Innovate UK
Technology Strategy Board

Results of competition: Cross-platform production in digital media - Collaborative R&D
Total available funding for this competition was £14m from the Technology Strategy Board.

Note: These proposals have succeeded in the assessment stage of this competition. All are subject to grant offer and conditions being met.

Participant organisation names	Project title	Proposed project costs	Proposed project grant
Axis Productions Limited (lead) AIMES Grid Services CIC Render Nation Limited Thinkbox Software	Cross-platform Open Media Production and Operation at Scale Ecosystem (COMPOSE)	£1,533,684	£920,210
Project description - provided by applicants			

The Cross-platform Open Media Production and Operation at Scale Ecosystem (COMPOSE) project will assist traditional animation/CGI/VFX businesses to improve the scalability of their digital infrastructure and to better collaborate across supply chains.

The project will build a demonstrator and focus on ways to reduce some of the main barriers to collaborative creativity; closed workflow cycles, proprietary datasets, high infrastructure investment overheads, rigid production pipelines which do not address multi-platform publishing.

The project will be led by award winning studio Axis Animation (Gold Cannes Lion, Imagina Grand Jury Prize and Best Animation BAFTA winners) whose clients include Microsoft, Activision and Warner Brothers.

The project consortium also includes Thinkbox, an industry leading software tool developer for both small and large film/CGI/VFX production studios (used on feature films such as Transformers, Harry Potter and Avatar), AIMES, a cloud technology provider who has led major Technology Strategy Board projects in digital media and infrastructure, and Render Nation, international industry experts in render service provision and production pipeline architecture.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
BAFTA (British Acad. of Film and Television Arts) (lead) Film London Limited University College London	REVQUAL - Resolving Visual Quality for Media	£998,627	£710,120
Project description - provided by applicants			

Video dominates global business and consumer Internet traffic and continues to grow (2012: 52%, 2017: 67%, Cisco VNI), demonstrating the massive impact of visual media production and media distribution services.

Investments in these services can be severely compromised by poor visual quality, caused by mediocre encoding tools, lack of encoding and streaming know-how, and failure to support the nuance of today's platform diversity (from HDTV, soon UHDTV, through to mobile displays).

The REVQUAL project delivers three inter-related innovations which sustainably enable visual quality excellence to be achieved comprehensively. These include: (i) new approaches combining machine learning and existing state-of-the-art visual quality metrics, delivered through: (ii) a new 'web crawler' service for automated video quality optimization within video production and distribution services, supported by: (iii) a visual quality human assessment database, optimized to professional media content, creating an open dataset, incorporating the emerging principle of "social visual quality assessment". The project sets a new baseline for quality, enriching the value of all services.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
BBC R&D (lead) Imagineer Systems Limited The Imaginarium Studios Limited University of Surrey	REFRAME: Location Performance Capture for Real-Time Enriched Media	£1,915,385	£1,229,537
Project description - provided by applicants			

REFRAME is a two-year project to research, develop and demonstrate new methods of real-time media production for film, broadcast and interactive media, taking unconstrained on-set performance capture as a starting point. The technological innovations include real-time performance capture and on-set feedback; real-time scene analysis and planar segmentation; automated metadata extraction for media enrichment; and new methods of displaying enriched media for audience interaction.

The project will create new algorithms, software prototypes, interfaces and media viewers, which will subsequently be exploited by direct sales, IP licensing and the provision of new production services. The BBC co-ordinates a partnership with two market-leading SMEs (Imaginarium Studios and Imagineer Systems) and the University of Surrey Visual Media Research Group. The BBC and Imaginarium will trial the technology and evaluate the results with users

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Double Negative Limited (lead) FilmLight Limited Ncam Technologies Rebellion Developments Limited The Foundry Visionmongers Limited	ASAP - A Scalable 2D/3D Architecture for Cross Media Virtual Production	£3,343,711	£1,929,938
Project description - provided by applicants			

ASAP is a two-year project to research, develop and demonstrate a new pipeline, tools and processes for rendering and reviewing CGI and video-based media, at appropriate levels of quality for real-time, interaction-time and near-line use cases. The results will facilitate the cross-media creation and use of assets for film, TV and games and compress the present stages of preproduction, production and post-production, eliminating the need to re-create assets from scratch for different uses.

The project will advance the state of the art in asset preparation, scalable dynamic rendering and shaders, production visualisation, lighting interaction, real-time combination of 2D and 3D assets, and the unification of media processing pipelines. It will deliver a range of new tools, applications, software and production services.

The project is a large-scale cross-industry initiative by a consortium comprising the UK's largest VFX company (DNeg), three world-leading SMEs specialising in media technology creation (FilmLight, Ncam and The Foundry), and the UK's leading independent games developer (Rebellion).

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Geometrics Ltd (lead) Electronic Arts The Walt Disney Company Limited	Merging film and game production pipelines: film quality lighting using game engine technology.	£1,829,744	£914,872
Project description - provided by applicants			

The dramatic improvements in real-time computer graphics technology over the last decade have reached a point where they can transform content production in both film and television. These important UK industries have been under significant global competitive pressure and are in need of a new model. This will not happen through a process of evolution of existing pipelines; it requires a revolutionary change to embrace the workflows and technologies pioneered in the video games industry. Similarly, modern videogames will benefit from interactive versions of the cinematic lighting techniques that were pioneered in TV and film.

This 18 month collaboration brings together four of the world's leading entertainment companies and research groups: Geomerics Limited, Electronic Arts Limited, Disney Research (UK) and Industrial Light & Magic (UK) Ltd. The cross media appeal of the Star Wars movies and games will help generate a unified vision for content creation and production, and will enable these partners to develop a new paradigm for interactive workflows for high-end graphics and lighting across all media types.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Industrial Light and Magic (lead) Electronic Arts	Real-time Interactive Cinematic Content Creation	£5,297,768	£2,648,884
Project description - provided by applicants			

Real-time Interactive Cinematic Content Creation is a two-year project that aims to harness the potential of what will most likely be the single most disruptive force in entertainment over the next decade: Real-time computer graphics.

By collaborating to harness and extend the interactive sandbox capabilities of game engine technology, Industrial Light & Magic (UK) Ltd. and Electronic Arts Limited hope to spark a creative revolution by reinventing the way cinematic content is created and produced. By merging post-production with production, artists will become a core part of the front-end creative team–enabling interactive exploration & discovery. There will also be a step change in efficiency: content that takes weeks to create can be achieved in days, even hours.

Through the unique opportunity that an inherently transmedia property such as Star Wars presents, the partnership will build a common platform for content creation and production, eventually opening up new market opportunities across all forms of entertainment including the potential of hybrid interactive cinematic experiences for a new generation of consumers.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Industrial Light and Magic (lead) Industrial Light and Magic The Walt Disney Company Vicon Motion Capture Systems Ltd	Real-time Digital Acting for Transmedia Production	£5,689,034	£3,081,591
Project description - provided by applicants			

In the coming decade there will be a revolution in digital acting across the entertainment industry, from feature films to games and theme parks. Real-time digital performances will reach previously unattainable levels of fidelity and adaptability. This project will be a vanguard in this revolution.

Real-time Digital Acting for Transmedia Production is a two-year project to create an extensible framework for new levels of synchronised face and body capture systems that will unlock the ability for multiple actors to deliver compelling, collaborative performances of never-before-seen digital characters in real and virtual environments.

The project establishes a long-term partnership between the UK studio of globally renowned creator of digital VFX, Industrial Light & Magic, Disney Research (UK) and Vicon, an Oxford-based SME who is in the forefront of motion capture and who will commercialise the results.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
The Foundry Visionmongers Limited (lead) Industrial Light and Magic	PIC – Production Pipeline in the Cloud	£1,511,419	£831,591
Project description - provided by applicants			

PIC is a two-year project to develop, demonstrate and evaluate technologies and workflow for creating and manipulating professional quality digital media in a cross-platform production pipeline that harnesses the resources of the Cloud. Local resources and Cloud processing will be combined in much more effective ways than presently possible in order to help restore the economy of the VFX industry and provide new opportunities for smaller players, as well to support the largest scale transmedia productions, by eliminating the need for risky, upfront capital investment.

The project will advance the state of the art in Cloud-based media technologies, improve collaborative workflow across production stages, remove bottlenecks caused by limitations of geographic location and availability of computational resources, and deliver a new range of tools and PaaS opportunities. The partnership brings together the UK's leading VFX software developer, The Foundry, and the UK studio of globally renowned creator of digital VFX, Industrial Light & Magic. The Foundry will commercialise results and create open APIs that allow third parties to extend the system.

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Visual Atoms Limited (lead) British Broadcasting Corporation University of Surrey	COntent-based Digital Asset Management (CODAM)	£1,054,186	£702,543
Project description - provided by applicants			

The CODAM project (COntent-based Digital Asset Management) will develop an advanced video asset management system with unique visual fingerprinting and visual search capabilities. It will aid content creation and deployment by enabling visual content tracking, identification and searching across multiple devices and platforms, and across diverse digital media ecosystems and markets.

Where is the original version of the low-quality clip? Which video clip has been used most often in BBC programmes? Is it a stock shot of a red double decker bus, or an excerpt from a royal wedding? Is there other footage in the archive that shows the same event but can provide a fresh viewpoint? Maybe even some relevant user generated content? The CODAM system will answer these questions, track the origins of video clips across multi-platform productions and search for related material. It will take the form of a modular software system that can identify individual video clips in edited programmes, and perform object or scene recognition to find similar footage in an archive without relying on manually entered and often incomplete metadata.

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Zoe Mode Entertainment Ltd (lead) Centroid 3D Limited	Transmedia Games Engine: An Integrated Performance Solution	£1,709,814	£1,025,888
Project description - provided by applicants			
Over the past 5 years Brighton-based video games developer Zoe Mode have worked closely with motion capture specialists Centroid 3D on multiple titles including the multi-million selling Zumba Fitness franchise for Majesco Entertainment. The Technology Strategy Board grant allows an entirely new collaboration between the two, who are targeting the delivery of new technology to give their client's performance capture visualisation as never seen before.			