

**Centre for Science and Policy
& Global Green Media Network**

**Report of Policy Workshop on the
Digital Transition in Screen Arts**

22 April 2022
Sidney Sussex College, University of Cambridge

1. Introductory Perspectives

Hunter Vaughan, Senior Research Associate, Minderoo Centre for Technology and Democracy, University of Cambridge, introduced the workshop as the closing event for the Global Green Media Network, funded by AHRC. The project has looked at technological changes, industry initiatives, and economic drivers involved in the 'greening' of the global film, TV and screen arts sector. The GGMN has run since 2019, with international membership but with events mostly focused on the UK due to the Covid-19 pandemic. Events have been held in London and at COP26 in Glasgow, as well as online workshops in Hong Kong and Colombia.

The GGMN explores how different parts of the world's screen arts industry have been dealing with the carbon reduction and environmental agendas in the media sector, and how these are manifested along specifically localized lines. The UK and US have been seen to be leading with these at the moment (with the BAFTA albert initiative in the UK and the PEAR tool from the Producers Guild of America Foundation's PGA Green committee). The GGMN have had an interest in what the environmental questions are for film makers in other parts of the world, from Nigeria to Palestine.

Questions to be explored include how smaller productions differ from huge productions from a studio like Disney. Are studios willing to deploy substantial environmental protocol, or does this and will this remain tertiary below financial profit and cultural capital? Are environmental outcomes enhanced by scaling down productions and involving more independents?

The use of digital technology in screen arts has been a core concern for the GGMN also. Digital technology is now central to practice at every stage of the screen arts production process. Sometimes greater use of digital technology in film and TV is seen as generating environmental benefits, and it can be seen to 'de-materialise' some processes but digital technology depends on materials too, including the mining of rare minerals, use of energy in server farms and undersea cable networks as well as in the disposal of waste.

The *Screen New Deal* report from albert, the BFI and Arup in 2020 made recommendations for a more sustainable future for the film industry. While sensible, many of the technological ideas within the document though could be subject to more critique from social science and humanities scholars, for instance the use of smart building management and sensors is featured, but there are issues to address regarding the data generated from sensors – it is possible that structural social inequalities could be reinforced given issues with technologies like facial recognition and machine learning, as well as a general lack of transparency with the use of data. Similarly, at what environmental cost will this digital future be built, from rare metal mining to construction to energy dependencies and digital waste?

Recognising the huge digital dependencies among some of the largest production and distribution companies, including Amazon and Netflix, there is a question to what can legislatures do and what should sector bodies and intermediary organisations do, to address a wide range of sustainability concerns, including issues explicitly concerned with the environment as well as those concerning more social issues such as labour as well as race and gender equality.

In discussing these introductory questions, workshop participants also moved on to pose challenges regarding the future of work in the screen arts sector and the long hours and childcare issues among other topics. What are the labour protection issues which are most pressing for industry and governments to address? With workers in film and TV working such long hours as standard, it was raised that it was hard for workers to take on a full range of sustainability responsibilities, without sufficient time committed to this.

It was argued by some participants in the workshop that life cycle analysis and Scope 3 emissions should be embedded when considering the impacts of film and TV productions, as well as social protocols. This especially concerns the environmental approaches to sustainable media production where all aspects of a production's life-cycle, from policy to production, from processing data into disseminating it to audiences, need to be accounted for. Data collection and monitoring needs to be built into the process. It was considered that the role for government is to oversee and regulate these processes including life cycle analysis.

As new studios and digital infrastructures are built, participants suggested that consideration should be given to potential impacts on the local communities where these are built. For instance, infrastructure put in for film and TV productions could benefit communities once the production is over if renewable energy generation is built or charging points for electric vehicles. Such long-term socially-oriented solutions are currently lacking in the film and TV industries.

The environmental sustainability aspects of the film and TV industry are touched upon (or might potentially be addressed in some way) by various government departments in the UK, including the Department for Digital, Culture, Media and Sport (DCMS), the Department for Business, Energy and Industrial Strategy (BEIS) and the Department for Levelling Up, Housing and Communities (DLUHC).

2. Current practice, policy and academic perspectives

Louise Smith, Director, Neptune Environmental Solutions presented a view from the field at present. She reported that the Covid-19 pandemic accelerated the move to more digital practices by the film and TV sector. There was of course a rapid shift to the use of online video meeting software as opposed to taking flights, but there was also a marked return to aviation once travel restrictions eased. The emergence of Virtual Reality technology for location scouting was discussed later in the workshop by participants too.

The digitisation of office practices was greatly speeded by the pandemic. Keeping volumes of printed documents in climate-controlled storage for 10 years was standard but the use of secure digital storage was widely adopted during the pandemic. Other aspects of Covid-19 led to poorer environmental performance by the sector – for instance vehicles took fewer passengers to maintain social distancing between people. Some screen arts occupations may make a longer-term shift to primarily working from home. Remote working becomes possible for a number of aspects of productions, including monitors streaming to directors remotely. However, there could be downsides to the disruption to communications with some film workers working from home and others required on the set. It will be possible that some groups of workers will miss out on some of the benefits to being within communications loops. But some workers in film and TV will benefit from greater time with their families as practices change.

Gareth Kirkman, Project Manager, Business and Industry Development UK, British Film Commission presented next. He said that it had increasingly been recognised that the film industry requires systemic change to reach net zero targets. UK government policy has tended to offer carrots rather than sticks. The albert certification tool enables use of the albert Sustainable Production logo and is used by TV productions but so far just one film, *1917*. The picture is more muddied for feature films and high-end TV, as they may use studios' own carbon emissions calculators etc. There are Green Production Guides – with acronyms including PEACH, PEAR, PLUM and more. There are different data monitoring systems. These kinds of tools have a common goal to spur on more green production and encourage defined actions to be taken. There are also some shared goals about raising public awareness about the need for climate action.

The sector can be overlooked, for instance it is not named in the UK government's Industrial Decarbonisation Strategy of 2021 but that strategy does set some of the overarching framework for reaching net zero in the UK. Some participants suggested that policies for improved environmental performance by the screen arts sector should be differentiated from overall approaches, to enable greater focus on the particular features and challenges of the sector.

With reporting on carbon emissions left as mostly voluntary, an important incentive is if public funding is awarded, greener production standards can be made a condition of funding.

Pietari Kääpä, Associate Professor, Media and Communications, Centre for Cultural and Media Policy Studies, University of Warwick presented next: He said that there is a gap in academic research on the issue of environmental performance by the screen arts sector. Over the last 20 years or so, academic research on the subject of the environment and media has increased but it has mostly focused on the content of media output. For the last 5-10 years or so, academic research has emerged on the environmental impacts of media production. The book *Greening the Media* by Richard Maxwell and Toby Miller came out in 2012 and the book *Sustainable Media* edited by Nicole Starosielski and Janet Walker was published in 2016 including a chapter by Hunter Vaughan.

A number of academics have now looked at the political economy of media production, but they aren't environmental scientists. For the academic agenda, we need both of these types of researchers involved. It's important to understand the cultural change needed in the industry and governance, but environmental engineering could also be making a contribution. This type of collaboration is the basis of a new bid that PK and HV are making to the Horizon Europe programme from the European Research Council at the moment. They would like to move beyond the macro level of media industry analysis to understand shoots on the ground and build that into academic work.

There does seem to be more opportunity to build academic research into the environmental standards promotion by bodies in the industry. Some of the proposals in the *Screen New Deal* report were aimed at people who couldn't make the necessary changes. Environmental engineers and computer scientists could have been consulted to a much greater extent, as well as drawing upon critical perspectives on technology and more insights from the workforce.

Later in the discussion, emphasizing the importance of training and education in this transition, it was suggested that maybe there should be a new Masters programme or similar educational offering to train people to become the environmental consultants bringing carbon emissions down in film and TV.

There could be drawbacks with a new 'digital wonderland'. Virtual production operators might be arguing that real locations will become less necessary in future but there could be wasted assets/outputs as well as other downsides. It should also be questioned where the motivation for increasing digitisation is coming from – the ideology of 'big tech' forms part of this as well as some influential directors.

Probably the likely 'sweet spot' for environmental benefit is where it intersects with cost and efficiency. The digital transition was underway and then the prospect for greater environmental sustainability was added in – a phenomenon observed in other sectors too.

Film and TV can be seen as a microcosm of society – it was argued that life cycle analysis should be applied across a wide range of developments in society as well as in screen arts, including electric vehicles where the production of vehicles does generate CO₂ emissions.

Questions were raised and comments made by participants in the workshop with experience of Government industrial decarbonisation strategy. The screen arts sector has not been seen as a Governmental priority for industrial decarbonisation. Many Governments do work in 'silos' and the film and TV sector can perhaps miss attention with its productions taking a somewhat more ephemeral form than other industries, with a less obviously material output.

Interestingly, when the first report (produced by Charles J. Corbett and Richard P. Turco for UCLA in 2006) came out on the environmental impact of the screen arts sector in Southern California, the sector's impact on greenhouse gas emissions rivalled other big industries in the area, which include aviation, semiconductors and apparel production.

The question was asked about what might be holding back good measurement and data collection regarding environmental performance in the screen arts sector? In response, it was considered that the incentives for the industry to change may not be as strong as in other sectors where either governmental regulation or public consciousness are more influential.

The following key factors also emerged in discussion:

DATA DISCREPANCY: Also, there is some lack of consistency in the data to be collected to achieve the standards within albert or other environmental standards certification.

LACK of AUDIENCE INTEREST: And without significant public interest in the issue, there isn't the demand to put information on environmental performance out into the public sphere.

SCOPE 3: It can also be difficult to determine the systems boundary of film production, with emissions caused internationally by travel and now if life cycle analysis is applied to the production of technologies used in film, the systems boundary becomes even larger.

LOBBYING and INDUSTRIAL GREENWASHING: There can be a transparency problem as well with major players in the media industry good at deflecting regulation.

SYSTEMATIC CORRELATION PROBLEMS: There could also be a 'tall poppy' syndrome – if one company publishes its sustainability information, they might feel open to more critique of their current and previous practices.

It was reported that some work is going on now to gather data on embedded carbon in the creation of studio spaces. It was also mentioned that there is work going on at the universities of Bournemouth and Greenwich about the environmental impact of green screens. A collaboration involving the Premier League, Sky, BBC, BT and others commissioned a study of the carbon impact of cloud-based live broadcast in 2022 and it demonstrated that remote and cloud production workflows can reduce the environmental impact of live production.

The potential for the screen arts industry to learn more from other industries was raised. For instance, Formula E has addressed the problem of diesel generators being taken from place to place. And the whole question of the circular economy is looking at the use of some of the rare minerals required in the widespread use of digital technology.

3. Role of Sustainability Managers

Mairi Claire Bowser, Screen Sustainability Manager for Scotland presented her perspectives. She identified a significant challenge to implementing improved environmental practices, based on the pressures on film and TV workforces. Working weeks of 60-70 hours are common and it is hard for the workforce to take on new considerations. The entertainment trade union BECTU has had a voluntary committee working on environmental campaigns.

How can the industry move on from using something like the albert certification as a box-ticking exercise? It was argued that there needs to be greater local knowledge retention about how to reduce emissions. For some aspects of the production process, there is good practice to pick up on from other industries, eg the events industry, transport, so the wheel doesn't need to be reinvented.

In a smaller country like Scotland, there can be greater access to policy makers and Scotland has a net zero target to reach by 2045 so there are levers that can be used to increase incentives for companies to improve environmental performance. If public funds are put into film production, conditions can be attached, such as 'leaving a better trace', like putting in charging points for electric vehicles. Also a large charity like the National Trust for Scotland has numerous locations that are used for filming and they can impose conditions like not using diesel generators.

The use of digital asset tracking was discussed. Costumes and props can be photographed and a process created whereby unwanted assets are given to charities or stored for future use.

Laurence Johnson, Sustainability Manager, Film London said that sustainability managers in screen arts agencies have a role in helping productions to be more environmentally sustainable. There is a network of suppliers, many of which are SMEs, and data needs to be supplied by them too about energy use for transport, generators etc. Recommendations can be made by bodies like Film London about using one studio over another if it is more sustainable, and they are also commissioning studies into fuel technologies.

Some international good practice was raised by workshop participants. In Germany, diesel generators are likely to be banned from the centre of towns and cities. The Sardinia Film Commission has established a Green Film Shooting Protocol, as has Creative BC in British Columbia. In South Florida, there are marine managers that film productions must work to avoid damaging the marine environment. In Michigan, tax incentives for film production were provided if the films could be linked in some way to the Pure Michigan tourism campaign. For the Flanders Film Fund, the

sustainability requirements have to be met before the last 10% of funding is released. The BFI also does this, also requiring the productions it funds to meet standards for equality, diversity and inclusion and care for the mental health and wellbeing of the workforce.

Change is going to require 'agitators', and some of this may come from activists working with the trade unions, for example, with an open letter to the industry coming up. Although there is a lot of pressure on workforce in the industry, the screen arts industry is booming in the UK and there is a shortage of skilled people so for recruitment and retention, workers may increasingly be looking for employers to do the right thing environmentally. A survey of people working in camera operation found climate change at the top of their priorities and concerns.

Other stakeholders who could influence change were discussed, including the board members, non-executive directors and senior management of the largest companies. Also, it was questioned how advertising fits into this issue? On the one hand, advertising also generates its own productions which should be assessed for environmental performance. Also, some major brands only wish to see their products associated with positive environmental performance, which may have relevance to product placement in films etc.

Finally, the role of the biggest stars in the entertainment industry was discussed. Some actors are prominent spokespeople for environmental issues, but as the most high-profile actors also have lifestyles which can have significant environmental impact, there can be problems with relying too much on their contribution to greening the screen arts sector.

In conclusion, there was some consensus that reducing carbon emissions and improving environmental performance in the screen arts sector would require:

- More regulation that distinguishes the media industry from other overlapping sectors especially as comes down to scope 3 emissions
- Clarity of criteria for improved environmental performance (should be based on scientific input and measured scientifically)
- Transparency and measurable standards understandable by non-specialists.
- Public funding and tax incentives could potentially both have carbon reduction requirements for productions? It seems that no European countries have environmental standards linked to tax reliefs and there may be limitations on how the legislation can be written – more expertise would be needed, maybe from someone working in HM Treasury?
- Agitators to spur policy based on clear demands from industry
- Coalition between environmental and social protocol is needed

Participants

- **Emily Farnworth (chair)**, Co-Director, Hughes Hall Centre for Climate Engagement
- **Mairi Claire Bowser**, Screen Sustainability Manager, Scotland
- **Nicola Buckley**, Associate Director, Centre for Science and Policy
- **Juliana Holanda**, PhD Candidate, University of Warwick
- **Laurence Johnson**, Sustainability Manager, Film London
- **Dr Pietari Kääpä**, Reader (Associate Professor), Media and Communications, Centre for Cultural and Media Policy Studies, University of Warwick
- **Gareth Kirkman**, Project Manager, Business and Industry Development UK, British Film Commission
- **Vedantha Kumar**, Climate Manager, Children's Investment Fund Foundation
- **Dr Kate Moffat**, Postdoctoral Fellow, University of Warwick
- **Dr Shreepali Patel**, Director, StoryLab, Anglia Ruskin University
- **Dr Meryl Shriver-Rice**, Director of Environmental Media , University of Miami
- **Louise Smith**, Director, Neptune Environmental Solutions
- **Dr Hunter Vaughan**, Senior Research Associate, Minderoo Centre for Technology and Democracy, University of Cambridge