xR StOries

UNIVERSITY of York

The York Policy Engine

Research to inform policy from the University of York
School of Arts & Creative Technologies

VIRTUAL PRODUCTION

Realising the UK's potential by investing in research, skills, and facilities

Summary

- There is huge potential for the **UK film and television industries** to expand their use of **virtual production techniques.** But sector growth is limited by the **skills shortage** in the screen industries, and a **lack of facilities.** The **government** needs to prioritise action to develop and retain the skills and infrastructure the UK requires for its virtual production industry to grow.
- Virtual production also offers ways to address the sector's **issues** with:
    - inclusion
    - diversity
    - equality
    - accessibility
    - environmental impact

We need more **research** into how this potential can be fully realised.

Context of the Problem

[V]irtual production is kind of still the Wild West … there's a shortage of crew, Unreal Engine operators.
– Virtual production supervisor, international virtual production company

Previous disruptions – such as the advent of streaming services – have impacted how film and TV gets **distributed**, but not how content is **produced**. But as virtual production technology develops, it's dramatically changing the way film and TV is actually made.

Virtual production uses **computer-generated content** that allows practitioners to visualise and control digital environments in real time during pre-production and shooting. The virtual environments are captured 'in camera', rather than being added in post-production.

Virtual production is becoming more widely recognised because of hits such as Disney's *The Mandalorian* and the BBC's Olympic coverage. The popularity of virtual production has also increased because of the COVID-19

pandemic, social distancing and restrictions on travel. These factors meant that production could not happen on location in the traditional way. Virtual production approaches allowed film and TV production to continue because filming was done in virtual environments.

Now, as we come out of the pandemic, **leading figures** in film and TV have cited virtual production as a crucial new tool. Recently, 40% of UK and US industry executives said that they were using virtual production tools, and half said they would adopt them in the next 18–24 months (Altman Solon, 2022). Virtual production technologies are here to stay. If the UK is to maintain its position in the film and television industry, it will be crucial to grasp the opportunities that these technologies offer.

In 2021, **film and high-end television production in the UK** was worth £5.64 billion (BFI, 2021). Deloitte Global (2022) predicts that the market for virtual production will grow to $2.2 billion in 2023, up 20% from 2022.

The Department for International Trade (2022) has highlighted how the UK is in a **unique position** to capitalise on virtual production, because of its combination of:

- established **production infrastructure**
- a world-class **VFX supply chain**
- a skilled and adaptable **workforce**
- agile **innovation** around creative technologies

However, the UK government needs to focus policy directly on developing the virtual production industry. If it doesn't, other countries will emerge as leaders in this field.

The UK screen industries are facing huge **skills shortages,** and because virtual production is very new it adds to this challenge. The creative industries are also rife with **exclusion, exploitation and discrimination,** and it's important that interventions to address skills shortages don't reproduce these problems. In fact, virtual production has the potential to help address these problems, and any interventions should harness this potential.

New Research and Evidence

From 2022 to 2030, the virtual production industry will have an annual growth rate of 17.8% globally.
– Grand View Research, 2021

Virtual production is disrupting established TV and film production pipelines. Researchers at XR Stories are examining this, and looking at how the use of virtual environments can help us to improve:

- **sustainability**
- **equality, diversity and inclusion**

See our report *What is virtual production? An explainer and research agenda.*

Investment and interventions in virtual production need to be based on **academic research.** Also, we need a **research agenda** that covers all areas of development (technological, infrastructural, regional and human) so that the industry is:

- inclusive
- accessible
- sustainable

This research agenda needs to be **interdisciplinary**, and draw on the **excellence** available in the UK university sector, to shape the evolution of the very lucrative virtual production industry.

Policy Recommendations

Future funding through bodies such as Innovate UK, UKRI and the Creative Industries Council should be made available for virtual production facilities and skills development.

- The virtual production sector should work with schools, colleges and universities to enable work experience such as:
  - work placements
  - trainee schemes
  - apprenticeship programmes

Training schemes depend on predictable, long-term funding, especially if they target a wide range of people at all stages of their careers.

UKRI should commission more research into virtual production. This research should cover environmental sustainability, equality, diversity and inclusion, and the ethic creation and use of digital assets. Alongside R&D, these foci will ensure investment in the UK virtual production sector has the greatest return on investment.

- New funding schemes are emerging for the virtual production sector (e.g. AHRC's CoStar programme and EPSRC's XR Network+). However, they mainly focus on technological development. More funding is required for the industry's infrastructural, regional and human development. This will help to make the UK's virtual production industry:
  - inclusive
  - accessible
  - sustainable

Further information

Dr Nina Willment, Research Associate for XR Stories at the University of York
nina.willment@york.ac.uk

Dr Jon Swords, Senior Research Fellow and Research Lead for XR Stories at the University of York
jon.swords@york.ac.uk

DOI number: 10.5281/zenodo.10878742