shaping the metrics they use, and are making much greater use of data insights around the quality of their work and the cultural experiences of their audiences and participants.

Delivering on that potential is going to take longer than the lifetime of this project and the publication deadline for this final report. But in this report we offer an interim analysis of what progress the Quality Metrics project has made towards those aims, and how the project needs to keep developing in the future, including the key questions for critical assessment and enquiry.

In this respect big ambitions raise important and demanding questions:

- Is this type of approach going to be welcomed by the arts and cultural sector and is it likely to gain widespread support and use by the sector over time?

- Do arts and cultural organisations find the resultant data useful and insightful (is 'big data, better data' in this sense?)? How should data of this kind be reported back to cultural organisations and what types of data analysis and representation will they find most valuable?

- How might this approach sit alongside other forms of qualitative and quantitative forms of evaluation?

- How would arts and cultural organisations like to see the development and use of this type of approach and data in the future?

1.2. The Foundations of the Quality Metrics Project

The foundations of this project draw inspiration from a project initiated in 2010 by the Department of Culture and the Arts in Western Australia, which commissioned the Technology Partner to work with arts and cultural organisations to develop a metrics system which uses a combination of self, peer and public assessments to capture the quality of cultural experiences. http://www.dca.wa.gov.au/research-hub/public-value/

Dave Moutrey (CEO of the Cornerhouse in Manchester, now HOME) approached ACE in 2012 to ask if they would be prepared to invest in supporting a group of arts/cultural organisations in England to develop a similar approach. The resulting further work with a consortium of cultural organisations in Manchester underlined both the scale of the opportunity and the possible benefits of this approach.
http://www.artscouncil.org.uk/what-we-do/research-and-data/quality-work/quality-metrics/quality-metrics-pilot/

1.3. The importance of co-production and an arts sector-led initiative

The vital insight of these two pieces of foundation work that preceded this Quality Metrics project was that the active involvement of the arts and cultural sector is fundamental to the creation of a credible and robust measurement framework for the quality of cultural experiences.

Without their input it was going to be difficult to build greater common language and currency about the value of the arts. The attraction to the cultural organisations in being asked to frame new metrics on quality was the opportunity to shape a set of quality metrics that more fully reflected their creative ambitions and intentions. Therefore from the outset this has been a sector-led project that has sought to create a standardized and aggregatable metric system measuring what the cultural sector believes are the key dimensions of quality. See Figures 1 and 2 below for a summary of the metrics that have been refined and tested within this Digital R&D project.

Core quality metrics: for self, peer and public assessment

Dimension	Metric Statement
Concept	'It was an interesting idea'
Presentation	'It was well produced and presented'
Distinctiveness	'It was different from things I've experienced before'
Rigour	'It was well thought through and put together'
Relevance	'It has something to say about the world in which we live'
Challenge	'It was thought provoking'
Captivation	'It was absorbing and held my attention'
Meaning	'It meant something to me personally'
Enthusiasm	'I would come to something like this again'
Local impact	'It is important that it's happening here'

Figure 1: Core Quality Metrics: for self,
peer and public assessment

Core quality metrics: self and peer assessment only

Dimension	Metric Statement
Risk	'The artists/curators really challenged themselves with this work'
Originality	'It was ground-breaking'
Excellence (national)	'It is amongst the best of its type in the UK'
Excellence (global)	'It is amongst the best of its type in the world'

Figure 2: Core Quality Metrics: self and
peer assessment only

The other key insight from the foundation work was that unless the quality metrics, the methods of collection, and the resulting data, are of powerful practical use to the arts sector, allowing cultural organisations to refine their cultural and commercial practices through better data driven decisions (DDD) –they will not gain currency or acceptance. More data needs to lead to more insight and greater value through its use over time. It was for these reasons

that the sector-led approach of the Big Data strand within the Digital R&D programme was so welcome.

1.4 What's at stake?

All of the Digital R&D projects are encouraged to think about why their projects are interesting or important to individual cultural organisations, audiences and participants and the wider arts and cultural sector. Making progress in the art of measuring cultural value, and this project, matters to all these stakeholders.

For individual cultural organisations this project matters because:

- If the Culture Counts platform proves able to gather real-time intrinsic impact data from artists, peers and the public it is possible to deliver comprehensive value analysis and reporting on a continuous basis in a way that could become high valuable to the everyday management of arts and cultural activity.

- It will challenge arts organisations to think more deeply about why they collect data, and for what reasons, and the extent to which big data is going to be an asset to them in their cultural stewardship and management. What might be the positive and negative consequences of a big data revolution across the arts and cultural sector, and is everyone ready for the shift?

- The value being created by the Culture Counts platform is not only the ability to collect large scale standardised data, allowing for self, peer and public triangulation, but also the possibility of crafting an automated reporting function that will nudge and embed data driven decision making across users in the arts and cultural sector. If we can achieve this successfully this is of course an outcome of particular interest to the sector and to the funders in this Digital R&D programme.

For audiences and participants in cultural activities, this project matters because:

- The metrics and Culture Counts platform creates a rigorous feedback mechanism that will afford the public more opportunity to express their views on the quality of their cultural experiences, allowing both the

public and the arts to tell a richer story about the wider public value of arts and cultural policy in the UK.

- It begins to give us insights into how this approach, and others, can tap into a desire on the part of audiences to engage more fully with cultural experiences, with new tools (immersive or real-time performance guides / navigation tools (app based) integrating with interfaces like Culture Counts offering audiences the opportunity to give feedback and commentary on participant or audience experience. Can this be done in ways that enrich the cultural experience?

For the wider sector, and its supporters and investors, the project matters because:

- The overarching aim of the approach is to create high volume, high velocity data on the quality of cultural experiences that will have high credibility and relevance to the arts and cultural sector, peers, publics, funders, and the policy and academic community.

- It provides a foundation to explore how best to create more engaged supporters and participants allowing new approaches to incentivise feedback, individual giving and crowd-sourced funding

- It has the potential to generate time-series data on audience and participant experiences that will be of value not just to arts and cultural organisations but for wider academic study and analysis.

The Project

2.1 Key Objectives and Research Questions

The opportunity created by the Digital R&D award was to allow the participating cultural organisations to use and refine the metrics over a more prolonged period and to allow all partners to assess whether the metrics and Culture Counts system have the potential to be an effective measurement and evaluation platform.

The main proposition being tested in the project is the value of a co-produced metric set and system of opinion-based data collection, including the triangulation of large-scale data on how cultural organisations, their peers and the public assess the quality of cultural work and experiences, and the extent to which in turn the data allows Data Driven Decisions (DDD) to positively shape their cultural and commercial practices.

The Research Team also aimed to provide a critical understanding of the contexts, issues, conception and use of two important innovations in this project, i.e.:

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- Big data, better data? : A critical examination of mechanisms for establishing and using big data sets in capturing cultural experiences, and driving data driven decisions / performance appraisal processes.

Reflecting these ambitions, the Quality Metrics project had four key objectives during the lifetime of this grant:

1   For the cultural organisations to continue to test and refine the quality metrics (see figure one below) at their events, with the aspiration that they would start to self-support their testing and evaluation activity rather than all of that activity involving the full support of Culture Counts, the technology partner. The commitment of the Quality Metrics Team is that we would support 60 test events from the grant award. At the time of writing 70 test events have taken place or are scheduled to do so.

2   For the survey interface (see Figure 3 below) and the Culture Counts dashboard (see Figure 4 below) – which is best thought of as a 'software as a service' product for the cultural organisations - to be user-tested and refined so that it would reflect user need and to be developed to a stage where by grant end the platform would allow large numbers of cultural organisations to use the system with minimal levels of support from the Culture Counts team. This required the technology partner to design the system with automated data and results reporting, and with full onboarding and help page support within the user interface.

3   For lessons and insights to be learnt from the process of the software build, and from the cultural organisations' experience of evaluating their events using the metrics and the dashboard, and in particular their ability to start using Culture Counts as a 'self-drive' system without significant support from the Technology Partner.

4   For the Research Partner team to undertake a critical review of the approach being adopted by the Quality Metrics project, and to offer their reflections on both the process, the data being produced, the cultural partners' use of the data, and the implications for the development of this type of big data approach.
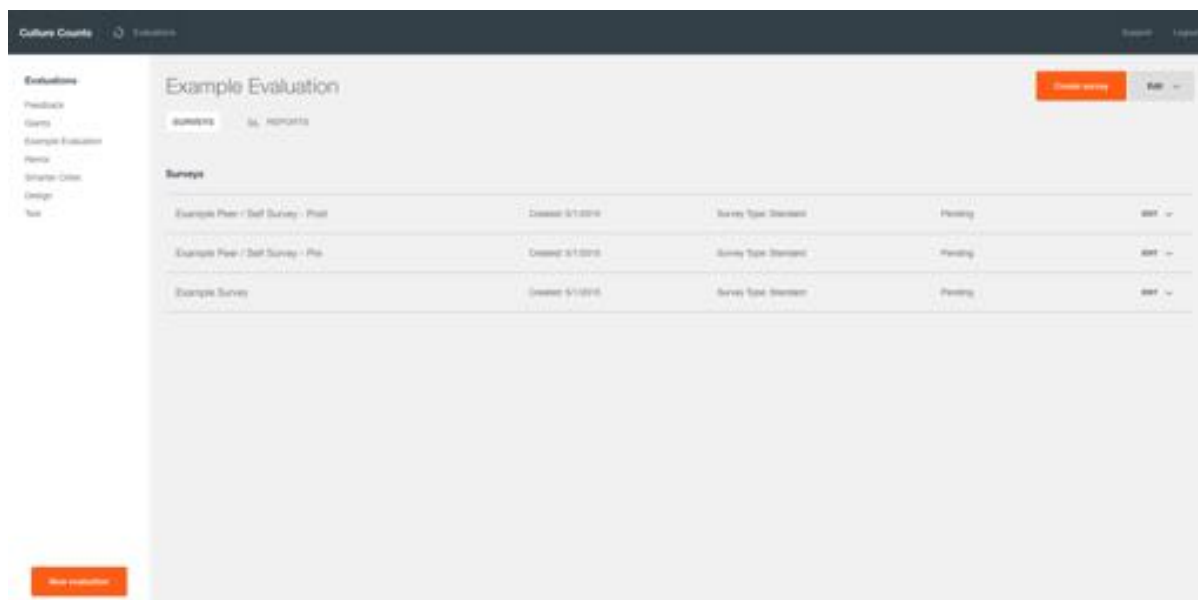
Figure 3 – Survey interface

Figure 4 – Culture Counts Dashboard

2.2. Partner roles and responsibilities

In order to achieve these objectives and examine the key questions the roles and responsibilities of the three partners were as follows.

The Cultural Partner

The arts and cultural organisations within the Cultural Partner consortium assigned Cornerhouse (now HOME) to act as the lead coordinating institution and they led on all contracting work with the Programme Partners (NESTA, ACE, AHRC), and with regard to the drafting of the individual sub-agreements struck with the Technology and Research Partners. David Moutrey and Isabelle Croissant from Cornerhouse (now HOME) were the accountable individuals for this work.

Nick Merriman, from Manchester Museum, was the designated lead for the Cultural Partner in terms of the regular project management meetings between the three partners, coordinating cultural partner inputs into the milestone reporting process, and for wider communications across the project.

The expectation of the 20 organisations that made up the Cultural Partner consortium is that they would try to attend quarterly meetings during the life of the project and commit to contributing to a target of 60 test events that they would work with the Technology partner to evaluate using the quality metrics and the Culture Counts system.

The Academic Partner

The Academic Partner's work was led by Abigail Gilmore, with support from Kostas Arvantitis, and Franzi Florack (the Research Associate on the project). Their role was to design, lead, and deliver all of the academic evaluation and research outputs on the project. They also committed to attending the regular smaller group project meetings with lead members from the other partners

The Technology Partner

The Technology Partner's work was led by John Knell and Catherine Bunting (in the UK) and Michael Chappell (in Australia). Their role was to be responsible for the overall management of the delivery of the project (not including the academic research elements) including software build and

development; servicing and supporting the cultural organisations involved in the testing process; and a wide range of analysis and reporting activities. They also committed to attending the smaller group project meetings with lead members from other partners

The wider marketing, promotional and dissemination activities for the project were a shared accountability across the project partners.

2.3. State of Collaboration before the project and implications for project delivery

The majority of the Cultural Partner organisations (13 out of the 20) and the Technology partner had been working together for some eighteen months before the project began, developing and testing the quality metrics. Additionally, a number of the cultural partner organisations had good and longstanding relationships with Abi Gilmore from the Research Partner team.

The strength of these pre-existing relationships has proved extremely important to the ongoing delivery of the project. The particular benefits have been:

- A strong core of organisations that are committed to the project and its goals, which was vital during the prolonged contract negotiation process

- A high level of trust across the project partners which has facilitated both joint working and delegated activity where possible

- A willingness to be flexible on how we have adapted to unforeseen challenges (delays in the software build) and opportunities (introducing new members to the Cultural Partner consortium; and due to a Cultural Partner initiative the ACE funded development of a new set of participatory metrics with a particular eye on their future use with children and young people (CYP).

2.4. Outputs

Our objectives and research questions have led us to produce five strands of distinct outputs from the project:

1   On-going refinements and additions to the quality metrics (including the new participatory metrics)

2   The refinement of the Culture Counts survey and software as a service interface and the insights we have gained in how to support the cultural organisations to use the automated dashboard

3   The production of a range of training and support materials (e.g. user manuals; training video and deck; in dashboard help and support pages) that can support the ongoing use and deployment of the metrics and the Culture Counts Dashboard.

4   The evaluative data generated by the test events undertaken by the cultural organisations.

5   A wide range of academic outputs including a fully comprehensive literature review; write-ups of the two workshops; moderated conversations with the critical friends group created for the project; and conference presentations and academic papers in development.

2.5. Key steps and processes

The Quality Metrics Project has had four key stages against a distinct timeline, as outlined below. It quickly became clear to the partners that Stage One was going to be vital to the project in terms of the respective partners firming up individual and shared understandings about how best to run the project in terms of planned activity; governance; the methodology for discussion and research enquiry; and how to maximise the reach and impact of the project, both in terms of securing additional support and promoting the project. The decisions made in the first stage had a decisive influence on how the project has been run, with the subsequent phases largely following the delivery plan set out in Stage One.

Stage One: June – September 2014

The opening stage required a wide range of foundation steps: recruiting additional members of the Quality Metrics consortium; establishing the way in which the group was going to work together; agreeing the project management structure for the group; agreeing the approach to test event selection and evaluation; mapping out the software specification and build; and securing additional funding to support ongoing metric development.

The most important things we did were to:

- Recruit a number of new arts and cultural organisations to the Cultural Partner Consortium (Matthew Bourne / New Adventures, People United, Royal Opera House; Royal Shakespeare Company; 20 Stories High; and Watershed)

- Successfully conduct all of the contract negotiations with the funding programme partners, and to set up heads of agreement between the lead Cultural Partner (Cornerhouse/ HOME), and the Technology Partner, Academic Partner, and the participating cultural organisations, clarifying roles, accountabilities and payment schedule details.

- The Research Team advertised for and hired a Research Associate, Franzi Florack, to work on the project; created their Critical Friends Group[3] to advise and support the project and contribute to moderated conversations on the key research questions; and completed plans for their first key Workshop exploring the research questions.

- Securing additional funding from Arts Council England, who provided a grant to Re:Bourne-New Adventures, to support the development of a new set of co-produced metrics to capture the quality of experience for participants in a cultural activity. The 'need' for a set of participatory metrics was identified by the Cultural Partners at the first full Consortium meeting in July 2014, as some of the cultural organisations within the project were planning participatory work during the lifetime of the NESTA grant award. The other benefit identified by the cultural organisations was that there was a natural 'Children and Young People' / participatory work cluster within the Cultural Partner Consortium (Contact, 20 Stories High, RSC, People United, Matthew Bourne / New Adventures) and that this provided for new sets of insights that could work for both adult and children and young people participants.

- The Technology Partner made the decision to undertake a complete rewrite of the underlying code base of the system and accelerate the development of the minimum viable product in terms of the Culture Counts software interface, leading them to deploy the Google Ventures Agile Prototyping methodology and bring forward user testing on the prototype interface (see Insights Chapter). This also led to the decision to back-load the testing programme in 2015, to allow more of the testing

[3] The members of that group were Cimeon Ellerton, Joeli Brearley, Dave O'Brien, Eleonora Belfiore, Ben Walmsley and Andrew Wilson

to be undertaken by the Cultural Organisations in self-supporting mode, using the automated Culture Counts system to undertake their evaluations with less support from the Technology Partner delivery team.

- To complete a first stage draft of the test event schedule for the opening months of the project and thereafter.

Stage 2: October – December 2014

This marked the first key delivery stage of the project, and the key activities included:

- The co-production of the participatory metrics and their early testing through the Culture Counts Platform at a number of test events run by the cultural organisations within the consortium (see for example the case study on the Matthew Bourne / New Adventures production of "Lord of the Flies." http://www.artscouncil.org.uk/advice-and-guidance/browse-advice-and-guidance/developing-participatory-metrics

- The creation of a website for the research element of the project, and for the use of Consortium Members and Critical Friends of the project, http://www.culturemetricsresearch.com/about-the-project/ and the scheduling of the critical enquiry Workshops exploring the project's research questions for January and March 2015.

Test event activity took place across a number of events. The rationale was to choose some test events that would add value to our understanding of the metrics and the system (not merely replicating test event activity that had taken place in earlier trials and other congruent activity taking place alongside the grant award activities (footnote here: For example during the Summer and early Autumn the Culture Counts team carried out an evaluation of the Cultural Programme running alongside the Commonwealth Games in Glasgow (see here for a full account of that evaluation using the quality metrics and the Culture Counts system – 'Glasgow 2014 Cultural Programme: Evaluating the Quality of Artist, Peer & Audience Experience' http://www.creativescotland.com/__data/assets/pdf_file/0017/31652/Evaluating-the-Quality-of-Artist,-Peer-and-Audience-Experience-.pdf)

In terms of the technical build work during this period the Technology Partner team built anew our API design including the provision of API keys for software industry partners allowing procedural access to our data in real-

time. We also transitioned to a 'web application' versus 'web page' paradigm of development. This means that more of the processing happens inside the browser resulting in more responsive software for the end user and reduced bandwidth times and sizes. It has also shown to be more efficient development environment meaning we are able to get new features and sections of the interface up and running more quickly. This fitted well with the Technology Partner's iterative approach to development as we can quickly prototype and test out new functionality with users.

Stage 3: January to March 2015

This was the first stage in the project where some planned activities were slowed by delays in the software build. The Technology Partner had hoped to produce by January the software interface at a level of automation such that the cultural organisations could begin to run test events through the Culture Counts dashboard themselves (what the Technology Partner described a shift from 'full-serve' to a 'self-serve' model.)

As a result of this delay (the software interface did not become shareable in this form until the end of April) the Partners had to make a number of decisions, most importantly:

- Shifting back the delivery of the test event schedule. In practical terms this meant that the 60 events to which the consortium were committed to complete ran through to the Autumn, after the official end of the grant award.

- In the meantime to continue to undertake test event activity that might produce new and novel insights (for example our evaluation of Royal Opera House's production of Swan Lake both in the auditorium at Covent Garden, and at cinema screenings in Manchester and Peterborough (see Results Chapter)/

- To continue to deepen our understanding of how best to design and frame the automated reporting function within the Culture Counts Dashboard (see Results Chapter).

Meanwhile, other programmed activities continued as planned including:

- Running all project and wider consortium meetings, at which we discussed test event evaluation findings, and decisions about the refinement and consolidation of the metrics

- The Academic Team facilitated two critical enquiry workshops in January and March exploring the key research questions, and a full write up of those workshops is available on the culture metrics research site - http://www.culturemetricsresearch.com/project-outcomes/). The Research team also ran and moderated conversations with the Critical Friends Group attached to the project, and published a summary of their literature review on the culture metrics research site.

In terms of the technical build during this period we continued to make improvements to the user interface in the light of ongoing feedback from the Cultural Partner organisations. For example, we began the development work for a sharing feature, allowing users to share surveys and evaluations between organisations, alongside template surveys. We refined the dashboard so that it can automate survey follow-ups after peers and self-respondents have attended an event. Subscribers will also be able to invite peers and self-respondents from inside the system with custom email messages. These peers and self-respondents will be saved into the system for future use by that organisation. The other point of focus in preparation for scaling use was the migration of our software stack to a new Singapore based server accompanied by comprehensive load testing against the current codebase. The underlying technology was also migrated from the monolithic Apache2 web server to an Nginx and uWSGI based solution.

After implement caching and other optimisations we established a conservative upper bound for the server at 9000 requests per minute with zero HTTP errors. This means our stack will comfortably scale on the existing deployment environment to the point where 30 individual question responses can be recorded per second worldwide, which averages at around 150 surveys per second.

Stage 4: April to July 2015

This final stage has focused on the rollout of the new Culture Counts software as a service interface and the production of support materials and user manuals that will allow the participating cultural organisations to run their own test event evaluations through the Culture Counts interface.

Key activities have included:

- Training sessions with the cultural organisations on how best to use the dashboard and manage the self, peer and public data collection processes for their planned events.

- The Cultural Organisations confirming their test event plans for the coming months, with the Quality Metrics partners and NESTA agreeing that test event activity would continue beyond the grant end period.

- The Research Partner continuing to engage with the cultural organisations on their use of the system and the resulting data, and conducting their analysis against the key research questions. This has included producing major conference papers for the AIMAC 2015 Conference in Marseille http://aimac2015-aix-marseille.univ-amu.fr/ and the Data Power Conference at the University of Sheffield http://www.sheffield.ac.uk/socstudies/datapower/programme

- The deployment of new features to the Culture Counts Dashboard including refinements to the automated reporting function, and the introduction of onboarding help (in the form of animated help support in the dashboard interface - see Figure 5 below.) A key element of our grant requirements was to ensure the system could sustain a free trial to ACE funded organisations at a point within 12 months of grant end. Ensuring the system has excellent systems of in-dashboard help is therefore an important priority. A system called 'onboarding' is being use, which involved displaying instructional pop ups on a user's first login, which illustrate and explain their major features, and recommend best practice for several elements including survey design.

- Culture Counts presented at a major British Museum conference in June 2015 entitled '*What's Data Got To Do With Me?'*.

- Catherine Bunting representing the Technology Partner, and Linsey Glen, Royal Opera House, representing the Cultural Partners, spoke about the Quality Metrics project at the A-M-A event in Birmingham in July, with Lindsey sharing the results of our evaluation of Swan Lake that took place at the auditorium at Covent Garden and at cinema screenings in Peterborough and Manchester.
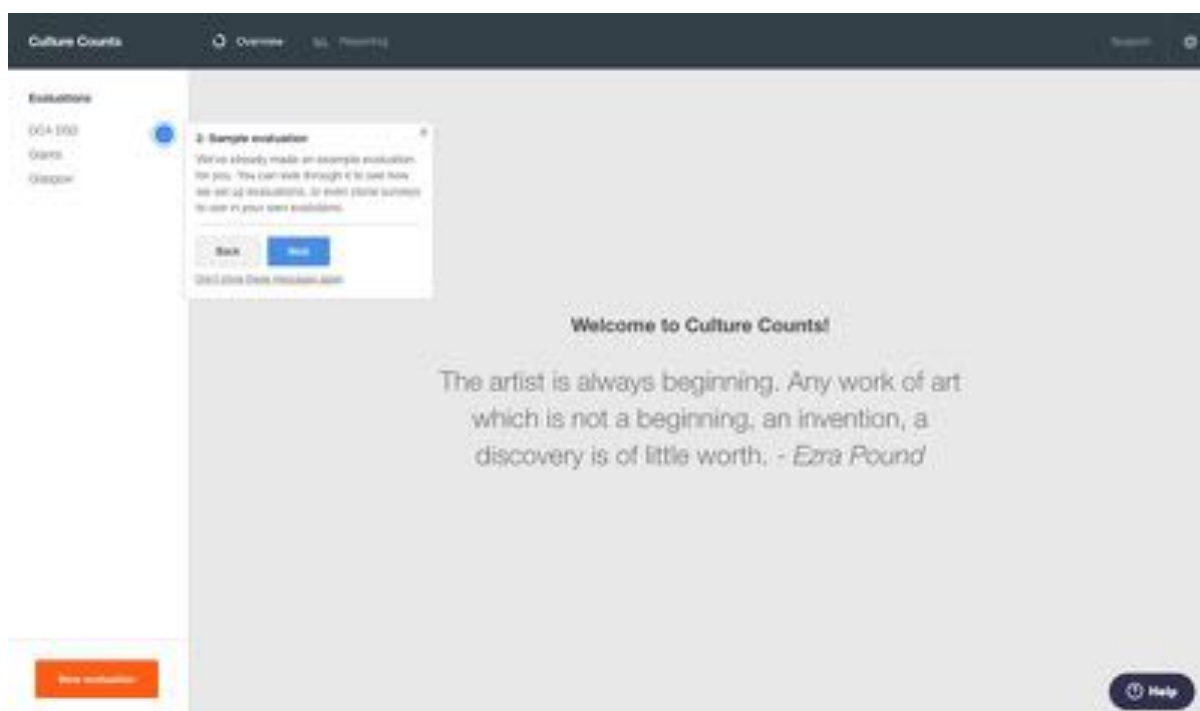
Figure 5 – Culture Counts Dashboard with
onboarding help

In terms of the technical build during this period, the survey interface and dashboard underwent several iterations of feature development beyond any grant award requirements, including preview mode, in-app peer and self-mailing system, advanced survey tools, a revamped survey builder and summary page, and simplification of user flow by using onboarding help.

Reporting was refined in the dashboard – providing users with the ability to get detailed results on their survey evaluations, including response rate, dimension averages, demographics, and peer, public and self-scores. The survey summary page was redesigned to include a live graph of the current dimension scores, and response count. All surveys can now be previewed directly from the survey builder, so that cultural organisations can ensure the surveys look and work as intended.

Users can now clone surveys, so surveys can easily be reused for other events, or shared surveys can be cloned. This also provides a simple and efficient way of sharing sophisticated example evaluations (or other templates) with users that they can clone for their own use. This is also a sharing model in place, where admin users can share evaluations on behalf of other users.

We largely completed the client side branding feature, enabling cultural organisations to insert their branded logos into any survey being delivered via electronic means.

Finally, several updates were made to CSV downloads in order to maximise the utility and readability of the raw data format. This will make it easier for users to export the raw data into analysis tools such as Microsoft Excel or SPSS.

Stage 5: August – November 2015 – activities that are planned to continue after official grant end date

The Quality Metrics Project is going to remain active for the rest of this calendar year:

- Test event activity will continue throughout the summer and autumn. The Cultural Partners agreed to invite other organisations into the process to begin to experience the metrics and the Culture Counts platform. At the time of writing 70 test events have taken place or are scheduled to do so (see Appendix A for the list of evaluated events). Culture Counts will continue to trial and test new improvements to the dashboard and interface through this period, and continue to use the Nesta consortium members, and other users in Australia and elsewhere, as beta testers of new features before these are pushed live to other new users.

- A particular focus for us will be project dissemination and communication activity. We have budgeted to run a Quality Metrics event in London on November 27th, which will discuss the questions explored in this project in some detail, and engage the arts and cultural sector in an open conversation about what next in terms of metrics, evaluations and big data. The Cultural Partners will review their budget to determine how best to support this event in terms of supporting data analysis, case studies or reports.

- The Academic partners will be finalising and submitting journal articles, including one to the International Journal of Arts Management. The Consortium members are also committed to exploring further opportunities to work together in an applied research sense, and whether further research council or other funding could be secured to

support the ongoing analysis of the data and the wider implications of this kind of approach across the arts.

- Culture Counts have secured a key note speech at The Level Summit in Brighton on October 6th - http://www.thelevelsummit.com/ - a major entertainment industry event that brings together which explores the essential business trends and market dynamics of live entertainment venues.

The other key element of activity will be for Culture Counts to work with the Programme Funders on how best to open up the Culture Counts service to a free trial to ACE funded users as per the terms of our grant award. Preliminary discussions with partners suggest that this will be best attempted the first half of 2016 once the process of engagement with additional users has been refined.

2.6. Risks – how were they managed and what did we not anticipate?

The key mechanism to manage risk has been candid and comprehensive reporting at the regular smaller group project meetings between the partners, alongside the larger consortium meetings. The rigour of the milestone reporting process instigated by the funding partners effectively created a live risk register by which to monitor our progress, and against which to judge alternative strategies and use of resources.

The anticipated risks that we encountered were:

***The length of time it took us to come through the contract negotiation process with the funding partners, and in turn o confirm suitable heads of agreement with the contracting parties* (Cultural, Research and Technology)**. This has meant that whilst we are writing this report towards the end date of the project, activity supported by the grant award will continue for at least three months after grant award end, and that inevitably some of the most important data analysis, narrative and dissemination activities will take place after this report has been written and submitted.

The delays in the build to the software as a service interface. One of the challenges set by our grant award conditions was developing the Culture

Counts system so that at project end we would be automated enough to be used at scale by a large number of users across the arts and cultural sector. As we worked through the implications of this requirement we made the decision to do a necessary rebuild of the underlying code base of the system, and to accelerate the development of the software as service dashboard to a minimum viable product stage. This led us to make changes to the testing schedule with the cultural organisations, and to how we staged activity.

Unfortunately, we underestimated the time that this process would take, and we ended up being some four months behind schedule with the build. This is not unusual in a software development process but it has meant that we are behind where we hoped to be in terms of test events completed by this stage. However, we are ahead of where we needed to be in terms of producing an automated software as a service interface.

The key risk we missed is the difficulty of keeping all partners equally engaged in a project during the inevitable lulls and periods of delay. Even if we'd known this in advance mitigation would have been difficult within the resource constraints of the project – but we would have run the evaluation schedule differently and the Technology Partner would have spent more one to one time with new members of the consortium at project initiation stage.

2.7. Resources

The resource management of the project has been straightforward. Each of the milestone points triggered allocations to the three participating partners. The Cultural Partners took the decision at the beginning of the project to 'carry' the large part of their budget as a contingency fund (over and above the allotted contingencies within the overall budget). This decision was based on the fact that we would be back-loading test event activity; that different test event evaluations were going to be more complex than others and may need to make a bigger claim on the budget to support their delivery; and that if possible we should retain some budgetary flexibility around downstream communications and dissemination activity.

Figure 6 provides a breakdown of the budget by project partner.

The Cultural Partners and the Technology Partner have, as expected, made significant in-kind contributions to the project. At grant application stage the Technology Partner estimated that we would make a £100K contribution in

kind. The cost of the staff time the Culture Counts team have had to expend to successfully deliver the project, including software development investment above and beyond our grant condition requirements, has comfortably exceeded that estimate. Similarly key members of the Cultural Partner team have had to devote considerable time and organisational resource to support the project that is not adequately compensated for by the pro-rata allowance across the 20 participating cultural organisations.

Figure 6: Budget Breakdown:

Cultural Partner   £45K

Research Partner   £53K

Technical Partner   £196K

Contingency   £6K

Total   £300K

Results

3.1. Our assessment of the key project questions and challenges

We offer some introductory observations on the state of play in terms of cultural value measurement, and our attempts to generate new insights and approaches; our overall assessment of this project's over-arching questions; and some fine lined detail on particular themes and on the key outcomes that have informed our analysis and assessment.

The cultural value measurement landscape

The debate about measurement of value across the cultural sector has achieved great prominence over the last two decades. There is now expansive literature about the art of measurement, from Gross Value Added (GVA) models; Social Return on Investment models; stated or revealed preference models; intrinsic value measurements including the debate about measuring artistic quality or vibrancy and the artistic experience; through to a wider range of applied practice and measurement in arts and culture interventions (for example arts and education, arts and health, and arts and wellbeing).

Both cultural organisations and funders have come under increasing pressure to give a full account of the value they create through their investments and activities. Some see this as a necessary act of public accountability, others as a source of creeping instrumentalism infecting the arts. For both sides of this argument, the most elusive element in the 'value' debate has been the ability to create robust, standardised measures around the quality of arts and cultural product and experiences. This is a major problem, and opportunity, given that producing high quality work and experiences is the raison d'etre of arts and cultural organisations.

Given all this interest in the measurement and representation of cultural value, this project has therefore been able to draw on burgeoning expert literature.[4] To help underpin this project the Research Partner team also

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[4] Important recent contributions include: O'Brien, D. (2010) *Measuring the value of culture: a report to the Department of Culture Media and Sport,*' DCMS; Bunting, C. (2010) '*Achieving Great Art for Everyone: A Review of research and literature to inform the Arts Council's 10-year strategic framework,*' Arts Council England; Bakhshi, H. (2009) '*Measuring Intrinsic Value – how to stop worrying and love economics*' Mission Models Money; Throsby, D. (2010) '*The Economics of Cultural Policy*' Cambridge University Press.

carried out their own critical review of this literature, and associated workshops, with a particular focus on data and data representation (http://www.culturemetricsresearch.com/about-the-project/

Despite these advances in understanding the measurement and representation of cultural value, until recent years there has been a lack of progress towards:

1   A standardised approach to metric statements and measurement

2   The full involvement of the cultural sector in developing those metrics.

3   Methods of data collection and automated analysis and reporting that have the capacity to produce bigger data sets and results at low cost and effort, and which can help build a more developed data culture across the cultural sector

4   Challenging the perceived difficulty in gathering and harnessing data in this form allied to data and evaluation expertise gaps across the cultural sector

5   A set of standardised quality metrics that could open up the possibility to aggregate impacts across similar institutions, art forms, funding programmes, geographies, time periods, or any other abstract characteristics.

This Quality Metrics project attempts to make progress on all these fronts, and fill some recognised 'gaps' in the policy and practice and cultural value measurement. Vital project and research questions for the team included:

• What were the existing levels of data generation use across the arts and cultural sector and what issues does that raise for the roll out and development of the metrics and a digital platform like Culture Counts?

• Is 'big data better data' when viewed from the perspective of the cultural sector? In other words if the cultural sector could scale the amount of data they are collecting on the impact of their work will this

Carnwarth, J.D. & Brown, A.S. (2014) *'Understanding the Value and Impacts of Cultural Experiences: A Literature Review'* Arts Council England

yield valuable and practical insights? Are they comfortable with this kind of data and how does it fit alongside other forms of qualitative and quantitative forms of evaluation?

- How might these new forms of cultural experience data be used by cultural organisations and how will they be regarded / used by supporters and investors in the arts?

- Is this type of approach going to be welcomed by the arts and cultural sector and is it likely to gain widespread support and use by the sector over time?

Overall Assessment

The 'Quality Metrics' project is still very much 'live' as we finalise this report and activity, analysis and reflection is ongoing. However, some clear interim conclusions can be drawn.

The novel principle of collaboration and co-production to produce more meaningful data which contributes to a feedback loop for self-evaluation and decision-making is fully adopted by the group of cultural partners in this project, and ostensibly by the wider sector.[5]

There is clear interest in finding a scalable, cost-effective way of sharing question forms and processes for data collection which allow cultural organisations to benchmark their work with their peers. Furthermore there is policy value to arts funding bodies such as Arts Council England, in trialling quantitative metrics for quality assessment which would be more cost-effective than current peer assessment processes, and which would also avoid the messiness and perceived problems of subjectivity associated with qualitative data.

This sector 'buy-in' benefits from the scrutiny of a fully tested, robust framework which originated from a reputable consortium of cross-artform partners, working with highly experienced senior arts consultants with industry backgrounds and long track-records, and a technology team that are located in Australia and who are undertaking parallel conversations and development work with Australian policy makers and organisations.

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[5] Globally the approach is also gaining acceptance, with trials being supported by Arts Queensland, Arts New South Wales, and Arts Victoria in Australia, and by the Canada Council for the Arts

Furthermore the post-event survey mechanics of the 'metrics systems', including automated data reporting, avoid some of the problems associated with 'big data' use across the arts and cultural sector. The collation, harvesting and aggregation of 'big data' - including transactional box office data and social media data - requires specific skills, analytical tools and expertise which are currently lacking. They also require a paradigm shift in the ways in which data can be generated through different kinds of relationships with audiences and other stakeholders made possible by social media, and the implications for how analysis of this data can be used on the ground in the day-to-day management of organisations.   Although there are plans to support the triangulation of Culture Metrics with 'open' social media platforms in future development, currently the familiar methodologies of agreement scales for short post-event questions are arguably one of the key reasons the system has been so readily adopted.

3.2. Bumps in the road – Big Data and Transparency; sharing what on whose terms?

Where our project has raised bigger and unresolved questions concerns how any burgeoning data culture across the sector, particularly in terms of clarity around how data might be used by different stakeholders. At the '*Bigger Data, Better Data*?' workshop facilitated by the Research Partner, a delegation of thirty academics, cultural partners and arts policy representatives from all over the UK explored questions over the value and use of big data. This discussion focussed on the types of data organisations currently collect, analyse and use.

The discussion revealed both ambivalence and uncertainty. Organisations felt they were obliged to gather audience data in order to advocate or 'justify' their practice to funders and policy makers, but there was little understanding of what happened to the data once it was submitted to those who requested it. Although there was a range of ways in which data was collected for their self-evaluation, only few knew how this data was then used within their organisations and whether it had an impact on the overall culture of their institution. It seemed that attendees mostly had an understanding of how to gather data, but actual analysis was still a difficult endeavour and there are noticeable skills gaps in the sector.

The recent UKCES research report on skills and performance challenges for the digital and creative sector identifies, the significant trends for developing big data and analytics will highlight these shortages, which are not just for up-skilling and re-skilling for specialist roles but also in management of co-workers, who will need to work alongside new 'digital natives' with very different skills (UKCES, 2015: 11).

To date smaller organisations in particular have been reluctant to employ external help to increase their data gathering and analysis capacity. It was unclear to them how an extra investment might lead to a bigger or more diverse audience. Cost was one deterrent to 'up-skilling' however there were also other forms of resistance, not least the concern that particular types of instrumental performance metrics might carry more weight in influencing artistic and curation practices than metrics (like the Quality Metrics) that already reflect creative, artist-led practice.

The issue of scale in relation to capacity to embed Quality Metrics within day-to-day performance evaluation has also been raised in interviews with cultural partners. The larger the organisation, the further the potential disconnect between the main users of the data – senior management teams and 'tier 1' managers – and those who may be responsible for coordinating and doing the data collection. There is also often a lack of interaction between departments in a cultural organisation with regards to the use of data This can lead to time lags and miscommunications which has led to lack of take-up of opportunity to conduct further test events. Conversely for smaller organisations the proximity of the coordination activities and the analysis and strategic implementation has helped produce greater buy-in and agility.

Social media engagement and analytics were practiced by the attending organisations, although the data from networking sites such as Twitter and Facebook are considered different: for some it was difficult to judge whether audience responses via social media are as 'objective' or 'genuine' articulations of quality as formally collected data through audience surveys. For example, Twitter followers might tweet something positive, so that the cultural organisation would re-post their feedback and recognise their association with the venue or company.

Turning to the question of 'open data', although cultural organisations supported the democratisation of data in principle, they were worried about

the ways their data would be (ab)used by others, suspecting that the narrative and culture or their organisation might not be visible via sterile numbers. Although many organisations welcomed to idea of benchmarking their success with others, one emerging proposal is that this could be done via the sharing of analysis rather than the raw data itself, thus allowing organisations to continue to shape and 'tell their own quality stories.'

Again, the interviews with cultural partners confirmed that although there is willingness to benchmark quality and performance with others in principle, this is rare in practice, and only with a high level of qualification as to who those others comprise and on a more 'organic', less formal basis. So comparison between organisations only happens in cluster groups (such as museums or jazz festivals), but there is little to no formal process. Apart from Quality Metrics, organisations do not create shared metrics or outcomes with peers, even when co-produced events or projects take place.

This suggests that attempts to encourage a more fully developed data culture across the arts and cultural sector need to:

- Be very clear about which 'insights' are most valuable to cultural organisations that stem from big data, and how they can acquire those insights at low cost, and in ways consistent with their expertise. For a platform like Culture Counts, and others like it, this means facilitating data driven decision-making through ensuring insights are immediately accessible (for example through intelligent automated reporting) and allowing users to focus on interpreting results rather than on processing data.[6]

- Recognise that there are likely to be closed and open patterns of sharing data – in other words cultural organisations may choose to generate and share relevant raw data with close peers and similar organisations, but for more public sharing and discussion are likely to only want to share analyses of their big data with any relevant interpretive context provided

- Support the cultural sector to upscale its capacity for analysis (Silver 2012), improve the quality of the data itself and find ways in which its collation and visualisation make it meaningful for both

[6] See '*Arts Data Impact: Bridging the 'Reverential Gap': Tackling Data Driven Decision-making in Cultural Organisations*' Audience Agency presentation to British Museum Conference, 'What's Data Got To Do With Me'; June 5th 2015

frontline/technical coordination and strategic management use (Lilley, 2015) as part of continuing investment in new practices of experimentation, production and measurement in the areas of audience and business development (Gilmore, 2011; Mateos-Garcia, 2014).

We return to these issues in our discussion of additional key themes and outcomes below.

3.3. More Bumps in the Road: A Sector Ready to Jump Into Big Data?

One of the aims of the whole Digital R&D project, including this project, is to build tools and understandings that will encourage the growth of a data culture across the arts and cultural sector, and more data driven decision making. As we have progressed this project, the three partners have obviously formed a view about the current state of play across the sector in terms of its data culture, and its readiness to adopt big data approaches.

As with all new phenomena 'big data' has spawned a definitional debate. For the purposes of this project, and the application of the term to the arts and cultural sector, big data affordances have particular consequence for four main areas: 'data generation, data acquisition, data storage, and data analysis' (Chen, M.; Mao, S. and Liu, Y. (2014.171) '*Big Data: A Survey*:' Mobile Networks and Applications 19 (2) p.171-209).

Most cultural organisations do not actually have enough data to call it big, and cultural managers and participants often lack the technical expertise for analysis (Mateos-Garcia 2014).

To date the cultural sector has tended to interact with 'big data' in two ways. Firstly, in marketing activities which deploy social media as PR and marketing tools. Like other sectors, arts organisations understand the new 'reach' which social media affords them in developing customer relationships and extending conversations and awareness of their work. As their use of online marketing through social media increases, so have the measures and systems for appraising their impact. New methods are being developed to take into account the nuances and agency of bigger data – for example, in understanding the meanings of Facebook 'likes' and in visualising the relationships articulated in the data (Evans, 2012; Hanna et al, 2011).

Secondly, organisations 'open up' their data to re-purpose and create new use value through platforms such as Culture Hack which provide an archive of open source arts and cultural data and encourage people to mine and use for new functions, for example to develop prototypes of electronic software. Cultural organisations are invited to submit their data and receive a 'fast-track development programme that encourages them to understand their data and audiences in new ways' (Culture Hack 2015). This type of activity and approach remains a minority pursuit across the arts and cultural sector.

Data on audiences and outputs from arts projects and programmes, gathered by funders and organisations in a climate of evidence-based policy and returns-based funding, is a potential source of big data / open data yet to be tapped, however. The data being generated through the Quality Metrics and platform like Culture Counts could be shared, analysed and benchmarked against. Arts marketing support agencies, such as the Audience Agency, are beginning to find ways to open up data through initiatives such as the Audience Finder[7], and the Local Profiling Tool of the Culture and Sport Evidence initiative, funded by the Department for Culture, Media and Sport, offers published data organised by local area on investment, participation and demographics[8]. The wealth of data collected and generated on arts audiences for public policy, often produced through publicly funded research, remains an underused resource.

How steep is the gradient in getting the arts and cultural sector to take up these opportunities at scale?

Analytical tools and methods using big data are only gradually being adopted and invested in by the sector: a recent survey of arts organisations in the UK found a group of super-users, or 'cultural digerati' comprising 10% of their survey respondents, who were more proficient at data management and data-driven marketing using digital media than the other organisations (Nesta 2014). The survey finds the same group are also more practised in using data in their digital creative output, and reap more positive impact and financial returns on their use of digital technologies.

The Technology Partner has worked with nearly 150 cultural organisations over the last twelve months, and in both the UK and Australia a similar pattern of big data readiness was observed. The Technology Partner makes

[7] http://audiencefinder.org/
[8] https://www.gov.uk/case-programme-local-tools-sport-and-culture-and-heritage

no claim for the representativeness of these estimates in terms of their application to the whole arts and cultural sector in the UK (they are not based on a statistical analysis using a representative sampling frame), but we offer them up as a set of snapshot observations about current data culture across the arts and cultural sector. Broadly speaking these organisations fall into three segments in the following approximate proportions:

- **Data shy** – 80% of all cultural organisations. This group are spending very little, or in some cases nothing, on the formal and rigorous evaluation of key aspects of quality. This group would not take out a Culture Counts subscription without subsidy.

- **Data ready** – 15% of all cultural organisations. This group are spending modest but non marginal amounts of money on evaluation activity (estimated at between £3 and £10K annually), largely to meet funder expectations around grant reporting.

- **Data driven** – 5% of all cultural organisations. Some of this group are already spending significant amounts of money on evaluation activity (between £15 and £45K annually). For example one Major Partner Museum we interviewed about their evaluation budget is spending £45K annually. This group are already data driven in their creative and management practices.

Unless we can rise to the challenges we identified above in building relevant tools and big data approaches, it is going to take some time to move mindsets and motivations across the large 'data shy' cohort.

The other fledging conclusion we draw is that the size of an organisation is not necessarily an accurate predictor of where they sit on this spectrum of data readiness. Whilst it is broadly true that the larger the organisation the more likely they are to have developed data collection and analytical capacity, smaller organisations can be equally data driven, and indeed hungry for analytical insight.

3.4. Widening the scope of audience feedback as a route to *'Elongating and Enhancing the Cultural Experience'*

Our interviews are suggesting that (despite the under-capacity and skills gaps in the sector identified above) organisations regularly triangulate data, and expect to use Culture Metrics in conjunction with other audience profiling and box office data. They desire a more integrated approach which can help them to embed the metrics into their evaluative practice, but are not yet entirely clear on how they will do this. Current practices to audience research which provide feedback on the feelings and satisfaction of audiences vary, from small-scale qualitative observations (for example from front-line staff) to more comprehensive exercises delivered through box office and CRM systems. However across the board more opportunities for systematising and broadening audience feedback mechanisms was welcomed.

A key set of results gained through the Research Workshops concerned the different kinds of data cultural organisations were using to judge quality, and the extent to which the public like to give cultural organisations this kind of feedback and in what way. These findings are discussed in more detail here (www.culturemetricsresearch.com)

The workshop underlined the potential opportunity the cultural sector have to tap into an untapped demand in terms of the desire of audiences to give feedback, and the importance of feedback mechanisms evolving in ways that, in Dr Ben Walmsley's memorable phrase in the session, *'elongate and enhance'* the cultural experience of both consumers and producers. If the process of giving feedback is a positive experience by audience members the process of incentivising audiences to do so, and making it part of their everyday cultural consumption, becomes much easier.

The cultural organisations and critical friends involved in this discussion emphasised that exploiting this opportunity is going to involve a widening of the feedback mechanisms deployed alongside the integration of feedback from social media and other channels.

For example:

- Any post event survey method is going to best combined with feedback from other forms, including both more in-depth qualitative feedback

mechanisms, and emerging sensorial feedback mechanisms. Different contexts may call for different combinations of method.

- The ongoing importance of 'voluntary' feedback, which the audience produce in their own time and where they are using their 'own' voice will remain a reliable source of insight and data.

The implication is that we might be about to witness across the arts and cultural sector the more ubiquitous use of different types of data collection to identify the quality of different types of arts experiences, across different art forms. The challenge is to ensure that cultural organisations make the right mixed method choices for capturing the type and range of value they are interested in measuring. As one of the Academic Partner's critical friends commented, value is this sense is best understood as '*a series of possible 'measures' against which both the intention of the activity and the experience of the audience can be understood.'*

3.5. Data Driven Decision Making & The Art of the Algorithm

One of the vital elements of the Culture Counts dashboard is the automated reporting function, designed to deliver representations of the data (in bar charts etc.) in real time to the particular user (in addition to allowing the cultural organisation to download the data into an excel / CSV file). See Figure 7 below for how the automated reporting function appears in the Culture Counts dashboard.
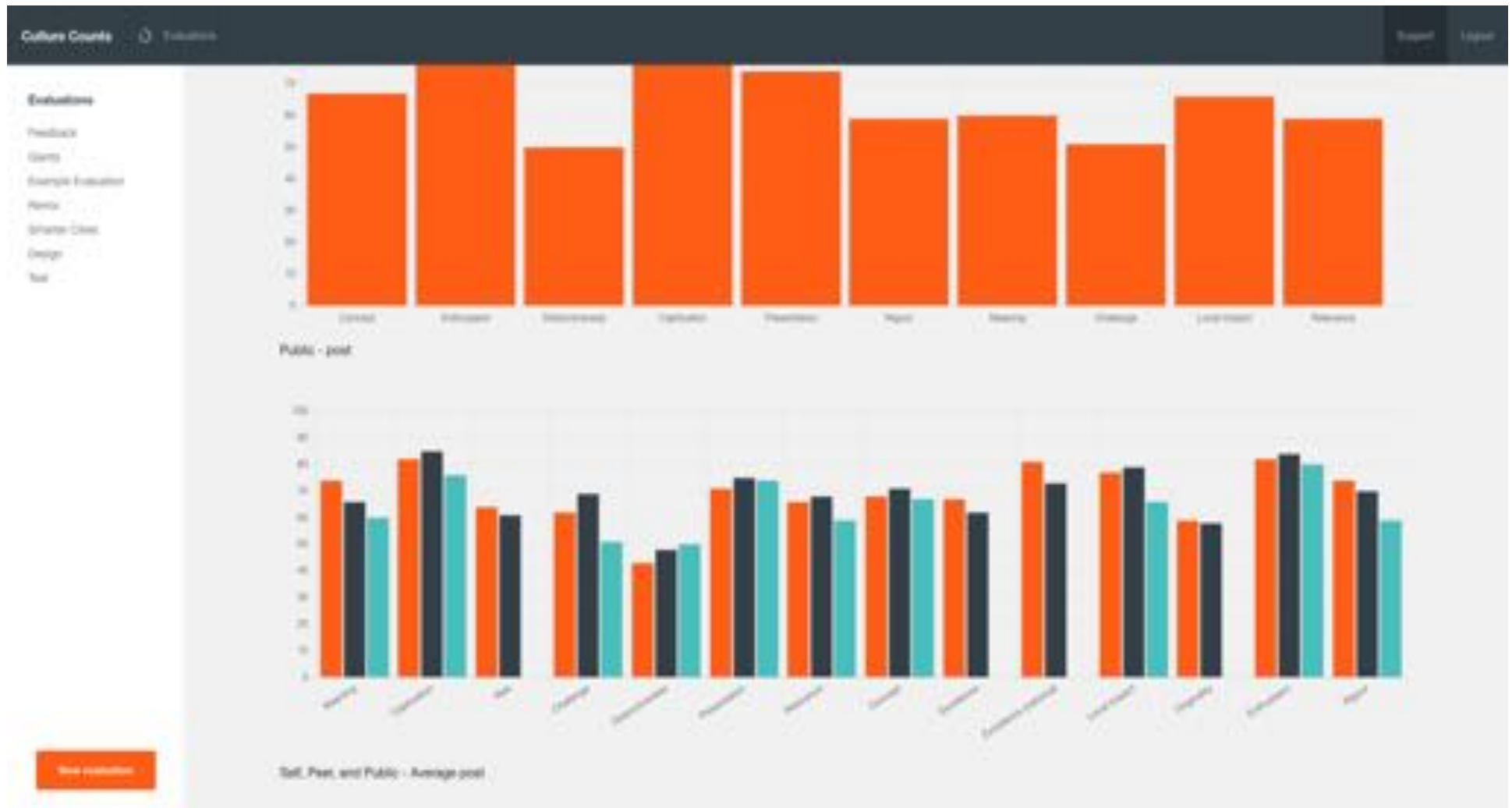
Figure 7 – Culture Counts Reporting Dashboard

As we have reported evaluation results back to cultural organisations, and observed patterns in the resulting data, one of the key outcomes of the project is the realisation that the design and interface of the automated reporting function is not only vital to the functionality of the system, and the perceived value of the service to users, but perhaps more importantly to encouraging and embedding data driven decisions within a cultural organisation using the Culture Counts platform.

Cultural organisations need to be seduced and intrigued by the data as a first stage. The second stage will be for them to automatically start using the data in their reflective and planning processes (spanning creative, marketing, education and executive functions) as this will lead to more data driven decision making across the whole arts and cultural sector.

For the Technology partner, this creates the imperative to build a cluster of algorithms that will automatically report data (depending on results) that will intrigue the user and trigger reflection on their part. As we have worked with cultural organsations discussing their results with them and how they have used the data, it is clear that the more interesting, and unusual findings are when:

- Peer pre-event scores are lower than their post event scores – i.e. the performance significantly surpassed peer's expectations (in our experience thus far the more normal pattern is in the other direction).

- Where there are high standard deviations reported for an individual dimension response, signifying the audience were divided on that measure of experience.

- Where self assessors are consistently over-estimating likely public and peer scores (suggesting that their expectations in terms of creative intention are significantly out of alignment with peer and public response).

The relevance and accessibility of these algorithms, and resulting forms of data representation, will be particularly important for those cultural organisations with lower levels of data analysis and interpretation skills. There is a 'responsibility' issue here for Culture Counts as a service provider, both in the design of the algorithms and the supply of supporting / training

materials to users, in terms of not encouraging users to make spurious correlation and causation interpretations.

Part of the overarching ambition is to create a data dashboard that allows users to assess the 'quality of artistic leadership' in their organisation, which was a prime motivator of the original Manchester Metrics group of organisations in developing the quality of cultural experience metrics and other metrics concerning broader reach and impact. Their presumption, which we share, is that organisations (self-assessors) that can consistently and accurately predict the reception of their cultural offer against their creative intentions are more likely to be successful both artistically and commercially.

Importantly the value of the system to the user will increase with use and over time. Once a user has been using the system for some time Culture Counts will also be able to build in longitudinal tracking and algorithms to further prompt and enhance the reflection process on how far artistic intentions are being met and encourage data driven decisions within the organisations using the system.

3.6. The paradox of adoption

'One event is interesting, after two or three you start to see a trend'

Jeanette Edgar, Lakeland Arts

In theory at least, as with other big data applications, the more data points an organisation starts to generate over a given period, both in terms of the range of events and audiences evaluated using the quality metrics, the more insightful point of comparison and analysis across the data will be.

Therefore the adoption paradox is how to help potential users understand the value of the data and approach if they are unwilling to commit to a trial of the metrics and the Culture Counts platform.

Lakeland Arts are one of the few consortium members who have carried out three evaluations during the lifetime of the grant award, and their experience is particularly interesting as to whether more data points across different events opens up new insights, or new ways of thinking about using the resulting data and planning future evaluations.

Lakeland Arts

Lakeland Arts is one of the most significant arts and heritage organisations in the North of England with a national and international reputation for the quality of its historic buildings, museum and gallery collections and programming. It has a diverse portfolio of attractions: Abbot Hall Art Gallery and the Museum of Lakeland Life & Industry in Kendal, Blackwell The Arts & Crafts House and the new Windermere Jetty in Bowness. Abbot Hall and Blackwell are Grade 1 Listed Buildings

Lakeland Arts have evaluated three events using the Quality Metrics, The Radev Collection http://www.abbothall.org.uk/exhibitions/radev-collection-bloomsbury-beyond , The Nuisance of Landscape (a retrospective of Grizedale Arts) https://www.abbothall.org.uk/exhibitions/nuisance-landscape-grizedale-sequel ; and Emilie Taylor (a new ceramic artist) http://www.blackwell.org.uk/exhibitions/emilie-taylor

Lakeland Arts deliberately choose to evaluate three very different events- hosted at one of their gallery spaces (Abbott Hall) and at Blackwell (their arts and crafts house). They welcomed the opportunity to participate in this work as they wanted to see whether this type of evaluation approach could support their audience development strategy, and because their volunteers administering the survey welcomed its brevity and ease of completion.

The events ranged from what Lakeland Arts described as a 'typical, good quality exhibition with Lakeland Arts' typical core audience' (Radev Collection; an exhibition of a private collection based around the Bloomsbury Set, with works by Vanessa Bell amongst others), through to two more challenging exhibitions featuring Grizedale Arts and Emilie Taylor.

After their first evaluation – Radev Collection – Jeanette Edgar, Director of Marketing and Communications at Lakeland Arts commented that:

> 'The approach showed us straight away the value of the self, peer
> and public evaluation process – it made us focus on explaining what
> we really thought this exhibition was aiming to achieve and why.
> We weren't particularly challenged by the results (they were what
> we expected), but we were encouraged by public scores for the
> local impact question - 'it's important it's happening here' – both

because of the high scores and because that question really engaged our audience.'

Figure 8 below shows the public scores for the three exhibitions. The peer results for all of these three shows were consistently excellent.
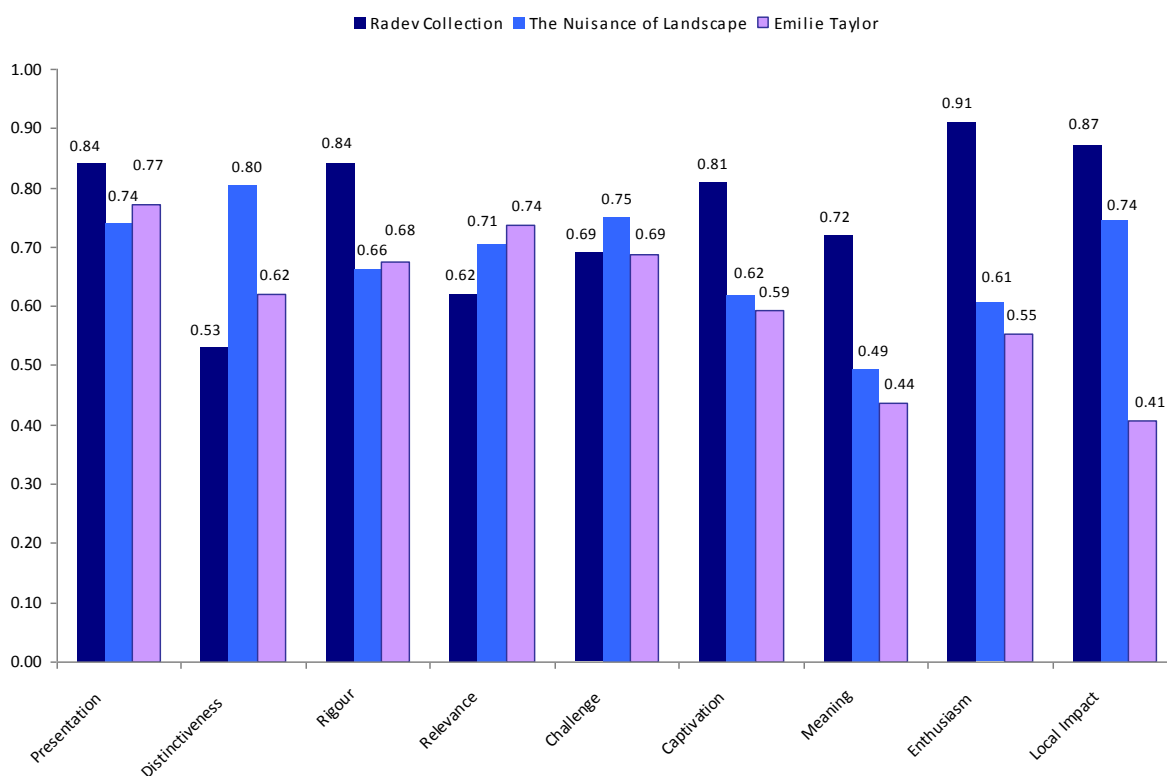
■ Radev Collection   ■ The Nuisance of Landscape   ■ Emilie Taylor

Figure 8 – Lakeland Arts – public scores across their three exhibitions

The Grizedale Arts retrospective was a completely different type of exhibition: a retrospective of Grizedale Arts both in terms of their creative processes and their work – a bold, striking and challenging exhibition: '*bright, noisy, brash, which completely transformed the look and feel of the galleries'*. Lakeland Arts anticipated it would be challenging for their audiences and that was reflected in the results, which also made the Lakeland Arts team realise that their interpretation wasn't as good as it could have been for the exhibition.

The Lakeland Arts team then evaluated a new piece of work by Emilie Taylor, a young ceramicist, exhibited at Blackwell, a nationally important arts and craft house. Lakeland Arts have a commitment to new artists and the work by Emilie Taylor was a challenging, socially engaged piece.

The Blackwell exhibition scored less well than the other two exhibitions – but the Lakeland Arts team were not concerned by this outcome. As Jeanette Edgar comments:

'It told us the interpretation could have been better and it was interesting that it scored very low 'local impact' scores – it's important it's happening here' – as we want to bring more of this type of work to our venues. The results are not telling us – don't do contemporary art in Blackwell - but rather we need to do something like this again, evaluate it, and provide more interpretation about why we're doing work of this kind in this place. Lower scores doesn't mean you've failed, it's about how we can improve each time we do it. So this type of evaluation approach encourages us to think through how we make this type of exhibition work well for us and our audiences at our venues, and set ourselves targets and aspirations for when we do this type of work again.'

As Helen Watson, Director of Exhibitions and Collections at Lakeland Arts commented,

'The experience has highlighted that curators will talk at length to one another, but when it comes to putting the exhibition on the wall there has been a bit of a hole – in terms of getting across more clearly why we are supporting a piece of work like Emilie Taylor. The results made us talk a lot about why it was received like it was – for example interpretation wise we didn't say we support young and emerging artists in the interpretation, even though that is at heart of what we do.'

The interesting dynamic about the Lakeland Arts experience, is how far the coming together of marketing and commercial staff, working with the curatorial staff in interpreting the results, and triangulating them with existing data and organisational knowledge, is something that will be repeated consistently with other arts organisations.

Lakeland Arts are keen to try and make sure that each exhibition they do includes the generation of this type of evaluative data. As Jeanette Edgar noted;

> 'This will be really working for us when we hear all the curators talking about the results and asking for it as an evaluation mechanism because they want particular insights into particular exhibitions.'

Looking ahead in terms of adoption and use patterns of the quality metrics, the only real test of whether Lakeland's Arts experience will be a common one across the arts and cultural sector will be wide-scale take up and use of the metrics. Thus far in all of the pilot work in England, Scotland and Australia the consistent experience is that cultural organisations are attracted to the approach, and want to do it again after an initial evaluative experience. Future questions for research and evaluation of the metrics will be the extent to which cultural organisations find new and insightful ways of using the metrics over time, creating greater depth of insight into their creative practices and audience development activity.

3.7. More data will encourage more analysis particularly amongst the data ready

More data does open up new possibilities for analysis and understanding – it is likely to nudge data ready / data driven organisations into more detailed types of enquiry.

The increase in digital streaming and live-casting of performances and events to cinemas as a new medium for distribution made possible through digital technologies poses a new and enticing research problem to the question of what provides quality of experience for the performing arts, when delivered through digital media (see Gilmore et al, AIMAC, 2015).

The Quality Metrics and Culture Counts platform allowed us to explore these questions working with one of the cultural partners, the Royal Opera House. We conducted an evaluation (self, peer and public assessment) of two versions of Swan Lake: the live theatre performance at Covent Garden, and two screenings in cinemas in Manchester and Peterborough. The Royal Opera House assessors carried out *prior* and *post* assessments of the theatre and cinema performances. Two peer reviewers each provided a post-event assessment of the theatre and cinema performances. Audience data was collected by interviewers in cinemas in Manchester and Peterborough on 17th March and at the Royal Opera House on March 18th. [See Figure 9

below for breakdown of the total number of peer and public responses across the venues, and the number of corresponding pre and post event evaluations by ROH self-assessors]

	Self Before	Self After	Peer	Public	Total
Theatre	3	3	2	83	91
Cinema	3	3	2	73	81
Total	6	6	4	156	172

Figure 9: Survey respondents for ROH's
Swan Lake evaluation across three venues

By using the standardised quality metrics we were able to explore whether live and screened performances offer a different kind of audience experience.

Figure 10 below summarise average self, peer and public post event scores for the Swan Lake theatre performance and Figure 11 for the cinema performances.

Audience ratings for both theatre and cinema performances are mostly very positive, and follow a pattern we often see in performing arts events:

- high scores for Concept, Presentation, Rigour, Captivation and Enthusiasm

- lower scores for the more personal, subjective measures of Relevance, Challenge and Meaning

- moderate scores for Distinctiveness – perhaps unsurprisingly given that many audience members would have been familiar with Swan Lake.

There is close alignment between self and public scores, suggesting that Royal Opera House staff have a good understanding of how people experience their work.

Peer reviews are extremely positive and overall this production of Swan Lake offered a beautiful and inspiring aesthetic and emotional experience.
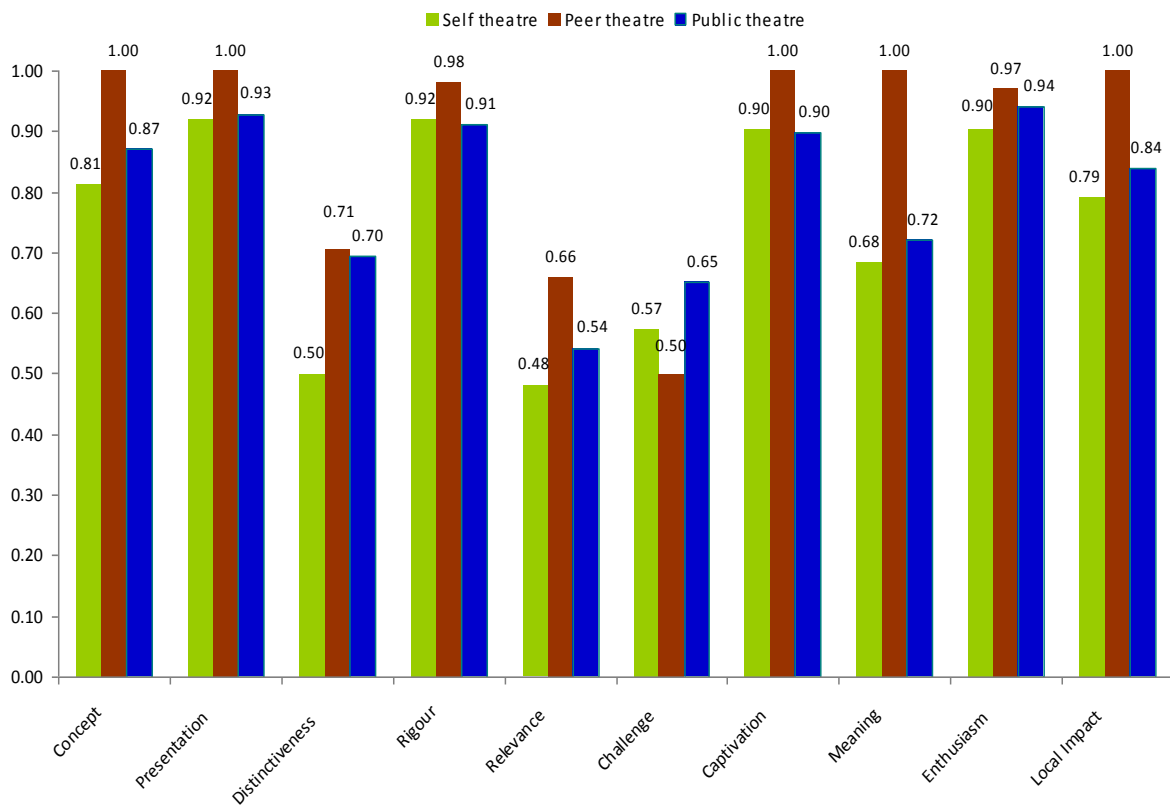

Figure 10 – Average self, peer and public scores for Swan Lake at the ROH Covent Garden
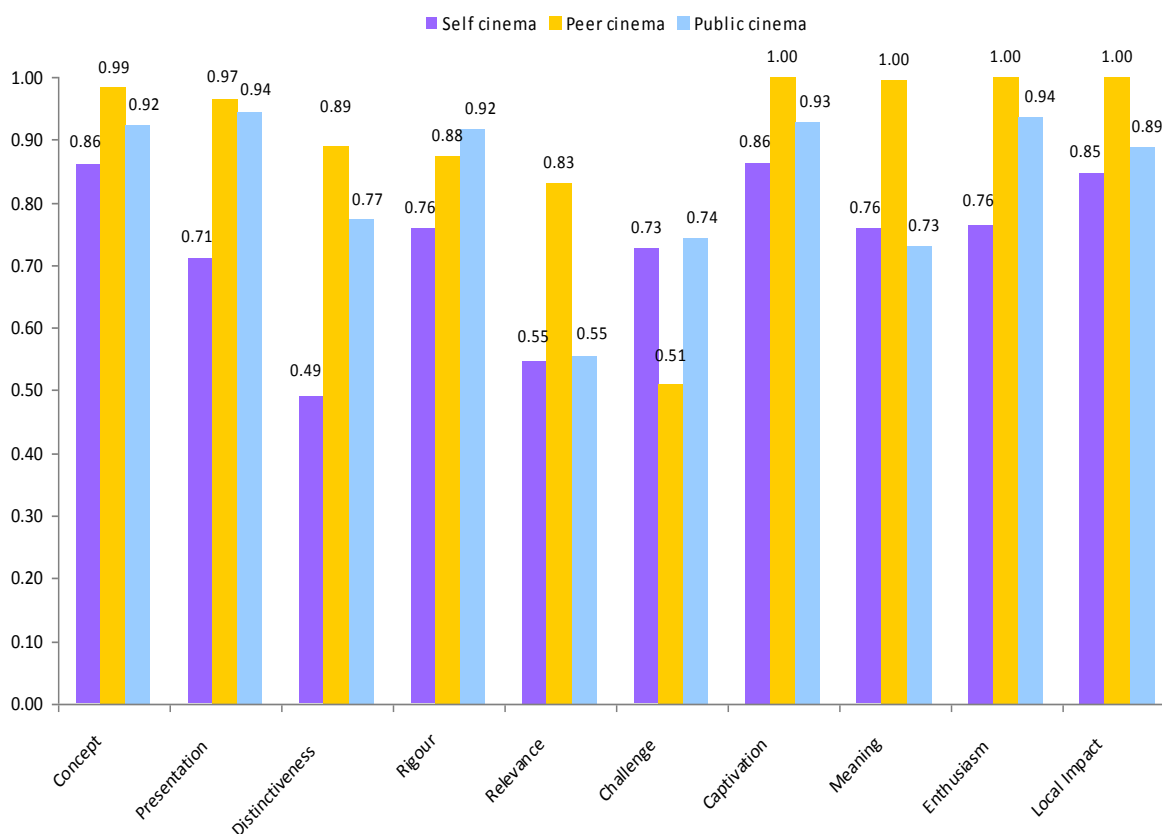
Figure 11 – Average self, peer and public scores for Swan Lake at the Cinema Screenings in Peterborough and Manchester

3.7.1. Differences in Audience Experience

Audience members who saw Swan Lake in the cinema tended to give slightly higher ratings than those who saw the live theatre performance:

- average public score given to the cinema performance across all metrics was 0.84 – significantly higher than the average score of 0.80 given to the theatre performance.

There was some indication that the cinema screening offered a more unusual, thought-provoking experience:

- the cinema performance achieved significantly higher scores for Concept and Challenge (at a 95% level) and Distinctiveness (at a 90% level).

3.7.2. Understanding audience profiles

The data suggest that the theatre and cinema performances reached different audiences. The theatre audience in our sample was younger than the cinema audience:

- Average age of theatre-goers (amongst the sample of respondents) was 36; nearly half were under 30

- Average age of cinema-goers (amongst the sample of respondents) was 51; just 17% were under 30.

Survey respondents at the theatre were more experienced consumers of dance:

- The vast majority (94%) had been to a dance performance before, and 76% had been to the Royal Opera House before

- 19% of respondents at the cinemas were completely new to dance.

Did the cinema performance achieve higher scores for Concept, Challenge and Distinctiveness because it offered something new and different for more of its audience?

3.7.3. Positive Peer Reviews

Peer ratings were impressively high across most dimensions for both theatre and cinema performances. Peers appreciated the novelty of the cinema screening experience, giving high scores for 'Distinctiveness' and 'Originality' relative to the theatre performance. Like the Royal Opera self-assessors, peers felt there was room for improvement in the technical production of the cinema screening.

3.7.4. Some tentative conclusions about the two experiences

The data paint a picture of a classical art form at its best; breathtakingly beautiful for the audience and recognised as world-class by peers. We found no evidence here that a cinema screening offers any less of a quality experience than a live auditorium performance – in fact ratings by the cinema audience were slightly higher.

The cinema screening was seen as offering a more distinctive and thought-provoking experience; there may be a number of reasons for this:

The live screening format is still fairly novel, and may be seen as a new and interesting way to experience high-quality culture

Additional footage and interviews screened as part of the cinema performance may helpfully augment the experience, adding intellectual and interpretative depth

Theatre respondents had more experience of both dance and the Royal Opera House, and would have been familiar with this type of performance.

Unravelling these dynamics of theatre versus live screening dynamics will require more research in different venues with different audience demographics. However the assessment is a good example of the evaluative potential of using the standardised quality metrics in different settings to evaluate the same piece of work. One of the opportunities provided by the metrics (much commented on already) would be the potential to evaluate touring work in different locations, with very different audiences, and to compare audience reactions.

Clearly if the quality metrics are to prove popular and useful they need to be able to provide this opportunity for geographic, demographic, and longitudinal frames of comparison and reference (for example would the reception for a piece of work differ during the course of say a long run, or between its opening nights, and the refinement of the work some 3 or 6 months later?)

3.8. Metric development – iterative, labour intensive, and community based

The Quality Metrics project has increased our understanding of metric development processes, and the appetite for both commissioners and cultural organisations to develop new and bespoke metrics reflecting their art-form specialisms and site or context specific elements of a piece of work.

3.8.1. Consolidation of the Quality Metrics and the need for bespoke additions

In the light of the initial testing phase within Manchester, the Cultural Partners reviewed the metrics set and weeded out or modified those which appeared to overlap too closely to arrive at a final core set of seven measures for the public survey, with an additional three for self and peers. A

box was also added for capturing three words that public respondents would associate with the production, and a free comment box for self and peers. Brief demographic information was added to all surveys.

The wider influence of the increasingly global user group means that on-going metric development and moderation is going to become both an empirical exercise (sharing which metrics are being used and which bespoke / additional metrics are being used / finding favour) and a community based exchange (peer to peer benchmarking and moderated discussion).

3.8.2. Adding to the 'family' of quality metrics – the quality of participatory experience metrics, their early use and likely further development

An important aspect of the Cultural Partner's activities during the grant award has been to produce (working with the Technology Partner, Culture Counts) a new set of standardised metrics to measure the quality of participatory work across the arts and cultural sector. That work was supported by a grant from Arts Council England to one of the Cultural Partners, Matthew Bourne / New Adventures.

A small consortium of the cultural partners (New Adventures; People United; Contact; RSC; 20 Stories High) and invited experts in evaluating participatory work and the work specifically designed for Children and Young People, sought to determine the key outcomes that best capture the quality of participatory work across the cultural sector, and then to develop metric statements that capture the essence of these outcomes. The aim was then to carry out some preliminary testing of the new metrics within the Digital R&D supported testing activity.

A full account of this process, and a full list of the metrics developed, has recently been published by Arts Council England.
http://www.artscouncil.org.uk/advice-and-guidance/browse-advice-and-guidance/developing-participatory-metrics

The process underlined how necessarily time intensive and involved the co-production of new metrics sets is. As with the earlier Quality Metrics formation processes, it was striking that the group were able relatively quickly to agree the key outcome areas and suggested metric statements [see Figure 12 below for a summary of the metrics]. However, what also became clear is that the version produced thus far is 'very much a first

sketch' – the verdict of the Cultural Partners when they were reviewed at one of project consortium meetings.

The metrics have been tested in evaluation activity within this project, notably Matthew Bourne / New Adventure's production of Lord of the Flies in Bradford.

Figure 12: Metrics for Quality of Participant Experience in the arts and cultural sector:

Enjoyment:	I had a good time
Intensity:	I felt deeply involved in the process
Respect:	I was treated as an equal
Voice:	My ideas were taken seriously
Contribution:	I felt my contribution mattered
Authenticity:	It felt like a real artistic experience
Belonging:	They made me feel part of the team
Acceptance:	I felt like I could be myself
Achievement:	I was amazed by what we achieved
New People:	I got to know people who were different from me
Opportunity:	The project opened up new opportunities for me

What is important about this specific evaluation is that this is the first time anywhere a cultural organisation has started to combine the existing Quality Metrics (to evaluate public reaction to the performance in which both professional and amateur dancers took part) with the new set of participatory metrics.

The show was a resounding success when judged on both set of metrics – the quality of audience response, and the experience of the amateur dancers in working with the company. Many people felt that the use of a non-professional cast enhanced their enjoyment of the show. They took pride in the abilities of the boys and were moved by their immersion in the performance and the relationship between the boys and professional

dancers on the stage. Several audience members commented that the involvement of young people helped the work to feel more relevant, and others felt that it contributed to an exciting atmosphere in the theatre.

Figure 13 below compares the participants' post-project ratings of their participant experience, against the self assessor's (Matthew Bourne / New Adventures) ratings against the same metrics.

What stands out from the data is both the very high expectations of New Adventures for the types of participatory experiences they were seeking to create for the amateur dancers, and how extraordinarily rewarding the experiences of the young dancers proved to be. Indeed, on all but 4 of the 18 dimensions the experience of the young dancers exceeded the expectations of New Adventures. The average score for the young dancers was 0.93 compared to an average expected score from New Adventures of 0.89.

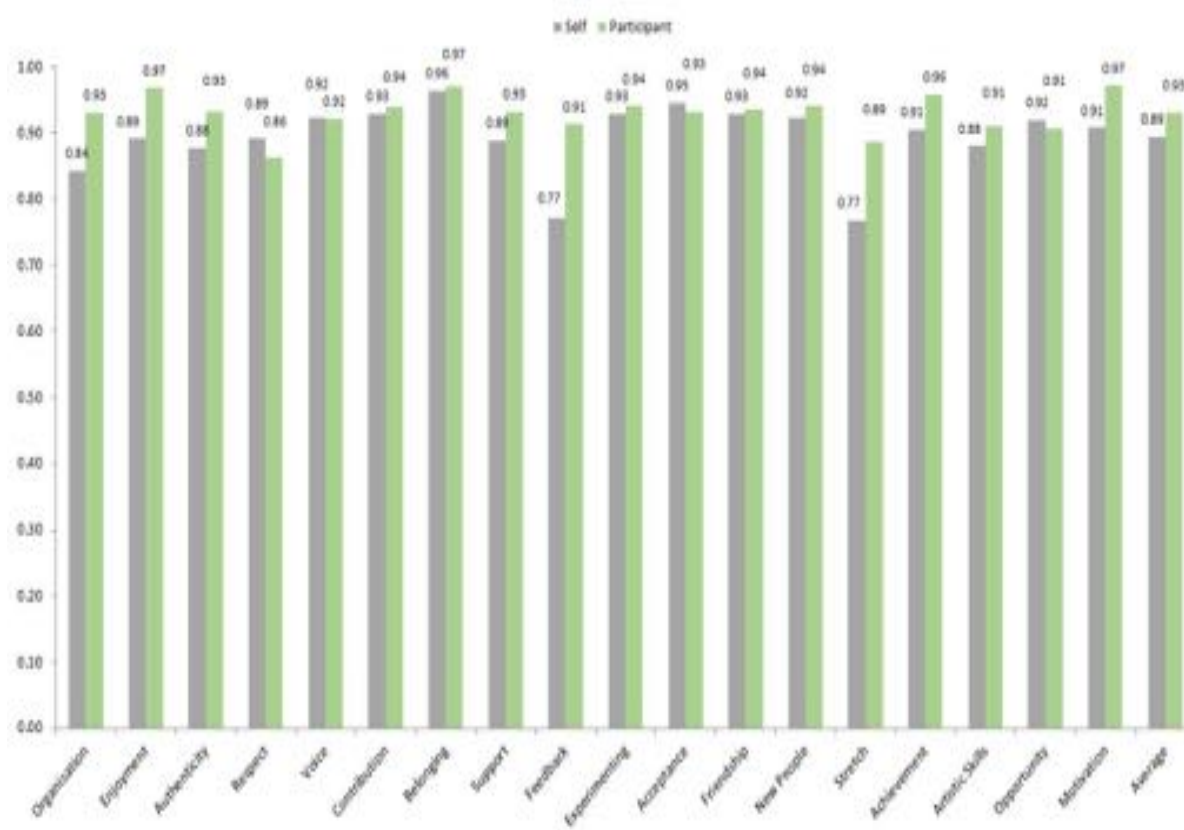*Image: Lord of the Flies. Credit: Helen Maybanks*

Figure 13 – Lord of the Flies: Self and Participant post project ratings of their participant experience

Self n =10

Participant post project n=14

Of the 14 respondents (young amateur dancers), 12 felt that the experience would impact on their future attitude, behaviour and plans. For some this was about developing their interest and involvement in dance; others felt that the experience would motivate them to focus, work hard and continue to challenge themselves. Comments here included:

- 'My outlook into the dance world has been altered. I now have a stronger confidence when it comes to facing auditions.'
- 'Push myself to try other new things'
- 'Yes, I will always take everything as serious and professional as I did Lord of the Flies'.

The amateur dancers involved in the production were aged between 10 and 22 years old – which made for a very wide range of experiences and prior skills. New Adventures reported that because of the very good relationships

between the amateur dancers the younger boys were happy to ask the older boys for help when they needed assistance in understanding a question. In this sense the process of understanding the feedback task for the young dancers created its own participatory dynamics. It also underlines the importance of refining the metrics so that they will require the minimum level of explanation to aid understanding whatever the age group using them.

The Cultural Partners agree that the necessary next stage is to continue to undertake further testing of the participatory metrics across a range of different arts forms, sizes and scales of organisations and participatory work and in rural and urban settings. It is also important that the metrics are widely discussed and piloted across the arts and cultural sector including cultural organisations within the CYP network, and with relevant umbrella groups and development agencies (regional dance agencies; music hubs; Sound and Music and other similar organisations). Their fit with Arts Council England's CYP principles will be of particular interest across the sector (see this report for an analysis of this 'fit'. http://www.artscouncil.org.uk/advice-and-guidance/browse-advice-and-guidance/developing-participatory-metrics

3.9. Market modelling and commercialisation

The Technology partner has been carrying out a wide range of market testing and business modelling over the last eighteen months. The product is a B2B cloud-based software as a service (SaaS), bundled with a range of benchmarking, automated reporting, and data analytical features. As the user group for the product grows in size the value of the product to that user group, and the knowledge base underpinning the service offer, grows with it. The pricing model will be based around an annual subscription fee, with banded tiers reflecting affordance and functionality.

There are already a number of distinctive emerging issues around our business and market strategy.

Firstly, we are not operating in only one market. The cultural sector is only one use case for this approach and the Culture Counts system and underpinning architecture and IP. For example, in Australia Culture Counts has been piloting Place Counts and Library Counts, as variant applications of the Culture Counts system. All of our market testing work thus far confirms that there are potentially a wide variety of potential purchasers for the

system beyond publically funded arts organisations, including commercial cultural producers (such as West End Theatres); venues that want to measure the quality of productions / events they programme as a receiving house; advocacy organisations (focusing on particular groups (children and young people) or activities); festivals; and Local Authorities and Cultural Partnerships

As this list of purchasers makes clear there is unlikely to be one simple pricing model. So whilst the basic product (B2B, cloud based software as a service (SaaS)) would be the same for these very different market segments, the pricing models will be different.

Of particular interest to the funders of the Digital R&D award in the Quality Metrics project, and to other funders, trusts and foundations, and commercial providers, is the extent to which the value proposition of the Culture Counts offer, assuming competitive pricing and good service execution, is going to prove attractive to the arts and cultural sector. If we focus on the cultural sector in particular, we have been actively testing four market need questions:

1   Do prospective customers recognise that they have a need / problem the Quality Metrics and Culture Counts can address?

2   Is there enough pain / motivation to get them to buy a solution?

3   Would they buy a solution from Culture Counts?

4   Can Culture Counts build and deliver a solution profitably?

Figure 14 below summaries our analysis of these market need questions as applied to the arts and cultural sector in the UK and elsewhere. It has been produced through desk analysis, market engagement and qualitative interviews by the Technology Partner.

Market	Recognise they have a problem / need?	Enough pain / motivation to buy a solution?	Buy solution from us?	Build and deliver profitability?
Arts & Cultural organisations	Shrinking pool of highly contestable funds Increasing costs Recognise the need to give a full account of the value they create to users, funders, commissioners and investors. Have to construct a value case – many lack the skills / resources to do so Data driven audience engagement and innovation is vital to meet the perceived participation gaps in audiences and places Are excited about the potential of data and digital tools to inform their creative practice and deepen their relationships with audiences, supporters, and engaged communities of interest and practice	Data on impact is a differentiator in the competition for funding, investment, sponsorship and philanthropic attention Those already committed to data and innovation in evaluation and audience engagement are enthusiastic about standardised metrics and digital data tools Lack of historic investment in evaluation poses a challenge for pricing and market entry	Co-produced with the sector so reflects artistic intention – provider has sector credibility and track record of engagement Low cost against potential value Novel features & unique combination of features Academically peer reviewed from the outset Joining a growing global user group and community interested in benchmarking around quality measurement	A competitively priced Software as a Service product is attractive to the market It is already being bought by users in this beta phase It is already a very attractive product to commissioners of large scale evaluations of cultural programmes and activities Users enthusiastic about future product road map and value potential It will make steady inroads in the commercial market
Cultural Funders	Have been rapidly professionalising their own measurement and evaluation activity to enhance their ability to demonstrate ROI In an era of austerity the ability to demonstrate public value, and make better informed investment decisions, has become more important than ever	Keen to demonstrate the holistic case for funding (cultural, economic and social); lacking requisite big data and need cost-effective solutions to generate it working with their investment partners and funding recipients	The Department of Culture and the Arts in Western Australia has already implemented the metrics and the Culture Counts system for all their funded organisations Additional pilots now taking place across three states in Australia Interest from the Canada Council for the Arts and a	Funders across the world are showing growing willingness to support a new type of data culture across the arts and cultural sector which will only increase market demand for these types of metrics and digital platforms from a range of providers

Market	Recognise they have a problem / need?	Enough pain / motivation to buy a solution?	Buy solution from us?	Build and deliver profitability?
			range of trusts and foundations across North America	

On the basis of our market engagement and research thus far, speaking solely as the Technology Partner, we are confident that the market and growth potential of the Quality Metrics approach, and the Culture Counts platform, is a substantial one. It will also help build a data culture across the arts and cultural sector and therefore increase the potential market demand for a whole range of data analytical tools and interventions growing the overall market for a range of public and private sector providers.

The interesting dynamic that has already become apparent in our implementation work with the Department of Culture and the Arts (DCA) in Western Australia is that it is in everyone's interest from a public value sense to encourage as much use as possible, crowding in affordances into the system and few limits (apart from at the upper end) on data generation and use.

In our modelling work with DCA, it has become clear that DCA are well aware that they are making a decision to invest in a system that will impact on their funded base in differential ways. Their mental map here is that they are trying to move a large part of the cultural sector from a position of being disengaged around rigorous data and evaluation to position of data readiness and willingness to embrace more data driven decision making.

In a data culture sense, DCA, or indeed public funders in other territories, will be making a decision to subside the 20% of users who might otherwise have quickly adopted and commercially purchased the system, to create the demonstration effects that will encourage the long tail of 'data shy' cultural organisations to embrace new forms of data driven evaluation and decision making. Of course as the number of users across the cultural sector increases so too does the network value, benchmarking value, and therefore wider public value created by use of the system, thereby underwriting the

investment case, notwithstanding other possible creative, commercial, and engagement benefits facilitated by the system.

Insights

4. 1. The Benefits of Early User Testing and Fast Prototyping

One of the benefits of the R&D award, and the expectation of the funders that the Culture Counts platform would need to be fully automated by project end, is that it encouraged the Technology Partner to accelerate the development of the software interface through the use of the accelerated prototyping methodology developed at Google Ventures (http://www.gv.con/designprint) based on design thinking structures championed by IDEO and Stanford's d.school.

At the core of the methodology is the imperative to match design solutions to a fully mapped user journey, and then to quickly build something that can be shown to users and tested. Over an intensive five-day period in the opening month of the project the Technology team used uninterrupted design time to execute on the best ideas with the aim of refining the product quicker with compressed lead times on generating faster feedback from potential users and customers. The benefit to the Technology team and the project is that it allowed us to quickly understand how to refine the user interface.

Importantly we decided to carry out some of that user testing with cultural organisations that had had no prior knowledge of Culture Counts and the metrics project.[9]

Undertaking this whole process was the most decisive and shaping decision made by the Technology team, which had an enormous impact on the delivery of the project. The methodology worked incredibly effectively and led us to make the following changes to project delivery:

- The outcomes of the user testing was used to prioritise particular sprint activity over others in this opening period of development.

- It led us to conduct a more major rewrite of the underpinning code than we originally envisaged, and this led to delays in delivering the software interface. However this decision ensured that we were more likely to meet the key project deliverable of developing a fully automated product by grant end.

[9] This included the V&A; LIFT; Dance Umbrella; Sound and Music; Stratford Theatre East; Brighter Sound;

- To back load the testing (into the second half of the grant award) so that more of the test events are 'driven and delivered' by the cultural organisations rather than delivered and supported by the Technology Partner Delivery team – allowing us to encourage the cultural organisations to undertake more customisation and experimentation using the system.

4. 2. Quality of Cultural Experience – Necessarily Embracing Participants as well as Audience Members

The Quality Metrics being refined tested in this project had already been developed to a preliminary stage through an earlier Arts Council England grant

http://www.artscouncil.org.uk/what-we-do/research-and-data/quality-work/quality-metrics/

During that pilot stage of metric development the Cultural Organisations developed some fledging metrics for the quality of the creative process including collaborator / participant experiences. The Cultural Partner quickly identified the need to properly develop some quality of participatory experience metrics which could be used within the evaluation activity being supported by the R&D award to the project. With some further support from Arts Council England the cultural organisations within the consortium were facilitated by Culture Counts to develop a new set of participatory metrics, modelling their potential use against recent or planned participatory events.

The aim was to develop these metrics reasonably speedily so they could be used within the Culture Counts platform to evaluate participatory work being undertaken by the Cultural Consortium members (we report on the use of the metrics in the previous Results Section, with Matthew Bourne / New Adventures production of Lord of the Flies). Since November they have been available to use in the Culture Counts dashboard.

The key insight that we have gained from the development and use of the metrics within this project is that whilst there is likely to be a validated set of 'core' participatory metrics as per the quality of cultural experience metrics, that list is likely to be longer with more outcomes being captured than in the current core set of quality of cultural experience metrics (say 12-15

participatory metric statements as compared to 9 quality of cultural experience metrics)

This is less of a problem in terms of data collection given that participatory processes provide more opportunities for multiple and unhurried data collection moments. The ongoing testing of the participatory metrics is going to be very valuable in refining them and underlines one of the key insights of the whole quality metrics process, namely the importance of generating metrics with a real set of events, processes and outcomes in mind.

For example the Cultural Partner sub-group working on the metrics discussed how the reaction to the metrics will be shaped quite distinctively by participatory processes which culminates in a 'show' element, as compared to those which do not. Or where the participatory engagement process is prolonged over a number of weeks or months as opposed to a short one-off participatory experience. So for example it was noted with regard to the 'stretch' dimension – 'I did something I didn't know I was capable of' – it may be the case that the opportunity to achieve high scores for this dimension are likely to be greater in those participatory processes which culminate in a show element. Similarly, the longer and more intense the participatory engagement, the more likely it is that participants have the opportunity to experience strong growth (if the process is well run) in the metrics concerned with skill acquisition, confidence and so on.

As noted earlier, the best way of exploring these potential influences is through further testing of the participatory metrics in different participatory processes and settings, and with a wider range of cultural organisations.

4.3. Project Management Stretch

As the project has developed it has become very clear to the consortium members that at application stage we significantly under-budgeted for the overall project management / communication functions within the project.

At times this has increased the challenge of maintaining the consistent engagement of all of the 20 cultural organisation partners. As one of the cultural partners commented, '*it is inevitable that as the accelerator goes down in one part of the project it can come off in another part.*' So at any given point in the project, looking across the 20 cultural organisations, some have been actively involved in running test events or developing the new

participatory metrics, whilst others may have felt more on the margins of the project. The absence of a full-time project manager / cheerleader whose main focus would have been to pull all of the various strands of the project together and maintain a frequent and consistent communication cycle, has placed considerable demands on key consortium members to ensure that things have continued to move forward in a productive and co-ordinated way.

Future

5.1 Future Potential of the Quality Metrics Project

The most exciting aspect of this Quality Metrics Project is that we have barely scratched the surface on the possible use and application of co-produced metrics and a big data platform approach across the arts and cultural sector; and the possibilities for on-going critical research enquiry using the data is enormous.

The Cultural, Research and Technology partners have already individually, and collectively, identified a number of opportunities and activities that will productively develop the outputs from this funded project and we which we hope will come to fruition.

Firstly, there is a rich menu of research options, particularly within an international comparative context.   The research component of this Quality Metrics project was set up in order to provide a wider critical context for the testing, development and evaluation of the quality metrics approach and the Culture Counts digital platform. As such, we have been able to make observations concerning existing sector capacity and competency in relation to data collection, analysis and 'decision-making', from a broader perspective on evaluation, policy and organisational culture, drawing on (mainly UK-based) arts management and cultural policy studies literature and evidence.

One important strand of observations concerns existing practice of triangulation of data, where organisations' departments and individual arts managers bring into interaction with each other a number of data sources and collections methods in their everyday management and decision-making concerning quality. This varies considerably with the scale and constitution of organisations – however we heard about the ways in which, for example, observations from frontline staff of audiences are combined with consultancy reports, mailing list and box office data to inform programming. This suggests the rationale for a system which brings together data sources into a dashboard for easier use, and which can be customised by organisations according to need. At the same time there are capacity issues particularly in terms of both commissioning and management of research

and of data handling and analysis, again suggesting that a system which rationalises these processes and makes them more cost effective is desirable.

These observations are based on the methods we used during the research – literature review, attendance of meetings, workshops and critical friends group, so come from qualitative enquiry rather than a more comprehensive survey of the sector. They would benefit from further research, to broaden the sample of participants and to compare across different sectoral and cultural contexts. There are opportunities for cross-cultural and national comparisons, through the connections being made by Culture Counts, particularly in Australia and the USA, which also involve a similar network of academics and other research partners who are engaged in investigating and testing the value of this approach for the arts sector and policy makers. Furthermore, there are a number of other related activities which concern the measurement of impact and value of arts and cultural experiences on individuals, which come from other disciplinary basis, and which explore other kinds of impacts, including psycho-social, physiological and cognitive aspects which may provide measures for quality. This requires a programme of development to connect further with these and to explore a common research agenda.

The Cultural Partners have expressed an interest in continuing to undertake a programme of self-testing, evaluation of that experience, and refinement of the Culture Counts interface, working with the Technology Partner. They are also keen to explore what insights can be gained from the aggregation of data from organisations (e.g. in Manchester and Lakeland Arts) that now have good time series data.

The Cultural Partners are also interested in the future potential of the system to meet the initial aims of having a national sector-owned framework for assessment of quality. There is clearly further demonstration and development work to be done, and they are keen to explore these potential next steps with other bodies such as Arts Council England.

All partners support the ongoing development of additional modules of co-produced metrics. For example Culture Counts and the Department of Arts and Culture in Western Australia are exploring the possibility of working with Professor David Throsby to produce an institutional value module that could be used within the platform.

Culture Counts will continue its work with funders globally on the use and development of the system. In Australia, the quality metrics and Culture Counts platform are going to be used by all of the arts and cultural organisations funded by the Department of Culture and the Arts in Western Australia. Further trials are taking place across three states in Australia, Arts Queensland, Arts New South Wales, and Arts Victoria.

The Canada Council for the Arts has joined a funders forum convened by Culture Counts so they can actively track the development of the approach, and Culture Counts remain in discussion with a range of North American Trusts and Foundations about the further funding and use of Culture Counts with arts and cultural organisations across North America.

At grant application phase the technology partner noted that the quality metrics, and their deployment in the arts and cultural sector, were the first 'use' case of the Culture Counts platform. During the lifetime of this project the Technology Partner has undertaken market trails of related offers, including Place Counts and Library Counts – with large-scale trials of the platform across the Library sector in Australia. The combination of the quality of cultural experience metrics with place based metrics, around public amenity and public realm experience, are already proving very powerful for city state investors in major cultural events (see Culture Count's evaluation of the Giants performance at the Perth International Festival in 2015 - https://culturecounts.cc/r/piaf-giants/#0

Finally, as the user base for the metrics grows, Culture Counts remains interested in how best to support data aggregation and insightful sector wider analysis using the quality metrics, including the use of data by academics and research institutes.

One of the animating questions of this whole project has been whether the wider arts and cultural sector is willing to shift to a more developed data culture around how it measures the quality and impact of its work? And in turn whether the market demand for data analytical tools and insights in the arts and cultural space can be increased, sparking further growth and innovation in big data applications from a range of providers. Thanks to the work undertaken under this Digital R&D award we've taken some significant steps to getting closer to that answer to the benefit of both cultural value measurement, and to the wider market development of data applications across the arts and cultural sector.

Appendix A

Quality Metrics Test Event List

Manchester Jazz Festival	Bits and Pieces (2014)
New Adventures	Lord of the Flies
Manchester Museum	Siberia
Lakeland Arts	The Nuisance of Landscape
People United	Wonder Artists' Commission
RSC	Two Gentleman of Verona (multiple sites (4))
Octagon Theatre	A View From The Bridge
20 Stories High	Black
Royal Opera House	Swan Lake (multiple sites (3))
Lakeland Arts	Emilie Taylor
Manchester Museum	Rapa Nui: Making Monuments in Easter Island
Contact Theatre	Contact Young Company: Under the Covers & National Theatre of Scotland Presents: RITES
RSC	Much Ado About Nothing (multiple evaluations in different sites (4))
Royal Exchange Theatre	Ghost Train
University of Manchester /	Manchester Wakes: Workers at Play
Manchester Central Library	Wonderland by the Waves
Lakeland Arts	Taking Flight: St Ives in the 1950s
Whitworth Art Gallery	The M+ Sigg Collection
Manchester Art Gallery	Performance Capture: Ed Atkins
Whitworth Art Gallery	Whitworth / Part

Lakeland Arts	Shakespeare's Globe's Romeo and Juliet
Manchester Art Gallery	Matthew Darbyshire: mid-career retrospective
Manchester Museum	The Study
Watershed	Cycle Screen
Watershed	Playable City
Watershed	The Stick House
Home	Khali
Home	The Oresteia
Home	Love the Dole
Sound and Music	Whiate Cane: Salamanda Tandem UK
Dance Umbrella	Walking Stories
Cheltenham Trust gathering tests	Simon Terrington and two other data
Royal Opera House	Romeo and Juliet
Manchester Museum	Gifts for the Gods
Sound and Music	A Quiet Night In
Fun Palaces	Fun Palaces Weekend (multiple evaluations (20 in total returning data – 11 libraries and 9 Fun Palace activities))
Manchester Jazz	MJF 2015 (multiple events (4))
Royal Opera House	Don Giovanni (multiple evaluations (2)
Total	**76 Events**

Further Resources

https://vimeo.com/album/3475512/video/132102936

https://www.youtube.com/watch?v=SAMTrkwTrAc

http://www.artscouncil.org.uk/what-we-do/supporting-museums/ilfa/about-ilfa/quality-metrics-pilot-alignment/

 (http://www.culturemetricsresearch.com/about-the-project/

http://www.dca.wa.gov.au/research-hub/public-value/

http://www.artscouncil.org.uk/advice-and-guidance/browse-advice-and-guidance/developing-participatory-metrics

http://www.artscouncil.org.uk/news/arts-council-news/quality-metrics-framework-moves-national-test-phas/

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Creig, R., Vetch, P., Zitner, N., Indig, L., Glen, L., (2014) 'Royal Opera House: Hybrid App Research and Development Report' London: Nesta

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