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Creative Industries Policy & Evidence Centre

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Insights for policymakers

R&D in the creative industries

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In last year's Spending Review the Government restated its commitment to increase public research and development (R&D) spending from around £15 billion per year to £22 billion per year by 2026/7. It is important that the creative industries participate in this, as befits one of the fastest growing parts of the UK economy and identified as such in the Government's Plan for Growth. By addressing potential barriers to the creative industries benefiting from the increase in investment, the Government can create the conditions for supercharging their growth.

Based on evidence published by the Creative Industries Policy and Evidence Centre (PEC) we recommend:

- The creative industries receive an increased investment from UKRI R&D funding in recognition of their size, growth and future growth potential.
- An R&D tax relief that works better for the UK's creative industries, and in particular the use of an R&D definition which doesn't disadvantage the creative industries.
- A strong focus on R&D in the UK Government's upcoming Creative Industries Sector Vision.

Despite the policy barriers discussed in this policy briefing, the creative industries have in recent years benefited from public funding for R&D projects. As in other sectors, this R&D has demonstrably driven innovation in the form of successful new products, services and experiences: think live opera beamed directly into your home, Oscar winning visual effects, or immersive mixed reality theatre performances. Creative industries innovations can also help tackle global societal challenges such as environmental sustainability, for example through investment in R&D on the utility of biodegradable fabrics in fashion design.

Market failure in R&D in the creative industries

Some creative industries businesses already invest heavily in R&D. For example, analysis of the Department of Business, Energy & Industrial Strategy's (BEIS) UK Innovation Survey suggests that the share of creative businesses undertaking R&D is higher than in other services sectors and comparable with manufacturing. What's more, the evidence suggests that this investment in R&D in the sector leads to better business performance, not least because - as analysis in PEC Discussion Paper 2021/07 shows - doing R&D is strongly associated with businesses introducing innovations.

However, other research published by the PEC points to the existence of **market failures in creative industries R&D.** That is, left to their own devices, markets will underfund R&D. A newly published paper from PEC Director Hasan Bakhshi highlights two reasons for why this is the case:

- **Positive knowledge externalities:** As in other sectors, firms may not be able to fully appropriate the returns from their investment in R&D, e.g. due to positive knowledge spillovers to competing firms.
- **Asymmetric information:** In creative markets where uncertainties about the future success of R&D are especially great, asymmetries in information between company and investor, or other imperfections in financial markets, may create barriers to R&D investment by raising the cost of risk finance.

Consistent with the latter, further new research from the PEC suggests that while innovative creative companies are more likely to seek venture capital funding than their non-innovative counterparts they are no more likely to succeed in securing it. Three detailed case studies of market failures in R&D in the creative industries can be found in Hasan's report.

UK Research and Innovation (UKRI) investment in the creative industries

The recognition of these market failures helps to explain why the creative industries have benefited from tailor-made UKRI programmes in recent years, as well as from cross-economy UKRI funds. Research and blogs published by the PEC demonstrate how valuable these public investments can be in leveraging industry investment, as well as in driving innovation with other positive outcomes, such as increased community cohesion and environmental benefits.

Through the Industrial Strategy Challenge Fund (2017-) and the Creative Industries Sector Deal (2018), UKRI has been able to distribute the most substantial and ambitious **large-scale investments aimed at the creative industries** ever, which have in turn **leveraged in significant private investment**. These include:

- The **Creative Industries Clusters Programme** which is already generating a huge impact across all four nations of the UK. Two clusters (Future Fashion Factory and Business of Fashion, Textiles and Technology), are playing a leading role in sector transformation, re-imagining a future for fashion with sustainable innovation as an emerging priority, whilst the Dundee-based research and development centre, InGAME, is showing how video game design techniques, tools and technologies can be used to solve real-world problems - from tackling obesity to managing livestock.
- The **Audience of the Future Challenge** which has invested £39.3 million in the development of new immersive technologies such as virtual, augmented and mixed reality. Projects range from the first augmented reality production featuring Wallace and Gromit to the Royal Shakespeare Company's live online performance inspired by A Midsummer Night's Dream. The programme has helped the UK to sustain its position as the largest immersive

market in Europe, according to Digital Catapult and Immerse UK 2019 Immersive Economy report. A PEC blog from Dr. Samantha Lynch, who is Head of Creative Industries at the Arts and Humanities Research Council, points out that **StoryFutures Academy**, part of the Audience of the Future programme, has been making great strides in equipping the creative industries workforce with a range of arts and humanities-based skills - from storytelling to cutting edge skills in XR, VR and AR , fusing cutting-edge R&D with real world application in professional training. The positive impact of this 'fusion effect' on business performance - combining the sciences and arts - was explored in Nesta's report of the same name.

A blog for the PEC from Andrew Chitty, Challenge Director at Innovate UK, UKRI details some of the specific lessons from these significant creative industries investments - highlighting that from their success policymakers should **take away the knowledge that public R&D funding for the creative industries can drive co-investment from industry and other partners "to a scale we could hardly have imagined".** In the case of these challenge programmes, they have far exceeded their initial target for match funding of £59 million, and Andrew highlights that the current co-investment total is £201.6 million. The blog also highlights six ways in which the programmes together demonstrates the benefits of R&D to the creative sector, namely:

1. *R&D drives development of new, commercially viable, immersive products and services.*
2. *R&D funding can align rounds of private investment with innovation.*
3. *Challenge-based R&D models can drive innovation across supply chains.*
4. *R&D can drive the scaling up of small and medium sized businesses across the UK if connected to an innovation ecosystem.*
5. *Large-scale R&D demonstrators drive sector transformation.*
6. *Successful innovation models between creative businesses and universities increase participation in R&D.*

Meanwhile, a blog published by the PEC from Tom Fiddian, Head of AI and Data Economy Programmes at Innovate UK, highlights different lessons for future investment in the creative economy achieved through **cross-economy funds.** Specifically, he focusses on Innovate UK's £40 million funding cross-economy competition to support business-led innovation projects to respond to the societal and economic disruption caused by the Covid-19 pandemic, where **12% of recipients were from the creative industries**. This competition was directly funded by the Treasury and included a number of mechanisms and processes which were new to Innovate UK and proved to be effective at attracting creative companies to the fund, as well as achieving a greater pace and scale than they had previously achieved.

Specifically, the programme offered small grants (up to £50K), funded short projects (up to six 6 months), used streamlined application forms, offered up-front payments and utilised De Minimis (a state-aid mechanism which has arguably more freedom to operate that standard innovation funding). In his blog, Tom Fiddian argues that these changes allowed Innovate UK's funding to be more accessible to businesses, which was reflected in the total number of applications, which reached 8619 (more than the total which Innovate UK had received in the previous year) as well as in the overall quality of creative industries applications. Successful creative industries bids included:

- **ACS Clothing**, who innovated their business model to address the sustainable fashion agenda subsequently attracting £2.5m of private finance and nearly £1m of public funding.
- **Gramrphone**, who accelerated the development of their live-audio streaming technology to allow artists all around the world to perform on the world's largest music platforms.
- **Deep Render**, who developed their AI-based compression for the live-streaming market to be integrated on streaming platforms and devices (smart TVs, etc.).

Policy recommendations:

- *Funders should look to the success of the creative industries challenge programmes and prioritise investment in this strategic and fast growing sector.*
- *In order to support the ambitions of the UK Government's Levelling Up White Paper, we recommend that continued investment goes into the Creative Industries Clusters Programme. The R&D mission in the Levelling Up White Paper aims to see domestic public R&D investment outside the Greater South East increase by at least 40% by 2030. The White Paper also highlights how UKRI will have a directive to "deliver economic, social and cultural benefits from research and innovation to all our citizens". The success of the Creative Industries Clusters Programme in achieving economic, social and cultural benefits by investing in R&D right across the UK's nations and regions makes it a useful lever for the Government in achieving these goals.*
- *Funders should also ensure that cross-economy schemes are designed appropriately for the creative industries. Lessons from a successful Innovate UK fund point to the benefits of offering small grants of up to £50K, short projects (up to six 6 months), streamlined application forms, up-front payments and utilisation of De Minimis to support creative industries businesses to apply.*
- *By increasing the number and scope of creative industries specific schemes, and by ensuring cross-economy schemes are fit for purpose, UKRI should aim to ensure the sector receives an increase in investment in recognition of size, growth and future growth potential.*

Making R&D tax credits work

In the Autumn Budget and Spending Review, as well as making a commitment to increasing spend on public R&D, the Government noted that business investment in R&D at 0.9% of GDP was low relative to the OECD average of 1.5% and very considerably lower than leading nations like Korea, Japan, Germany and the US.

PEC research has shown that by excluding Arts Humanities and Social Science (AHSS) R&D from its R&D definition for the purpose of tax relief, the government risks missing out on fully incentivising R&D investment in the creative industries, one of the few industrial sectors where the UK is a world leader. Dropping the AHSS exclusion would also bring the UK into line with countries like Germany, South Korea, Austria and Norway – all of whose governments recognise the strategic importance of their creative industries.

Policy recommendations: *In June last year, the Treasury consulted on its R&D tax reliefs. In the PEC's submission to the consultation we recommended that:*

- *Creative firms would benefit substantially from more targeted advice from the HMRC, with specific guidance, supported by case studies and schematics, as to what does and does not constitute qualifying expenditure in creative industries R&D.*
- *Targeted training should be given to HMRC tax inspectors on how to distinguish between qualifying and non-qualifying expenditure in the case of creative industries R&D.*
- *The Government should amend its definition of R&D for tax relief purposes so that it follows the OECD's Frascati Manual in recognising R&D in the Arts, Humanities and Social Sciences (AHSS), bringing the definition into line with the large number of countries that already do so, including Germany, South Korea, Austria and Norway.*
- *BEIS should drop the explicit exclusion of AHSS projects from its guidance, and thereby acknowledge that the definition of 'science' includes the systematic study of the nature and behaviour of the physical and material universe, humankind, culture and society.*

Sector Vision

The Government has identified the creative industries as one of four key sectors in the Plan for Growth to encourage recovery following the pandemic and as such the sector has been invited to develop a Sector Vision. This is due to be published in summer 2022, and will set out "a long-term strategy focused on promoting growth within a sector and delivering on the government's levelling up, Global Britain and net zero objectives". Given the evidence provided in this policy briefing, it is essential that the Sector Vision uses R&D as a tool to achieve its stated goals - economic, environmental and social.

Research from organisations like the Digital Catapult has demonstrated how **new supply chains, enabling technologies, support tools and applications are being spawned by advancement in areas like virtual production and new paradigms like the metaverse**. Similarly, PEC research has shown the **opportunity at the nexus of the creative industries and artificial intelligence**. The Sector Vision offers an opportunity to build on these existing capabilities and develop new ones.

Policy recommendations:

- *The upcoming creative industries Sector Vision should look to accelerate investment in creative industries research and development. There may be particular opportunities in areas like virtual production and artificial intelligence, as well as in new paradigms like the metaverse.*
- *The PEC hopes to work closely with the Department for Digital, Culture, Media and Sport, UKRI and the Creative Industries Council to consider how this might be best achieved.*