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# British TV and AI: explore and exploit

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## Introduction

British TV came late to the AI race. Despite a strong heritage of world-leading innovation in both Artificial Intelligence and Television, the United Kingdom lagged behind the United States and China in the widespread adoption of recommendation algorithms. The TV industry only visibly engaged with the first wave of generative AI with the mass market product launch of Chat GPT on 30 November 2022. However, the UK is now focussing on the opportunity. Just as in reinforcement learning the optimal strategy for success combines exploration and exploitation - so British television itself is now in AI “explore and exploit” mode, seeking out and testing AI applications. The BBC iPlayer’s 2024 on-air promotion slogan even expresses this idea: “Love what you find - and find what you love.” British TV is also exploring the frontiers of AI creativity - in synthetic humans, AI agents, the use of LLMs and camera-less innovation. This use of generative AI is creating copyright risks - and creative opportunities. The philosophical and commercial dimensions of AI are strikingly disruptive, but it is too early to map future effects. This article provides an overview of the UK TV industry at a transition point that could set the creative and commercial parameters for a generation.

## Approach

This article is framed from the perspective of producers and broadcasters, rather than government policy or parliamentary committees, which have not yet provided material support for the AI challenge in television. The research draws on the practices of UK broadcasters, production companies and UK-based social media companies, discovered through dozens of interviews and engagements over the years June 2023 to May 2024, in addition to wider industry research. Direct discussions included Banijay, BBC Studios, Brand Safety Summit, British Screen Forum, Broadcast AI Creative Summit, Case Centre, Channel 4, Chief Executives Organisation, CIMIX Conference (Vienna), Copenhagen Entertainment and Media Law Association, Directors UK, Edinburgh TV Festival, Ellie’s (Brussels), Fremantle, FT Innovative Lawyers Global Summit, Foundation Rafel Del Pino Future of Journalism event, GP Bullhound AI Investment Event, Kudos, Media Society, Meta, Oxford Generative AI Summit, Pathe, Reuben University (Estonia) AI event, Spirit Studios and Workerbee. For reasons of confidentiality, specific engagements are not directly referenced. None of the above companies have endorsed the author’s views expressed in this article.

## The impact of AI: four stages of content delivery

All content - a film, a concert, a TV quiz - is developed in four simple phases: Development, Production, Distribution and Monetisation. Using this framework (Connock, 2023) to deconstruct the impact of AI on UK TV, three principles emerge.

First, AI has reached all four stages, from generative AI in ideation and storyboarding, to post-production tools, recommendation algorithms in distribution (Netflix, 2022) Machine Learning (ML) in bandwidth management, and analytics in monetisation.

Second, the nuance around the impact of AI lies in the sequencing. AI reached the latter stages first; specifically distribution. It is only in the last 18 months that AI has moved backwards in the metaphorical timeline from distribution to Development, driven by the launch of the quintessential Large Language Model GPT3 and its November 2022 tool, Chat GPT - followed of course by GPT-4o (March 2023), Google's multi-tier Gemini model range (DeepMind, 2024), Anthropic's Claude (Anthropic, 2024), Meta's Llama (Meta, 2024) and others. For a useful guide on how large language models work, see Murgia (2023).

Third, this iterative integration of AI into the TV production workflow (Khan, 2023) mirrors the explore/exploit dialectic in reinforcement learning, with each dynamic being balanced against the other to optimise performance against a commercial goal. The goal here is arguably to maintain the British TV industry as a commercial force, in the face of global competition, advertising downturns, cord-cutting, preferential social media usage amongst younger viewers, and direct threats to the BBC licence fee that underpins the entire UK TV ecosystem, alongside a currently misfiring commercial TV sector in which the independent broadcaster Channel 4 has reduced its commissioning rate [For a simple guide to reinforcement learning in commercial settings, see AWS (2024)].

We can dissect the impact of AI on UK TV production - in the reverse order in which it arrived.

## The distribution and monetisation phases

Netflix's machine learning models (Netflix, 2022) have given it first mover advantage, then global dominance, in the TV/streaming world of recommendation algorithms for 15 years - while British TV has barely scratched the surface of its potential.

In 2007, Netflix switched from mailing DVDs to streaming, one of the great industrial pivots (Randolph, 2019). In 2006 it offered \$1 million in a public competition to design an algorithm (Whiting, 2009) although it never actually used the winning entry (Johnston, 2012). Blockbuster Video ignored (Mollman, 2023) the clear competitive threat (Christensen, 2015) having previously turned

down the chance to buy Netflix, for \$50 million. Netflix then built its market-leading offering through powerful research - publishing multiple articles on Large-Scale Recommender Systems (Menezes, 2023) and Heuristics in ML, for instance. Global AI leadership in this field translated for Netflix into user recommendation at scale, global streaming dominance and (21 June 2024) a market capitalisation of \$295.65 billion. Its main competitors for attention were not the other TV providers it had left in the dust - but the other experts in Reinforcement Learning in video, namely, YouTube (Goodrow, 2021) and TikTok (TikTok, 2024). Where Netflix has led the way in innovating the TV user experience, Amazon Prime Video, with the knowledge base of its corporate parent, has begun to follow.

British TV missed out on this growth - and, what is worse, it should not have done so.

A key player in the invention of television itself, the BBC innovated early streaming (BBC, 2024) in addition to AI technologies such as stacking, and downloading, and a recommendation engine through the My PDS personal programme selection tool (Sharp, 2021) Then in 2009, the UK regulator made a decision that, intentionally or not, created an epochal missed opportunity for the UK TV industry. The Project Kangaroo Streaming proposal, which aimed to combine the online offerings of BBC Worldwide, Channel 4 and ITV as a single platform in the new global "over-the-top" (OTT) streaming industry, was vetoed by the Competition Commission. "We have decided that this joint venture would be too much of a threat to competition in this developing market and has to be stopped" (Sweeney, 2009). The logic was incorrect, because the competition problem in streaming was not local, but global.

Thirteen years on, Britain now has multiple, globally sub-scale streaming services. While Netflix was a singular brand from the start, UK commercial leader ITV launched VOD products three times: first the clunky ITV Hub and ITV Player, then ITTVX, which is slicker but has limited content. Channel 4 also launched three times - as 4oD, All4 and now (not rocket science) as Channel 4. The BBC innovated with iPlayer, and kept that branding, but is constrained by regulation, making it a relative also-ran in global streaming.

The UK still has innovation. The BBC takes a "supervised" learning approach to the recommendation, driven by public service. To prevent the user from going down a "rabbit hole" of sequential recommendations like YouTube serving up endless conspiracy videos, the broadcaster adds hand-crafted editorial guidance to algorithmic automation (Aythora, 2022).

## The production (and post-production) phase

Towards the end of the second decade of the 21st century, ML tools - statistical pattern recognition/prediction - came to

digital production, through integration with Photoshop, Premiere, Unreal, Unity and many smaller players.

The BBC developed an “object-based media” project to enable stories to be told with fragmented assets in order. Its Springwatch teams used ML and Raspberry Pi cameras to identify wildlife (Dawes, 2020). ML-driven anomaly detectors identified interesting clips of nesting birds. Meanwhile, unofficially and without authorisation, the voice-synthesised BBC star David Attenborough became a popular AI trope, widely deployed from the title sequence of the podcast ghost series *Other World* to a single creator using him to narrate his life in real time (Stewart, 2023).

Studio software tools such as Descript reached TV from the creative space, as did Heygen and Eleven Labs for voice synthesis. AI dubbing provider Papercup was used by the World Poker Tour for translation at speed (Skalai, 2024). Flawless (a Hollywood company with UK origins) and other companies managed high-end translation including synthetic lip sync, with which studios began experimenting in earnest in 2024 (Schomer, 2024). Video creation tool Runway ML (based in New York) released its popular Gen-3 Alpha video creation tool in June 2024 (Franzen, 2024).

AI music creation software - Musicfy, Dreamtrack, Suno and Udio - became attractive to TV producers for cost reasons compared to composed or library music, but for sizzle reels rather than final products, because of rights concerns. In early 2024, post production specialist EditCloud presented a detailed workflow study of 20 tools in TV production. In media management/ingestion: Pro IO, Adobe Media Encoder, Rocket Uploader, Backup IT, WatchTower and Syncalia. In Content Detection: Iconic, Curio, Mimi, Twelve Labs and Avid. In editing: AutoPod, Premiere Autotranscribe, SimonSays and Blace, They found that AI tools could reduce post costs by approximately 30%; with the best being Syncalia, Iconic and Mimi. Given that post production can easily account for 30–40% of the budget of a TV production, this is promising (Hall, 2024).

## Development

For all its glittering heritage in creating new intellectual property, British TV could do with a new source of creative adrenaline.

In 2024, the major UK broadcasters defaulted to older, third-party formats for major shows, rather than innovating. In a circle dance, ITV licensed the late 20th century Endemol (now Banijay) format *Celebrity Big Brother*, previously on Channel 4, which in turn poached the BBC’s *Great British Bake-Off* (distributed by Comcast-owned Sky). The BBC licensed the ageing ITV format *Gladiators* for prime-time. These were not signs of an industry at the height of export-friendly innovation.

So could AI provide an answer? In 2023, TV broadcasters and producers began to engage with AI tools as development engines

- both for LLMs and visual creatives. Tools used included Aperture 4.0, Imagen, Lexica, Crayon and PhotoRoom. AI presentation tools have become common with development teams in pitching - industry-leader Canva, but also Sigma and again, the AI-integrated Adobe Creative suite. Challenging first movers Midjourney and Stable Diffusion (each with potentially compromised copyright) and Pika Labs, Sora from Open AI in 2024 augured content creation without cameras, for the first time, even in Beta. Images without shooting costs could be a creative transformation as big as the first photograph (1839) or television itself (1928). Or on a practical level, they could allow the budget-constrained but effective Channel 5 to create a realistic mid-evening TV journey along Britain’s lost railways, featuring footage of non-existent trains and tracks. And could an interior visualisation software like Palazzo reinvent the tired genre of design makeover shows?

Also, for story creation itself, LLMs have reduced the timeline between ideation, writing, market research, design and pitching from months to hours. Iteratively, using an LLM like GPT4, one could create 20 ideas for a documentary, road test them against the historical performance of all previous documentaries, benchmark the script beats against past successes, and design the artwork and pitch document. Storied comedy producer Hat Trick capitalised on this idea by creating a specifically AI-driven development unit in 2023.

## Creative originality, training data and AI agents

However, no producer in the UK has yet gone further to announce (in effect) their own tuned LLM, as the Financial Times did (April 2024) in a deal with Open AI. Many producers and buyers resist, on principle.

Casey Bloys of HBO (the buyer of *Game of Thrones*, which is largely produced in the UK) said in 2023 that he was not interested in AI scripts, and was in the business of “human connection.” And even on the technology side, there are sceptics of machine content. Kevin Scott, Chief Technology Officer at Microsoft said: “The thing that seems to be true about human beings is, we like to consume the things that we produce. We could right now. Instead of the Queen’s Gambit on Netflix, have the Machine’s Gambit, and have a whole Netflix show about computers that play each other at chess. And nobody wants to watch that.” [SIC].

As a statistical exercise, could a computer have come up with the Queen’s Gambit outlier, given the lack of relevant training data? Bella Bajaria who co-commissioned the show at Netflix, said: “There’s not an algorithm that would probably say, you know what’s a great idea? A period show about a woman playing chess.” [SIC] (Littleton, 2023) Author Stephen King, behind many hit shows and films, said of AI writing: “I view this possibility with a certain dreadful fascination.” (Haysom, 2023) Others have argued that since the combination of AI

plus humans can beat both AI and humans playing chess individually, the same logic could apply to TV creativity.

Of course Silicon Valley has an answer to the creative conundrum of training data. Training data collectors like Appen and Scale AI - which provide the coal that is fed into the furnace of large language models—have been hiring poets, creative writing graduates and artists to train the models (Tangermann, 2023).

If one area of AI holds the most promise for TV producers looking to rejuvenate tired genres in 2024, it is agent-based AI models. For a useful primer, see for instance a recent lecture by Andrew Ng (Sequoia, 2024) at a Silicon Valley venture capital conference.

In October 2023, computer scientist Joon Sung Park presented a compelling vision of an (effectively) oven-ready, agent-driven reality show in which 25 synthetic humans inhabit a village, and autonomously negotiate their lives with only the most threadbare of instructions (Park, 2023). The characters would go to work and cocktail parties - or would flake out if they were too tired. Other companies such as Hume offer products like Evi, “the world’s first AI with emotional intelligence,” (Miles, 2024) which would be useful as a new interpretive data layer for Married at First Sight or Love Island formats. Delphi allows users to “configure your clone for your specific needs,” running multiple versions of themselves for work or love life, in a real-life Black Mirror-style storyline (Delphi, 2024). Open AI found itself in communications hot water when it launched an AI voice tool capable of facsimile emotional conversation in May 2024, with a voice similar to that of actress Scarlett Johansson (Pisani, 2024).

Finally, to confirm that the potential of the space can be turned into reality: in April 2024 the US series, The Circle (originated by the British company Studio Lambert) used an AI agent character for its sixth season (Horton, 2024).

## The IP ownership battleground

The TV industry at large is far from convinced that using generative AI in the creative DNA is a positive thing. Hollywood executive Barry Diller told a podcast: “For the people currently engaged in the pursuit or dissemination of information and entertainment and everything else, it is in danger.” [SIC] (Diller, 2023).

In early 2024, Open AI’s CTO, Mira Murati, failed to clarify in a Wall Street Journal interview (Stern, 2024) whether the company’s Sora engine had been trained on YouTube content. For TV, there is a copyright or chain-of-title risk if training content is of unknown provenance. Film creatives bemoaned striking similarities between the outputs of Midjourney when given Batman prompts (Thompson, 2024) and their copyrighted movies. The New York Times took legal action against Open AI over its outputs (Grynbaum, 2023). Emad Mostaque, then CEO of Stable Diffusion until March 2024, said in an interview that in

a few years he would be able to create a new series of Game of Thrones from a single verbal prompt (Mostaque, 2022). Meanwhile its creator, George RR Martin, is reportedly targeting generative AI platforms with legal action for copyright infringement (Spangler, 2023). In the UK, efforts by the Intellectual Property Office have so far failed to secure a copyright agreement between AI companies and rights holders.

Copyright underwriting by large companies like Open AI and Adobe could allow producers to be confident in using their output on air, although TV lawyers interviewed were sceptical about relying on this. Meanwhile Open AI’s deal to pay media company Axel Springer (reportedly tens of millions of Euros) to train on its material (Cullen, 2023) just as Apple reportedly paid Shutterstock for access to its stock photos (Paul, 2024), opens up potential opportunities for UK TV rights holders with scale. The BBC has been reported to have held talks (without conclusion) about licensing some of its peerless libraries as AI training data (Thomas, 2024) although the merits of this idea are open to debate. As the LLMs run out of verbal training data on which to train, video data may increase in value (Sitharaman, 2024), especially authentically human data that pre-dates the AI era and therefore cannot itself be AI-tainted.

It is reductive to assume that the impact of AI on UK TV production will simply be time-saving tools, or the creation of facsimile video content. AI could go much further, and drive creativity in a purer form. AI could create massive copyright issues, but also massively drive up the value of existing IP. AI could feed British TV - or eat it.

## Author’s note

AC is a Senior Fellow at Said Business School, University of Oxford and Professor at the University of Exeter. He is the author of the Routledge books Media Management and Artificial Intelligence (2022) and Media Management and Live Experience (2024). In a media career spanning 25 years, he has run a number of TV production companies and advertising agencies, and has been shortlisted six times for Entrepreneur of the Year. He is a frequent European media industry speaker.

## Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

## Author contributions

The author confirms being the sole contributor of this work and has approved it for publication.

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## Conflict of interest

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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