



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

CREATIVE XR TECH DISRUPTION

Regulating for a fairer, safer, and more accessible XR future

Summary

- **XR technologies** such as virtual reality (VR) and augmented reality (AR) are a growing part of entertainment, at home and at cultural venues such as cinemas, galleries and museums.
- Sales of VR headsets grew 92% from 2020 to 2021, and it's projected that by 2026 the **VR market** will be worth US\$16 billion.
- We need **new regulation** of the production of XR content, so that XR is:
 - **fair** for producers and offers **viable** business models
 - **safe** for children
 - **accessible** for all

XR tech disruption: The background

Sales of VR headsets grew 92% from 2020 to 2021. With more companies entering the market, the consumer base is expected to more than double again by 2024. It's projected that by 2026 the **VR market** will be worth US\$16 billion. **AR** apps are widely available on smartphones, and AR devices (such as AR glasses) are becoming more popular. **These technologies have the potential to disrupt a wide range of creative sectors:**

Film and television: Cinematic VR allows audiences to experience 360-degree visual content alongside spatialised audio (audio that appears to come from different directions).

Theatre: VR and AR can transport audiences and actors through the same virtual space at the same time, unrestricted by geography or any of the physical limitations of a venue. Audiences can become more active participants.

Live events: Devices such as AR glasses can enhance audience experiences at music concerts, sporting events and public art shows. Holograms are already used to augment live music performances.

Social media: AR is most often used to map virtual objects onto physical objects through the screen of a mobile device. Examples include face and environment filters (TikTok, Snapchat) and games (*Pokémon Go*).

Heritage/tourism: AR applications enable people to access extra layers of information. For example, AR can create virtual characters in historic venues and landscapes, or allow people to interact with a digital version of a painting or ancient artefact. And VR devices allow people to experience destinations remotely.



The Archive interactive experience, by Pilot Theatre. Images copyright: XR Stories

“RESEARCHERS, BUSINESSES AND INDUSTRY NEED TO IDENTIFY AND DEVELOP NEW BUSINESS MODELS TO EXPLOIT THE COMMERCIAL POSSIBILITIES OF IMMERSIVE EXPERIENCES THAT ARE DRIVEN BY AR AND VR.”

Business Models

Researchers, businesses and industry need to identify and develop new business models to exploit the commercial possibilities of immersive experiences that are driven by AR and VR. VR is being monetised through strategies such as in-app purchases, and it will become easier for creators to implement these strategies as games companies collaborate more with advertising and app discovery platforms.

How much XR creators are paid for their work varies across distribution platforms, and government needs to intervene to ensure fair pay and equal access.

Regulating user-generated content

Users of digital content have more opportunity to engage and create, rather than sit and watch. User-generated content is increasingly created and shared by young people, and adults are moving into children's platforms such as Roblox, which was originally used mainly by young audiences. These platforms are also being used for sponsored events, and more brand-sponsored content.

The lines between marketing and children's content are becoming increasingly blurred. More research is needed into whether regulation should be extended in response to this.

Content with age guidance of 13+ is not intended for the children's market. However, this doesn't mean that children and their families aren't using it, and even more will do so as the technology becomes more accessible. In all these new spaces, it's a challenge to ensure children's safety. **The Online Harms Bill should accommodate new technologies such as VR.**

Accessibility

Our understanding of accessibility in virtual environments is still developing. There's a real risk that disabled people won't be able to access content,

either as audiences or creators. It's vital that those creating these technologies and experiences are trained in accessibility issues and understand how important it is to build accessibility into the process, rather than trying to add it in as an afterthought.

For example, a 2021 study of the most popular AR games on iOS and Android showed that 36% had no support at all for screen readers. Two thirds of the other apps worked with inbuilt screen readers, though many only allowed the screen reader to describe what was happening in the user interface, not what was happening in the game. The final third of these apps had bespoke screen-reading functions, which meant the user needed to switch off their inbuilt screen reader in the settings before they could get started.

It is important to ensure that everyone can access and use the opportunities presented by new creative, immersive technologies. Research and funding are needed on whether our existing knowledge of tech accessibility is adequate for these new technologies.

These problems must be addressed by:

- using existing legislation (e.g. enforcing the Equality Act)
- disabled people working with developers on tools to make software and hardware more accessible

Summary of Policy Recommendations

How much XR creators are paid for their work varies across distribution platforms. Government needs to intervene to ensure **fair pay and equal access**.

The lines between **marketing and children's content** are becoming increasingly blurred. More research is needed into whether regulation should be extended in response to this.

The **Online Harms Bill** should accommodate new technologies such as VR. It is important to ensure that everyone can access and use the **opportunities** presented by new creative, immersive technologies. Research and funding are needed on whether our existing knowledge of tech **accessibility** is adequate for these new technologies.

Further information

To find out more about the University of York's work on digital creativity, check out XR Stories and the School of Arts and Creative technologies.

enquiries@xrstories.co.uk

xrstories.co.uk | york.ac.uk/arts-creative-technologies

DOI number: 10.5281/zenodo.10878851

