

Impact case study (REF3)

Institution: Glyndŵr University		
Unit of Assessment: UoA32 – Art and Design: History, Practice and Theory		
Title of case study: ‘Carbon Meets Silicon’ curatorial project and collaboration		
Period when the underpinning research was undertaken: 2015-2020		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s):	Role(s) (e.g. job title):	Period(s) employed by submitting HEI:
Dr Susan Liggett	Reader in Art and Design, Associate Dean for Research	9/2000 - present
Period when the claimed impact occurred: Sept 2015 to December 2020		
Is this case study continued from a case study submitted in 2014? N		
<p>1. Summary of the impact (indicative maximum 100 words)</p> <p>Ongoing research into the emerging role of the exhibition as a tool to facilitate more effective interdisciplinary collaboration and multi-audience engagement has impacted upon professional practice and public awareness. It has fostered the establishment of new international partnerships, provided a test-bed for new creative practices germinating new areas of academic investigation by:</p> <ol style="list-style-type: none"> i. Providing new conceptual models to support curators and researchers, internationally, and inspiring new forms of artistic expression and innovation. ii. Informing novel collaborative approaches to business development within creative institutions. iii. Engaging the general public with the academic research process in a new way / developing stimuli to cultural tourism and contributing to the quality of the tourist experience. 		
<p>2. Underpinning research (indicative maximum 500 words)</p> <p>Dr Susan Liggett’s research underpins this case study. Journal articles were co-authored with visiting researcher, Mike Corcoran (scientist), Clare Harding (PhD candidate) and Dr Mark Lochrie, University of Central Lancashire. Book co-authored with Emeritus Professor of Electronic Imaging, Rae Earnshaw, Bradford University; the late Professor Peter Excell, Emeritus Professor of Communications, Glyndwr University; and Professor Daniel Thalmann, Director of Research and Development at MIRALab Sarl, Singapore.</p> <p>A new conceptual model, ‘<i>Show-talk-do</i>’ [R2], and subsequent journal paper [R3] were borne out of the creative exhibitions and symposia series, ‘<i>Carbon Meets Silicon</i>’ (CMSI & II, 2015/17) [R1] Wrexham. Curated by Liggett, the exhibitions brought together 36 international artists, scientists and researchers from the UK, Italy, Denmark, Australia and the USA. The exhibitions established a diverse international network, spawning new and more effective research partnerships and it introduced new public audiences to emerging research areas. This is evidenced by the exhibiting artists then contributing to the open access book co-authored by Liggett with Visiting Professor Earnshaw (Computing) et al., ‘Technology, Design and the Arts – Opportunities and Challenges’ (2020) [R2]. Liggett’s role was in selecting contributing artists, many of whom were part of CMSII, peer reviewing chapters and considerable editing.</p> <p>Exhibiting researchers in CMSI & II explored commonalities between their research processes and outputs, the challenges of, and opportunities for, collaboration between diverse research areas, and engaged new and non-expert audiences with emerging areas of academic thought and research. The MOSTYN EDGE project, Llandudno (2019/2020) [R5, R6], and the ‘Creative</p>		

Resilience' programme at Ty Pawb, Wrexham (2019/ongoing) were a result of this process. Key to the exhibition's ethos was the concept of 'research as practice', with the artefacts of the research process presented in a new context to overcome interdisciplinary communication challenges and to provoke thought and discussion as described in '*Interdisciplinary Research Unmasked: a new curatorial model was developed for multi-audience engagement*' (Liggett & Corcoran) [R3].

Building upon and informed by the interdisciplinary aims and findings of these exhibitions, the model was tested through literature reviews, case study development, observations and interviews with artists, scientists, research funders, and science communicators. Described in the journal article, 'Framing the Conversation' (Liggett & Corcoran), the model demonstrates the relationship between diverse audiences, distinct curatorial practices and research outcomes and visually represents the steps that all researchers, stakeholders, and publics can follow to create wide-ranging engagement and produce interdisciplinary outputs [R4]. It was adopted by FOCUS Wales in 2017 & 2018 and contributed to novel collaborations with key arts institutions, MOSTYN and Ty Pawb across North Wales. Liggett, in collaboration with MOSTYN gallery, identified that issues around engagement can arise when digital content is delivered within a public gallery and that specialist knowledge, audience expectations, and funding impact on current practices. PhD student, Clare Harding was co-funded by Glyndŵr University and MOSTYN to help investigate practical challenges and approaches taken to define what audiences want from a public art gallery. Journal articles, '*Digital Engagement in a Contemporary Art Gallery: Transforming Audiences*' [R5] and, '*What Do Audiences Want from a Public Art Gallery in the Digital Age?*' (Liggett, Harding & Lochrie) [R6] outline the research underpinning the EDGE and Canvas projects at MOSTYN. For example, existing research that applies technology to art galleries does so to measure audience reactions; however, it was found that we must first understand the audience's beliefs, preferences, and insights before using digital means to record reactions and fulfil wider organisational ambitions. Also, an initial human-centred feasibility study looked at how audiences want to interact with a public art gallery in an age of rapidly developing technology, alongside a public consultation, and it was found that audiences wanted more engagement, more talks, and more artists featured.

3. References to the research (indicative maximum of six references)

Journal articles (2 and 3) and book chapters (4, 5 & 6) were invited and peer reviewed. Exhibitions (1) led to co-edited book 'Technology, Design and the Arts – Opportunities and Challenges' Edited by: Rae Earnshaw, Susan Liggett, Peter Excell, and Daniel Thalmann, Springer, where the Carbon Meets Silicon exhibitions are mentioned in forward (page vii).

- R1. CMSI Glyndwr repository. Available at: <https://glyndwr.repository.guildhe.ac.uk/id/eprint/17680/>
CMSII Glyndwr repository. Available at: <https://glyndwr.repository.guildhe.ac.uk/id/eprint/17681/>
- R2. Earnshaw, R, Liggett, S, Excell, P Thalmann, D (2020). 'Technology, Design and the Arts – Opportunities and Challenges' Springer Open (Reference to Carbon Meets Silicon exhibitions in forward (page vii)). <https://link.springer.com/content/pdf/10.1007%2F978-3-030-42097-0.pdf>
- R3. Liggett, S. Corcoran, M.(2018) 'Interdisciplinary Research Unmasked: a new curatorial model for multi-audience engagement'. In Studies in Visual Arts and Communication: an international journal Vol 5, No 1 (2018) on-line ISSN 2393 – 1221. https://journalonarts.org/wp-content/uploads/2018/10/SVACij-Vol5_No1-2018_Corcoran-and-Liggett_Interdisciplinary-Research-Unmasked.pdf
- R4. Liggett S, Corcoran M. (2020) 'Framing the Conversation' in Technology, Design and the Arts – Opportunities and Challenges" Edited by: Rae Earnshaw, Susan Liggett, Peter Excell, Daniel Thalmann. Springer. https://link.springer.com/chapter/10.1007/978-3-030-42097-0_3

R5. Harding, C, **Liggett**, S and Lochrie, M (2019) Digital Engagement in a Contemporary Art Gallery: Transforming Audiences. *Arts*, 8 (90). ISSN 2076-0752
Available at: <https://www.mdpi.com/2076-0752/8/3/90>

R6. Harding, C, **Liggett**, Susan, Gradinar, Adrian and Lochrie, Mark (2019) What Do Audiences Want from a Public Art Gallery in the Digital Age? In: *EVA (Electronic Visualisation and the Arts)*, 2019, London, UK.

Available at: www.scienceopen.com/document?vid=fe136c0d-5af2-4e06-8e1c-610deb91b4e2

4. Details of the impact (indicative maximum 750 words)

i) Providing a new conceptual model to support curators and researchers, internationally, and inspiring new forms of artistic expression and innovation.

The research has generated new ways of thinking, influencing creative practice. The '*Show-Talk-Do Model*' presents a practical way of thinking about the role of an exhibition to overcome siloed working and communication challenges to encourage cross-discipline working. The model has been disseminated internationally in Chapter 3, 'Technology, Design and the Arts – Opportunities and Challenges' – it has been downloaded 2,200 since open-access publication in June 2020 (with the full text downloaded over 45K times from 114 countries) [**source 1**].

The research artefacts exhibited, and partnerships forged through *Carbon Meets Silicon* exhibitions have led to the development of new artistic products and innovations by a number of creative professionals. It was the catalyst for one UK based artist to seek collaboration with a project supported by the EU Commissions Joint Research Centre (Italy 2019). She said, "This model of multi-audience engagement developed by Liggett and Corcoran is unique and has contributed to the development of my recent collaborative work. Also acting as a foundation for a new body of work, recently commissioned by SciArt for the EU Commission" [**source 2**].

One international artist said: "The invitation to participate in the Carbon Meets Silicon II exhibition and symposium in 2017 was a pivotal opportunity for my collaborator and myself to showcase the work of localStyle in a combined context of intellectual inquiry and creative output in Wales. Having already exhibited our work extensively in many cities all over the world, it was nevertheless a significant event for us to make the journey to Wales and participate in these events in person" [**source 3**]. They also said: "In our view it is without question that the spirit of shared enterprise and atmosphere of creative and intellectual rapport that we experienced in Wrexham subsequently led to our receiving an invitation to submit a co-authored chapter—'Coral Voices'—that is intended to contribute to a more dimensionalised understanding of one of our more recent projects. The book chapter is open access and thus free to anyone in the world to download which helps disseminate our artwork and the conceptual basis—grounded in absorbing a large quantity of current coral reef research—and studio working process to those unable to visit Chicago" [**source 3**].

ii) Informing novel collaborative approaches to business development within creative institutions.

The research fed directly into MOSTYN's strategy/business plan and contributed towards their organisational resilience by opening up new funding streams and partnership opportunities. The 'EDGE for Schools' Arts Council Wales (ACW) funded programme at MOSTYN (2019/2020) directly resulted from the Glyndŵr University (GU)/MOSTYN research and collaboration [R5, R6, **source 8**]. This bilingual programme involved artists working with school children to gain digital skills above and beyond those acquired in the curriculum. The workshops were attended by almost 200 pupils at four schools in Conwy county within the impact period (2018-2019) [**source 4**]. Further funding from Innovate UK for The MOSTYN EDGE Canvas project (2019-2020) was secured by MOSTYN to fund workshops with gallery staff and audiences to explore the challenges of integrating digital technologies effectively within their curatorial programme.

Director of MOSTYN said: “These projects and related research have now generated over £250,000 of funding that would not have been possible without the GU/MOSTYN collaboration” [source 5]. This collaborative work also led directly to employment for the PhD student as the Programme Fundraising manager at MOSTYN.

Director of Ty Pawb, the creative hub and gallery in Wrexham became aware of journal articles co-authored by **Liggett** and was interested in the user-centred research methods adopted at MOSTYN to help understand gallery audiences. **Liggett** was approached to scope a strategically important research question around resilience and a collaborative research agreement was made between Ty Pawb and Glyndŵr [source 9]. **Liggett**, with a co-funded PhD candidate, is now contributing to the ACW funded, ‘Creative Resilience’ programme (2019 ongoing) at Ty Pawb. This programme is exploring new, resilient and sustainable business models to challenge the traditional models of art galleries. Ty Pawb Director said: “Overall, our collaboration with Glyndŵr University has benefited us greatly through helping to shape our business development model and also with the delivery of projects which are of crucial strategic importance especially now during the global pandemic when the gallery is closed” [source 6].

iii) Engaging the general public with the academic research process in a new way / developing stimuli to cultural tourism and contributing to the quality of the tourist experience.

The ‘Show-Talk-Do’ [R2, R3] approach informed ‘Digital Innovations at FOCUS Wales’, a Welsh Government sponsored exhibition and symposia for musicians, artists and technologists forming a key part of the FOCUS Wales festival in 2017 and 2018, one of the UK’s largest international showcase festivals for the music industry. Partner and Co-Founder of FOCUS said: “Mike Corcoran’s involvement in the programme, building on his on-going research into interdisciplinary collaboration with Glyndŵr University, allowed us to enhance the impacts we could achieve: following the ‘Show-Talk-Do’ approach by combining exhibitions and installations, with informal opportunities for open and exploratory discussion, and formal facilitated discussion to identify opportunities to work together – all under the public gaze” [source 7].

Comments from attendees and participants included:

“Around 210 artists and groups performed this year, 32 of which are international, and the event attracted 8000 visitors to the area, 12% of which were from overseas. The conferences burgeoning tech and digital platform will only accelerate those numbers in the coming years. FOCUS Wales seems set fair as a growing and very interesting conference” (Media Review) [source 7].

“We visited the digital day ... and it was great to see so many local innovators in one place. The panels were fascinating and informative, we really enjoyed listening to a range of ideas from using AI to help you compose music to collaborative music projects using Ableton and harnessing the communal experience of the internet. What a forward thinking event to have on our doorstep” [source 7].

“I enjoyed the panel and got a lot of great new contacts, no improvements needed as far as I can tell. I met with quite a few people from music industries from Canada and Wales as well as new contacts from my home country (the Netherlands). It was a great learning experience to hear from people from ‘across the pond’ about their challenges in their industry” [source 7].

5. Sources to corroborate the impact (indicative maximum of 10 references)

1. Earnshaw, R, **Liggett**, S, Excell, P Thalmann, D (2020). ‘Technology, Design and the Arts – Opportunities and Challenges’ Springer Open. - <https://link.springer.com/book/10.1007%2F978-3-030-42097-0> (country data available from s.liggett@glyndwr.ac.uk) [indicates reach of the model]

2. Testimonial – Independent Artist, UK [indicates value experienced by one artist]
3. Testimonial – Artist, USA [indicates value experienced by one artist]
4. MOSTYN 'Edge for Schools Programme' <https://www.mostyn.org/edgeskills>
(Available as PDF)
5. Testimonial - Director MOSTYN, Llandudno [corroboration of value to MOSTYN of collaboration with Glyndwr University]
6. Testimonial –Ty Pawb, Wrexham [corroboration of value to Ty Pawb of collaboration with Glyndwr University]
7. Testimonial – Focus Wales [indicates value to Focus Wales of the Show-Talk-Do model]
8. Mostyn Gallery Digital Content Collaborative Research Agreement [confirms collaboration and its financial value]
9. Ty Pawb Collaborative Research Agreement [confirms collaboration and its financial value]