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A comparative analysis of the knowledge exchange methodologies underpinning Creativeworks London's Creative Vouchers and London Creative and Digital Fusion's Collaborative Awards

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Fusing and Creating:

A comparative analysis of the knowledge exchange methodologies underpinning Creativeworks London's Creative Vouchers and London Creative and Digital Fusion's Collaborative Awards

by

Morag Shiach, Jana Riedel, Jasmina Bolfek-Radovani

ABSTRACT: This paper compares two innovation voucher schemes that Creativeworks London (CWL) has led since 2012: CWL's Creative Voucher Scheme and the London Creative and Digital Fusion Collaborative Awards. It situates these schemes in the broader context of university/industry engagement; examines the detailed processes underpinning the two schemes; analyses the disciplinary and industry sector engagement facilitated by each; and finally considers their impacts on the research base and on SMEs in the creative economy in London.

1. Introduction:

This paper considers the methods underpinning two 'innovation voucher' schemes that Creativeworks London (CWL) has led since 2012. It seeks to map and compare the conceptual underpinnings of these schemes, explicate their methods and processes, and describe their key outputs. It also analyses the capacity of these schemes to promote innovation and growth in the creative economy; enable original research insights for both small and medium-sized enterprises (SMEs) and researchers; support the development of entrepreneurial capacity; and enhance and sustain London's creative economy.

Innovation voucher schemes have been used since the late 1990s to promote growth in various industry sectors by enabling collaboration with a range of 'knowledge providers', and there is a significant critical literature addressing their effectiveness.[1] The policy motives behind the development of such voucher schemes have been varied, but as Tarek Virani has argued, innovation voucher schemes are attractive at least partly because of 'their ease of

implementation and their role in facilitating knowledge exchange for relatively small sums' (Virani, 2014, 3). Examples of recent innovation voucher schemes include one run by Innovate UK ('an innovation voucher provides funding so that your business can work with an expert for the first time, gaining new knowledge to help your business innovate, develop and grow')[2]; and others run by a range of funders in the EU such as the Fashion, Audiovisual and Design Industries Innovation Scheme in Catalonia, which provided companies with up to €4,000 'to work directly with a service provider' to support innovation.[3]

The CWL 'Creative Voucher' (CV) scheme has been a central element of the research and knowledge exchange activities undertaken by CWL, having underpinned more than fifty collaborative research projects involving one of CWL's research partners and a wide range of SMEs from London's creative industries since 2012. The diversity of the potential impacts of the CV scheme was understood by CWL from the outset: 'Our KE brokerage will [take place] through schemes such as Creative Vouchers (modeled on NESTA's creative credits) that allow SMEs access to HEI expertise as a taster for further interactions, including access to collaborative research opportunities, skills and space, new forms of mentorship and creative lab time.'[4] This paper will provide evidence of the various impacts generated through the scheme, and will also explore the extent to which the stated affiliation to NESTA's creative credit scheme actually played out in the scheme's final design and implementation.

CWL was also a partner in London Creative and Digital Fusion (Fusion) from 2012 to 2014, and one of CWL's key responsibilities within the Fusion project involved the delivery of Fusion Collaborative Awards (FCA), a voucher scheme that provided funding to enable collaborations between creative and digital SMEs and Fusion's research partners. As its name suggests, the methodologies deployed within London Creative and Digital Fusion built explicitly on recent research into the importance of 'fusing' creative and digital expertise within the creative economy (discussed below at 1.2). The bid for ERDF funding to support London Creative and Digital Fusion argued that:

> Not only do the 'creative' and 'digital' communities tend to exist in separate circles, but within each community of practice there is a culture of self-selecting groups which are inward looking and form tight networks. This inward focus restricts access to new ideas and the challenge that stimulates innovation. The need to increase the density of the networks and the inter-connections with other communities requires intervention, which cannot be supplied by the firms themselves. The London Creative and Digital Fusion programme will address these co-ordination failures, which inhibit greater and faster innovation across and within sectors.'[5]

This paper offers an account of the nature of this 'intervention' and describes the way in which 'failures of coordination' were tackled through the FCA scheme.

1.1 NESTA's Creative Credits:

As seen above, CWL originally suggested that its voucher scheme would resemble NESTA's 'Creative Credits'.[6] Creative Credits were designed to be 'a new model for supporting innovation and growth within small to medium enterprises (SMEs) through knowledge transfer from creative businesses.'[7] The scheme was piloted in the Manchester City Region in 2009-10, and was based on the idea that SMEs might be 'nudged' towards enhanced innovation through working with creative companies of various sorts.[8] Both the ESRC and the AHRC were partners on the Creative Credits project, suggesting that they believed it would also have a beneficial impact on the research base in arts, humanities and social sciences. The Creative Credits scheme built on insights within a 2008 NESTA Report into the ways that the creative industries support and enhance innovation across the wider economy. [9] This NESTA Report had demonstrated that businesses that bought in creative services were (all other things being equal) significantly more likely to innovate than other companies that had not benefitted from this kind of expertise. Seeking to build on this knowledge, NESTA focussed on creating a scheme that would 'nudge' a wide range of SMEs to access relevant expertise from a range of creative companies.

Under the Creative Credits scheme, SMEs wishing to access support from a creative business were directed towards an online resource known as the 'Creative Gallery', where a range of suppliers showcased their services, and the cost of accessing these services was partly met by a £4,000 voucher (although SMEs were also required to contribute at least £1,000 to the overall cost). The scheme was described by NESTA as innovative because 'it seeks knowledge from new sources – creative businesses' (NESTA, 2011, 6). This was contrasted with earlier innovation voucher schemes, which had worked on a model 'of knowledge transfer' from institutions such as universities and had focused primarily on technical and scientific forms of knowledge.

The NESTA scheme was designed to be light touch, easy for all parties involved to access, and rapid, and these have also been very important features of CWL's voucher schemes. However, there was no direct brokerage of relationships between SMEs and creative businesses within the Creative Credits scheme; vouchers were 'awarded at random' (p. 6); and reporting requirements following the project were also minimal. In these respects the NESTA scheme differs significantly from CWL's schemes. CWL has developed a range of techniques to curate relationships between researchers and SMEs; has had a clear process for evaluating bids from different research partnerships; and has undertaken detailed evaluations based on interviews and end-of-project reports. These factors have enhanced the quality of the collaborative partnerships funded, as well as their impact and sustainability.

The Creative Credits scheme eventually supported 150 projects over two years. Of the 300 creative businesses that offered their services on the Creative Gallery, a total of 79 were eventually selected to participate in a project. The main creative services offered by these businesses were advertising, PR, design, web design, and film and video expertise. These services were not offered as collaborative research opportunities, but rather as a form of consultancy.

Initially, the NESTA scheme was judged to have demonstrated significant outcomes: 'participant SMEs are already reporting that their Creative Credits project had increased the

innovative strengths of the business' (p. 8). However, a subsequent evaluation of the impact of these Creative Credits, published in 2013, came to a rather different conclusion. This evaluation used 'randomization to establish the scheme's additional impact, but also link(ed) that to longitudinal data collection (…) to assess the longer term effectiveness of different policy tools'.[10] Whereas initial reports in the six months following the completion of the creative projects had indicated that SMEs assigned credits were significantly more likely than others to have introduced product and process innovations, twelve months after the completion of the Creative Credits project: 'there was no longer a statistically significant difference between the treatment and control groups in the proportion of firms innovating, nor in their sales growth, (Nesta, 2013, p. 7). The lack of long-term impact is a significant weakness of the NESTA scheme, and is something that CWL has sought to address through innovative brokerage, sustained engagement, and mutually beneficial forms of collaborative research. Thus while it is clearly true that the Creative Credits scheme was part of the initial thinking for CWL, the schemes eventually delivered by CWL departed from its methodology in significant ways.

1.2 Brighton Fuse:

As argued above, the methodology deployed within the London Creative and Digital Fusion project was significantly influenced by the model of innovation explored within the Brighton Fuse project, and built on its argument that close collaboration between creative practitioners and those with technical expertise has a key role in driving innovation within digital and IT companies. David Docherty, who was centrally involved in the Brighton Fuse project, had developed a very influential argument in a 2010 Report produced by the CIHE (*The Fuse: Igniting High growth for Creative, Digital and Information Technology Industries in the UK*) that, 'the digital wealth of nations is being created by talent and teams who are fusing their interdisciplinary skills and expertise.'[11]

The metaphor of 'fusing' deployed within the CIHE Report is, we would argue, worthy of some critical consideration, as indeed is that of 'igniting' high growth. Both these verbs suggest high levels of energy, and also an element of danger. But both also, we would suggest, resonate

in significant and interesting ways with an earlier and very significant intervention into science and innovation policy that took place some fifty years ago. In his famous 'white heat' speech to the Labour Party conference in 1963, Harold Wilson had argued that a 'new Britain' would need to be forged in the 'white heat' of a scientific revolution. Wilson borrowed from the language of physics, and that 'white heat' was surely associated with the extraordinary energies of nuclear fusion, which had become both a military and a domestic reality by 1963. Wilson's context was different from that of Brighton Fuse, and his argument in favour of scientific innovation was aimed at a political and administrative class unaware of the scientific and technical innovations that would shape their economic and social futures, and also at a Conservative Party that was represented as the enemy of modernization.[12] But his ambition 'within a measurable period of time [to] establish new industries which would make us once again one of the foremost industrial nations of the world,' does not seem completely remote from the ambitions of the Brighton Fuse project (even if their work focused more clearly on a 'postindustrial' moment). Wilson's 1963 understanding of the relation between technical innovation, economic growth, and modernization has certainly remained an important part of the Labour Party's policy framework over the past fifty years. As Matthew Francis argued in 2013, 'Many of these themes were revived by Tony Blair in the mid-1990s, at a time when rapid advances in computing and telecommunications (and particularly the advent of the internet) meant that the world was being haunted by ' spectre of technological revolution.'[13] And the idea is picked up once again by Stella Creasy in 2015, as she argues for the need 'to make science and innovation the motor of social progress … To foster again that white heat of technology anew – and the skills to match.'[14] It is important to reflect on the extent to which current discourses of innovation are indebted to Wilson's earlier and influential moment of policy formation, in order fully to understand the ramifications of a commitment to 'fusion' as a policy goal.

The Brighton Fuse project was not of course an intervention based on a creative or innovation voucher scheme. It was a research project exploring the particular conditions under which creative and digital SMEs in Brighton had grown and thrived, and the role of universities

within this ecosystem of innovation. But its identification of the key role of 'fused' or 'superfused' businesses, defined as those that 'combine creative art and design skills with technology expertise' to 'create an extraordinary competitive edge'[15] has been very influential in the design of subsequent policy interventions and voucher schemes, including most obviously the London Creative and Digital Fusion project.

The fact that Brighton Fuse was supported by the Universities of Brighton and of Sussex and the AHRC, as well as by the National Centre for Universities and Business and Wired Sussex, makes it important as a space for reflection on the role of universities and their research (particularly in the Arts and Humanities [A&H]) in enabling both innovation and growth. Universities' capacity to drive economic growth is something that has long preoccupied governments and policymakers. Thus in recent years, Sir Ron Dearing has argued that universities should foster knowledge and understanding, 'to serve the needs of an adaptable, sustainable, knowledge-based economy at local, regional and national levels', while Sir Andrew Witty has concluded both that 'universities have an extraordinary potential to enhance economic growth' and that 'universities should assume an explicit responsibility for facilitating economic growth'.[16] The focus of their thinking was, however, more or less explicitly, on the contributions of science and technology to broader economic growth. The Brighton Fuse Report, on the other hand, stressed the contributions made by A&H graduates to growth within the creative and digital economy, noting that 'almost a third of the sample (…) report that they studied an Arts and Humanities subject at university' (p. 38) and highlighting 'the economic importance of arts and humanities as sources of innovation and economic growth' (p. 68). The Brighton Fuse project provided persuasive evidence that the central role of graduates from A&H disciplines within Brighton's digital and creative SMEs had contributed materially to their growth and success. Both CWL's CV scheme and the FCA scheme set out to build on these insights but also to extend them by testing the extent to which A&H researchers (in addition to A&H graduates) could also make a central contribution to growth and innovation within the creative economy. The role of A&H researchers in facilitating economic growth in the creative

economy had been a relatively minor part of the Brighton Fuse Project, but has been central to the work of CWL.

Finally, the Brighton Fuse project also suggested that universities have an important role to play as 'anchor institutions'[17] within a regional economy, offering facilities and expertise that are made available to SMEs through a range of collaborative models built largely on the porosity of boundaries between universities and the creative economy, rather than on more familiar innovation models based on commercialization of IP: 'there is also a fundamental divergence between the types of innovation taking place in the cluster and the use of intellectual property rights like patents, trademarks or design rights. Only 1% of our respondents applied for a patent in 2010 and none registered a design' (p. 33). The need to understand the nature of these types of innovation and facilitation, and develop processes within partner universities to support this, has been a key element of the work of CWL.

2. The CWL Creative Voucher Scheme:

Focusing on the creative and cultural industries (CCI), the CV scheme was designed to engage more A&H researchers in knowledge exchange activities that would benefit SMEs in ways that respond directly to business needs, including entrepreneurial development and new routes to market.[18] From the outset, vouchers focused on knowledge exchange (rather than knowledge transfer), and on collaborative research where both parties in the collaboration contribute to a project. The primary objective was to increase the number of A&H researchers engaged in collaborative research, with collaborations having perennial effects, and to make A&H researchers the researchers of choice for CCI SMEs in London. Unlike NESTA's creative credits and other innovation voucher schemes, CWL devised a methodology that would actively work to connect and match businesses from the CCIs with researchers from its large pool of partners of higher education institutions and independent research organisations.[19] This kind of brokerage was done in a number of ways, which is described in more detail below.

2.1 Implementation, Methodology and Processes of the Creative Vouchers

The Culture Capital Exchange (TCCE), CWL's knowledge exchange programme delivery partner, led the processes underpinning the Creative Voucher scheme. As discussed above, like NESTA's Creative Credits, Creative Vouchers were designed to be light touch: easy to access, low in administration, short-term, and rapid in process. Each round of CV funding (with the exception of one) was themed and closely related to one of CWL's research strands.[20] By having three overarching research strands, the CWL team was able to cover a variety of pressing issues of interest to a wide range of research disciplines and creative industry sectors.

Each round commenced with a launch event, an 'Ideas Pool'. Here the aim was to bring together up to 100 researchers and creative industry companies (equal numbers were admitted for registration). TCCE organized these Ideas Pools in collaboration with CWL's research leads and Post-doctoral Research Assistants. Invitations to Ideas Pools were sent to the Business Development Managers and Heads of Research at partner institutions and to the CWL database which kept growing through advertising and the newsletter sign-up facility on CWL's website. Prior to the event, companies and researchers alike were asked to send in a project idea, a development need, or a pressing issue, which would be displayed on notice boards at the Ideas Pool. This can be seen as the first intervention of brokerage because a platform was provided to attendees to find projects of interest and prospective partners. Attendees were able to leave their contact details on the notice boards and were connected with each other after the event. That allowed potential applicants to start a dialogue for collaboration prior to application, and gave opportunity to widen their network. Each Ideas Pool had a roundtable element where each table discussed a research question related to the theme of the round. The research teams from CWL helped to shape these discussions by presenting relevant research findings at the Ideas Pool. Ideas Pools also offered information about the CV and FCA schemes. This provided further opportunity to meet potential partners and discussing projects and ideas.

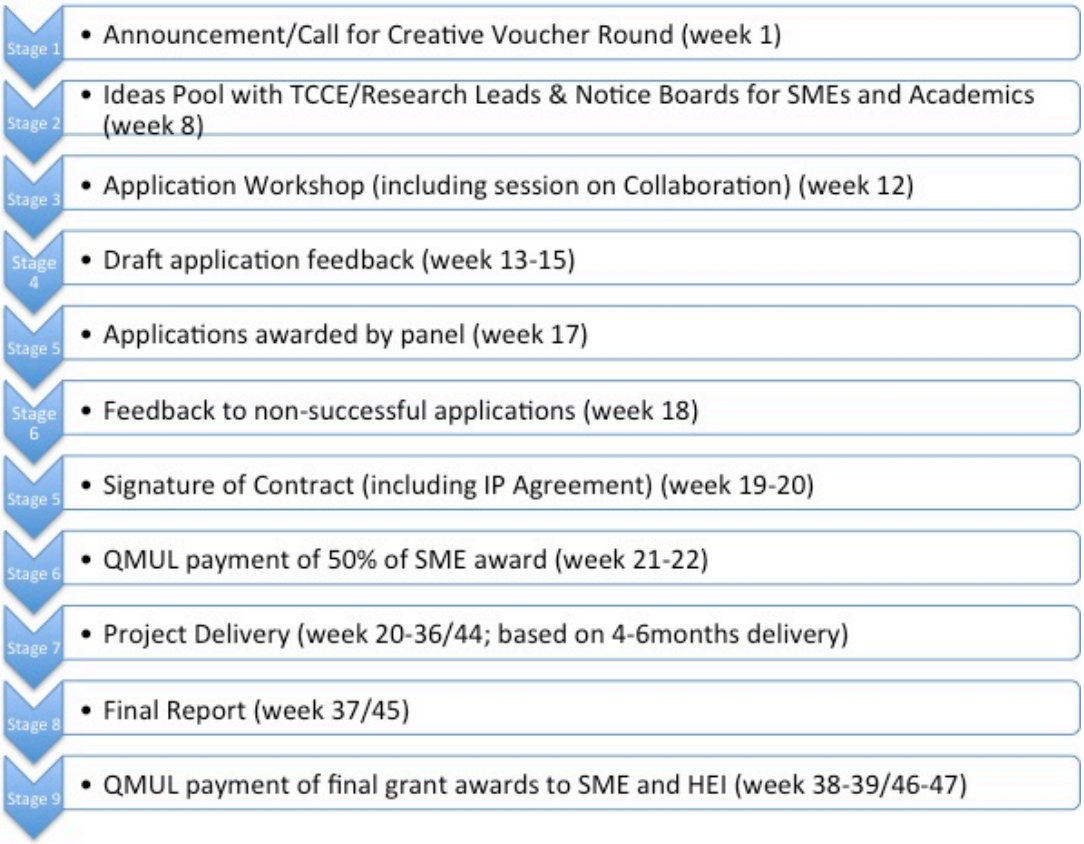
A further intervention took place four weeks after the Ideas Pool at an Application Workshop, also led by TCCE. The companies and researchers who had attended the Ideas Pool received a first registration/refusal opportunity. To attend this workshop, potential partnerships

had to come as a pair. The workshop not only provided a facilitated session on creative collaboration with practical exercises to help attendees to collaborate effectively and think about their projects creatively, it also provided the opportunity to work jointly on the voucher application.

The CWL knowledge exchange team also provided brokerage services between events (Ideas Pool – Application Workshop – application deadline). From CV round 4 onwards another step was implemented which was giving feedback on draft applications, an offer that was taken up by 90% of applicants. This ensured that high quality application were submitted and can be compared to the application support given for the FCAs. The crucial difference to any other innovation voucher scheme was that the business and the academic wrote the application together, having established a relationship before the voucher award. That meant that in cases of unsuccessful applications, the partnership could often find other ways to work together.

2.2 CWL Creative Vouchers: the process

The CV process was broken down into nine stages:



Overall, the CV scheme was set up very flexibly. Although the guideline was for a 4–6 months delivery period, projects were not penalised for taking longer. CWL chose to allow SMEs to apply for funding necessary to support their full engagement in the collaborative research, up to a maximum of £5K.

As mentioned above, administration was light touch, with the contractual documentation being as brief as possible. Awarded partnerships were required to submit an IP agreement with the signed copy of their contract. CWL took the view that IP agreements were a matter for the collaborating partners, although experience showed that this could be challenging for an individual academic or a small business, and further advice and support from CWL might have been helpful in some cases.

2.3 Creative Voucher case study

Project Title: BeatWoven

SME: Nadia-Anne Ricketts, founder, BeatWoven

Academic: Dr Noam Shemtov, Andrew Robertson, The Centre for Digital Music & The Centre for Commercial Law Studies, Queen Mary University of London.

Duration: five months.

Project Summary:

BeatWoven® is one of the first businesses to use the visualization of sound & music combined with craft & design to create revenue that can benefit a variety of UK-based industries. This project draws on research in design, music, digital technologies, and intellectual property & regulation. The research examines the legal and technological obstacles and challenges that have evolved from the development of BeatWoven's new design approaches.

Reasons for Academic Collaboration:

The legal part of the project examined BeatWoven's business model, technology, utilisation of musical works and provided an assessment of the need for a licence for relevant activities as well as a model for licencing BeatWoven's designs to third parties. The aim was also to propose a modified interpretative approach to copyright and trademark law concepts.

The Centre of Digital Music researched BeatWoven's audio technology and visualisation of music to develop the most current and accurate software possible.

Impact on the Business:

The research into BeatWoven's business model and the legal frameworks in which it is operating has given the business enhanced knowledge of music copyright law and greater assurance about the use of music to fulfil the vision and creativity necessary for the future of the business. The business is now able to explain to potential partners the legal implications of her work, and the manner in which the business might develop the business model in view of such implications. The software improvements developed within the collaboration have provided a more stable platform, allowing for app and future developments.

Since the project's completion, the business has done commissions with The Southbank Centre and London Philharmonic Orchestra, and has worked with Harrods to do an exclusive collection for London Design Week 2014, and others making the project high-impact on the business:

> My business has really started to move since this collaboration. As a result of our legal research my business has grown 100% financially and has led to exciting projects with Harrods, and current conversations regarding potential collaborations with Converse, and Victoria Secrets New York. The strength of the Creative Voucher scheme was to bring together creative cross disciplines and therefore building professional relationships that can develop into future exciting projects. (*Nadia-Anne Ricketts, BeatWoven*)

Impact on the Academic Research:

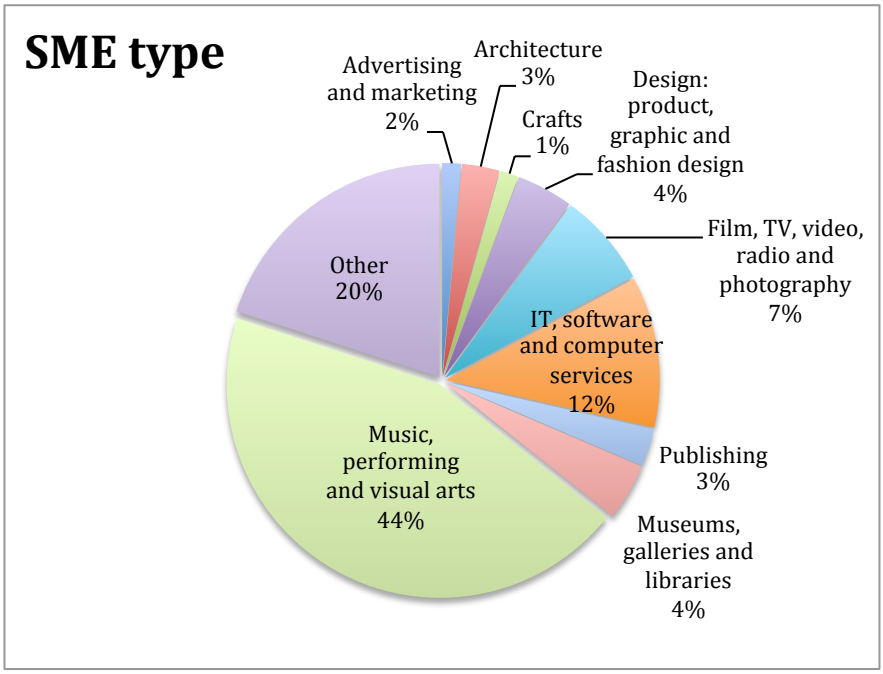
The researchers have previously not been aware of BeatWoven's business model or the technology involved. As a result of the project they were able to examine a fascinating convergence between music and textile design. Research outcomes include a conference paper, with a scholarly article due to be completed by the end of 2014:

> I believe the project is a good example of how Creativeworks London was extremely helpful in assisting a small creative initiative to get to the 'next level' and establish a workable business model that now has an exciting growth potential. We are considering continuing and cooperating in the future. (*Dr Noam Shemtov, Queen Mary University of London*)

2.4 Analysis by Creative Voucher project and SME type, and Academic Discipline

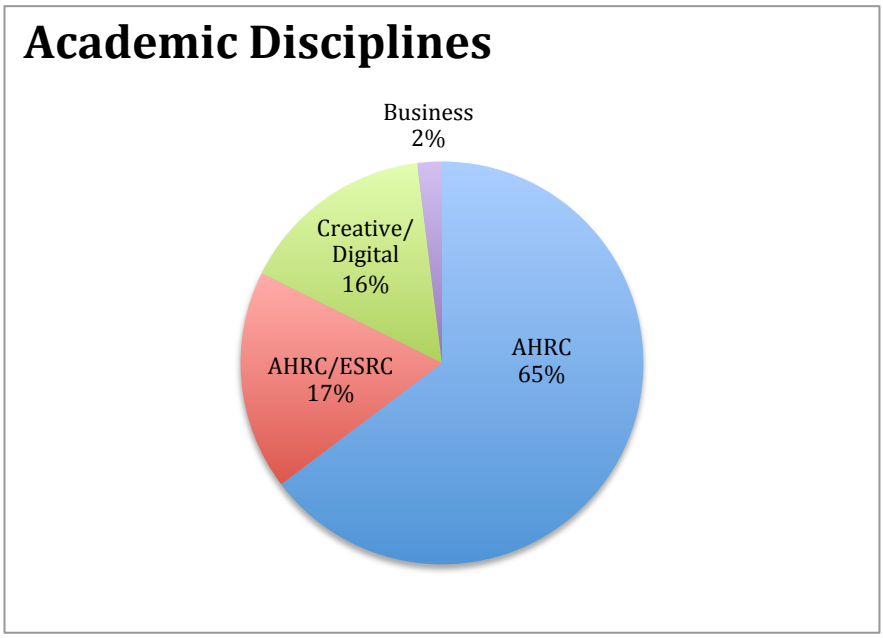
Between December 2012 and August 2014, 51 Vouchers have been funded. Out of these, 23 projects have been completed and 21 final reports have been received. When analysing the SME sector of all awarded vouchers, it was apparent that most companies did not neatly fit into one sector. The breakdown below is based on the Creative Economy Group categories used by the Department for Culture Media & Sport (DCMS).[21] It shows that CWL has managed to reach and award a voucher to every sector classified, with a particularly strong representation from 'Music, performing and visual arts'.

Music, performing and visual arts	**31**
IT, software and computer services	**8**
Film, TV, radio and photography	**5**
Design: product, graphic and fashion design	**3**
Museums, galleries and libraries	**3**
Architecture	**2**
Publishing	**2**
Advertising and marketing	**1**
Crafts	**1**
Other	**14**



Graph 1. Breakdown by SME type awarded through the Creative Voucher scheme.

When examining the types of academic disciplines, it is evident that through the CV scheme CWL has increased engagement of A+H researchers, and has also facilitated work in cross-disciplinary areas, drawing on social scientific and creative digital expertise.



AHRC	**33**
AHRC/ESRC	**9**
Creative/Digital	**8**
Business	**1**

Graph 2. Breakdown by academic discipline contributing to the CV projects awarded.

2.5 Creative Voucher Outcomes

The benefits of CVs are not as tightly focused on economic growth as the FCAs. However, the vouchers enabled the development of significant and sustainable relationships between research institutions and CCI SMEs in London, and also made a significant difference to businesses through developing ideas and solutions to resolve key research questions or business needs, improving product development or getting a product or service to market more quickly. 90% of projects have indicated that the collaboration was successful. A range of funded SMEs have secured further private investment, and 47% have gone on to seek further public or charitable funding. The majority of partnerships have indicated a wish to continue their relationships. Other impacts on the SMEs include: development of a new prototype; effective commercial deployment of innovative ideas; improved business strategy and performance; delivery of a crucial pilot project; development of new ways to engage audiences; design of a new method to collect valuable data; access to research methods, tools and analysis otherwise unavailable; access to qualitative and quantitative data; development of a new model of training; and building a network of skilled practitioners. New relationships with academics, funders and potential clients have been formed, which have led SMEs to re-evaluate their business, improve methodology and techniques and better understand complexities of processes and their strengths.

Impacts on research partners include: access to data for research; exploration of materials or methodologies, new understandings of value; applying computational linguistic research methods to art topics; extending the research's reach far beyond the academic community; securing a publishing contract for a book; thinking differently about how academic writing can be shaped; transfer of research-led knowledge in practical applications of signal processing and interaction to SMEs and arts organisations; increasing industry contacts; multi-platform production hugely beneficial to research; behavioural change in information gathering; thinking about the interaction of curation and sustainability of practice in useful ways; access to SME's team-sharing ethos of 'commons'; new opportunities for networking and knowledge

sourcing; development of collaborative ways of working; development of online methods for engaging audiences; extending research into different disciplinary areas and within the heritage and cultural industries; reconceptualization of the ways that endangered cultural material could be classified; and rethinking models for using crowdsourcing to add value to materials, as well as acquiring new materials.

3. Fusion Collaborative Awards:

The London Fusion project was conceived through an 'integrated three-phase programme – Inspire, Fuse, Create - that delivered benefit to CDIT SMEs through their participation and collaboration with one another, the partner HEIs and external expertise as set out in the project's objectives.'[22] The FCA programme was designed specifically with the aim of addressing the main objective set in the 'Create Phase' of the London Fusion project. As the London Fusion application stated:

> The starting point (…) is that the most common barriers to innovation by SMEs are being closed to new ideas and lacking the time and resources to develop and push from idea to commercially fundable product or process. This is why Phase 1 (**Inspire**) is a critical first step – to raise aspirations and understanding – in the way in which SMEs learn and with a schedule that meets their demands. Phase 2 (**Fuse**) is about bringing SMEs together across the creative and digital divide and using expert facilitation and knowledge transfer from our HEI partners to begin to develop collaborations and joint transfer projects. Phase 3 (**Create)** provides the specific knowledge and support for the SMEs to begin to realise their innovative opportunities.[23]

In order to provide the expertise that the SMEs needed to begin to innovate in a sustainable manner (the sustainability aspect of innovation being crucial here) by closing the SME's "knowledge gap", the London Fusion project devised a voucher model that can be seen as a

combination of the innovation voucher model and the Knowledge Transfer Partnerships (KTP) model. Although some of the basic principles of the innovation voucher model were maintained (such as the short length of the voucher or the opportunity for the SME to choose the university partner they work with), the FCAs were adapted to draw on the KTP model in order to make the innovation vouchers better suited to London Fusion's main aim of fusing the creative and digital sectors to create innovation and growth. They were thus specifically aimed at building KTPs as sustainable collaborations, rather than offering a 'fee for service'. Indeed, the FCA model included an element of brokering and expert diagnosis characteristic of KTPs (typically lacking in innovation voucher models) in order to set companies' expectations from the outset and prepare inexperienced companies for collaboration with universities.[24] From the outset, the FCAs were designed with the aim of building a collaborative process between the university partner and the SME through careful brokerage. Through that process, FCAs aimed to broaden an SME's perspective on how knowledge exchange can enable innovative processes to take place. If successful, this collaborative process changes an SME's perception of the role of universities in innovation, and this has been demonstrated in a number of FCA projects.

In line with ERDF funding requirements, London Fusion's success was measured by a specific set of targets and outputs such as job safeguarding, job creation, creation of innovation-related jobs, integration of new products and services, and increase in economic or GVA performance. The FCA projects have been funded and evaluated in relation to these targets and outputs; however, there is also an opportunity to study long-term impacts, in order to elucidate in particular any significant qualitative outcomes. A preliminary comparative analysis of potential outcomes generated from the Creative Vouchers and FCAs can shed some light on the main differences and similarities arising from the two schemes and can provide some useful insights into the collaborative process(es) that took place.

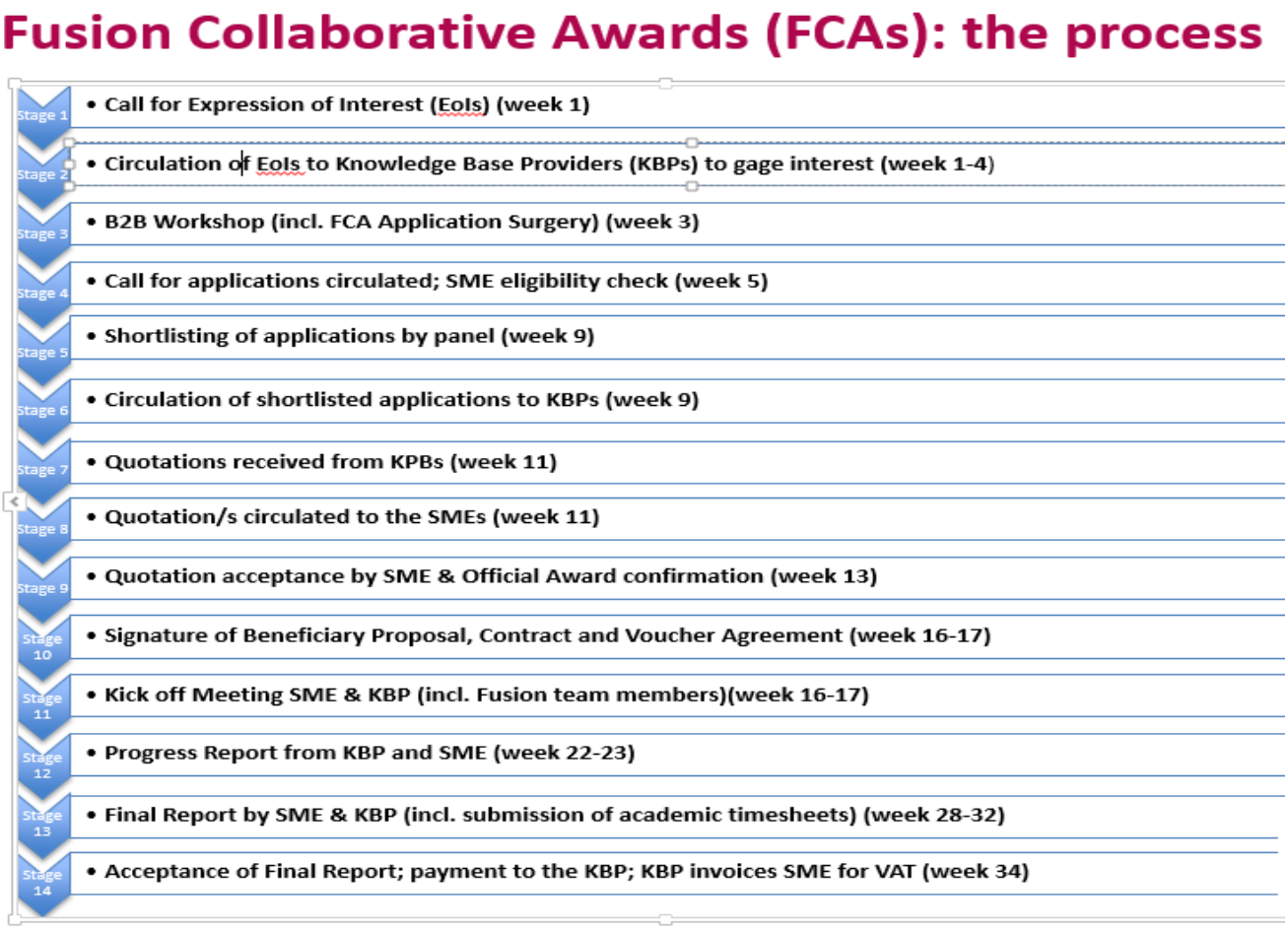
3.1 Implementation of the FCAs and the alignment of the two schemes

For the FCA programme, research institutions were identified via an Invitation to Tender, which was sent to all CWL partners. After the tendering process was completed, seven partners were

selected from the CWL network: Goldsmiths, University of London; King's College London; Kingston University; Queen Mary University of London; The Royal Central School for Speech and Drama, University of London; The Centre for Creative Collaboration (C4CC); and Tate. Each FCA would be procured from across this bank of selected partners or 'Knowledge Base Providers, on a case-by-case basis and in full accordance with ERDF regulations. SME collaborative proposals between two or more SMEs in the digital and creative sectors were encouraged; as stated above the FCA scheme was aimed at bringing digital and creative businesses together to collaborate and help these two sectors form long-term creative and digital partnerships to strengthen the digital and creative sectors in London. However, single SMEs were not excluded from applying for an FCA where this enabled future collaborations and significant new growth opportunities.

3.2 Fusion Collaborative Awards: the process

Following on from FCA objectives and ERDF funding specificities and constraints, the pre-award and post-award FCA process was broken down into fourteen stages:



The pre-award and post-award FCA process had to be devised in a way that allowed for the complexity of ERDF funding and its compliance procedures; it is more complicated and longer than the CWL process. Because of a number of differences between the two schemes in relation to their respective compliance requirements and eligibility criteria, it was not possible to align the two schemes as was envisaged from the outset. One of the main lessons learned when trying to implement the CWL and FCA schemes on the ground was that the nature and type of businesses enrolled, the differences and specificities of each of the two programmes in terms of their aims and objectives, funding requirements, as well as their different project lengths made it very challenging fully to align the two voucher schemes. Therefore, the attempt to run and implement the two schemes as one was not fully successful; the two schemes had to run in parallel instead, something that had to be addressed early on in the implementation process.

3.3. FCA case study

The analysis of the final reports coming out of projects funded by the FCA programme is still in progress; nevertheless, within the context of this paper, some preliminary points are presented and discussed. To illustrate the business and research impact that collaborations have had, a case study is presented here. The presentation of the FCA case study in question will be followed by an analysis of the types of collaborations, disciplines represented within the scheme as a whole, as well as the type of businesses involved.

So far, nine interviews have been conducted in order to study the effectiveness and success of the FCA projects delivered. The FCA project below has been selected for this paper in order to illustrate the type of collaborations that took place within the FCA programme, the reasons for the collaboration and the reported impact that the collaboration had on the business and the university partner.

Project Title: Project Andiamo

SME: Samiya Parvez, Naveed Parvez, co-founders, Product Science.

Academic: Dr Simon Maidment, Chris China and Alex Farnea, Design School, Kingston University.

Duration: four months.

Project Summary:

This collaboration between Product Science and the Design School at Kingston University sought to change ways of acquiring orthotics for disabled children and reduce the waiting time for these from 13 weeks to 48 hours, by exploring the use of advanced 3D scanning and digital printing techniques. Orthotics are artificial supports for limbs or the spine, such as splints for ankles and wrists or back braces.

Handheld scanners have been identified as solving some, if not all, of the issues of using current 3D scanning technology on disabled children. However, there was a need to validate their efficacy based on scientific evidence, and Kingston had the expertise and resources necessary to conduct this research. Current 3D scanners are not appropriate for this purpose, as subject being scanned has to stand throughout the process. Thus a new scanner and appropriate techniques needed to be developed that combined high-speed data capture, accuracy, universal data format, the ability to pick up different skin tones, ease of use, affordability and transportability for use in places such as the child's home or school.

Their collaboration with Kingston helped Product Science to explore manufacturing efficiencies in 3D scanning and printing technology, production cost savings, manufacturing accuracies, and also the potential for greatly improved lead times. The collaboration was smooth and successful for both partners. The company was surprised to see the academics sharing their enthusiasm for designing the service and they were surprised by their efficiency. The Kingston team also introduced the company to the importance of design as a research approach as well as an aesthetic element that should not be disregarded during design process. The Design School has a long tradition of working with both large companies and SMEs and therefore were able to

apply design and also understand the commercial consequences of the decisions they make with the business. This common ground further strengthened the success of the collaboration:

Impact on the Business:

The study has produced robust evidence that handheld scanners have great potential to be the state-of-the-art technology for rapid, hassle-free and affordable use on disabled children for the purpose of designing disabled children's orthotics. This evidence has confirmed the market potential for handheld scanners, and consequently boosted the development phase of the company's service platform for speeding up the scan process. The project has also confirmed the market opportunities in the health industry and revealed the size of that market, which was bigger than the company initially thought. The collaboration with Kingston University provided access to many different areas where 3D printing is used. This interaction helped nurture knowledge exchange with disciplines seemingly unrelated to the company's research area, and inspired the creation of concepts and methodologies that can transfer to 3D scanning for health. In addition, the collaboration with Kingston helped the company to identify concepts that may be transferable to their research and development activity: 'we hadn't fully appreciated how much of an impact people who only think about design could have on the aesthetics of our product.' *(Naveed Parvez, Product Science, co-founder)*

Impact on the Academic Research

The academic team had the opportunity to experiment with service-design methods and techniques to solve specific problems in conceptualising and designing the application of handheld scanner for orthotics, and also to explore possible futures within the specific area of R&D. The collaborative project presented the Design school with an opportunity to demonstrate the value of design in producing a result that makes a fundamental change. With orthotics, the project opened a new space for Kingston students' work; an interesting space requiring collaboration between more than one design department. In addition, the Design School sought in the project to demonstrate the value of contemporary design research in challenging industry norms, and prove that manufacturing and design schools can efficiently co-operate with,

support and benefit from commercial initiatives. Projects such as this collaboration enhance this effort and exemplify practically the power of industry-academia collaborations: 'the more agile we can be, the more we can demonstrate impact and relevance.' *(Simon Maidment, Kingston)*

3.4 Analysis by FCA Project and SME type, and Academic Discipline

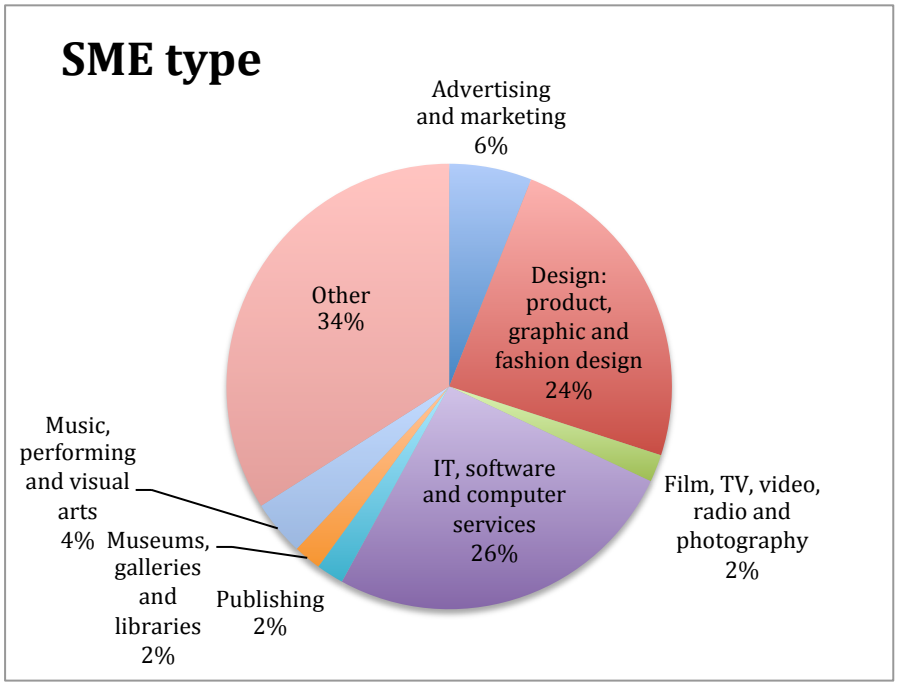
Between May 2013 and September 2014, thirty-four projects were awarded as part of the FCA programme. All FCA projects have been completed, with the final reports either in progress or submitted. Out of the thirty-four projects funded, only three were multiple collaborations between two or more SMEs and one university partner. The vast majority of the FCA projects funded were single SMEs collaborating with a university partner. Although the 'fuse' between creative and digital companies was thus not achieved to the level expected, the three examples of the multiple collaborations that were funded suggest the importance of a longer timeframe to help a collaboration between two or more creative and digital SMEs to develop or form; factors such as knowing the SME partner prior to the collaboration took place were significant for the success of the multiple collaborations in question.[25]

Not surprisingly, and as graph 3. shows, the two most represented business sectors are "Design: product, graphic and fashion design" (24%) and "IT, software and computer services" (26%). As in the case of the Creative Voucher analysis presented here, the breakdown represented below is based on the Creative Economy Group categories used by the Department for Culture Media & Sport (DCMS).[26] Unsurprisingly, a high proportion of companies (34%) belong to business sectors listed under the category "Other", as they were not seen to belong to any of the sectors business listed.[27] It has to be noted that the breakdown represented below is only indicative; a third of SMEs (33%) were seen to be cross-disciplinary or to belong to more than one sector; they are represented under more than one category listed below.[28]

- IT, Software, and Computer Services: **13**
- Design: Product, Graphic and Fashion Design: **12**
- Advertising and Marketing: **3**
- Music, Performing and Visual Arts: **2**

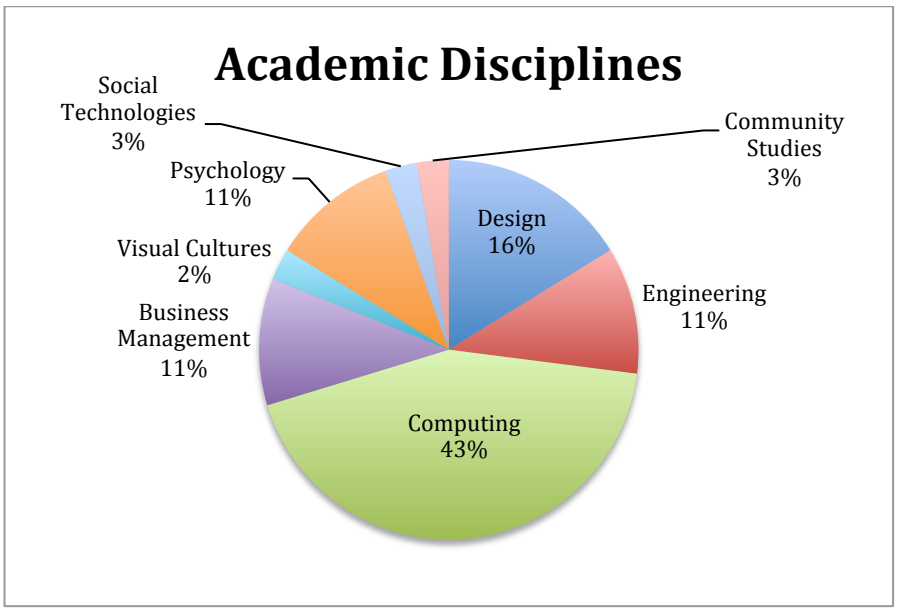
- Publishing: **1**
- Film, TV, Radio and Photography: **1**
- Museums, Galleries and Libraries: **1**
- Other: **17**

Graph 3. Breakdown by SME type awarded through the Fusion Collaborative Awards programme.



If one now examines the types of academic disciplines represented across the projects awarded given in Graph4, the breakdown looks as follows:

- **Arts & humanities research area:** **7 FCA projects**
- **Combined A+H/other, or other research areas**: **27 FCA projects**



Graph 4. Breakdown by academic discipline contributing to the FCA projects awarded.

Only seven of the FCA projects funded can be unambiguously classified as 'arts and humanities', and these were primarily in the field of Design. Given Fusion's emphasis on the digital economy, many SMEs sought research expertise from the broad disciplinary field of 'computing', which typically combined technical, design, and creative expertise. A smaller number of projects were also funded within economic and social sciences research areas.

Although the corpus analyzed is too small to draw any definite conclusions, a general trend in terms of the academic disciplines represented can be discerned. These seem to correlate with the type of the SMEs funded (primarily digital/ICT), reflecting the specific needs of these SMEs and echoing the aim of the London Fusion project to address barriers to the fusion of creative and digital economies in London.[29]

4. Conclusion

Both CV and FCA schemes have generated collaborative research opportunities that have increased engagement between CCIs and researchers in A+H disciplines. The benefits from these collaborations are multiple, diverse, and significant, and indications at this stage are that a

significant number of sustainable relationships have been put in place. This sustainability will be further investigated over the coming year. Both schemes deployed significant amounts of brokerage to ensure the best possible fit between the business needs of SMEs and the research expertise of CWL partners, and to enhance the potential for sustainability.

The CV scheme was better able to target specifically researchers in A+H disciplines, although in both CV and FCA schemes there was significant involvement of researchers working in cross-disciplinary spaces, particularly where these were focused on digital creativity and innovation. At this stage it appears that the proportion of projects leading to significant economic growth within participating SMEs is higher in the FCA than the CV scheme, although both schemes do also demonstrate a wide range of significant social and cultural impacts. Finally, the CV scheme generated more projects with clear research benefits for the research partner, perhaps because the shape of these projects was more explicitly co-designed by researchers and SMEs within this scheme.

[1] See Tarek Virani, *Mechanisms of Collaboration Between Creative Small, Medium and Micro-Sized Enterprises and Higher Education Institutions: Reflections on the Creativeworks London Creative Voucher Scheme*, Creativeworks London Working Paper, no.4 (May 2014); I Miles and P. Cunningham, *Smart Innovation – Supporting the Monitoring and Evaluation of Innovation Programmes* (Brussels: European Commission, 2006); J. Bruneel et al, 'Investigating the Factors that Diminish the Barriers to University-Industry Collaboration', *Research Policy* 39:7, (2010), 858-68.

[2] For a description of the Innovate UK innovation voucher scheme see http://vouchers.innovateuk.org

[3] For details of this scheme and its impacts see www.eclaplatform.eu/wp-content/uploads/2013/11/FAD-INS-Final-evaluation.pdf

[4] Proposal from Queen Mary University of London to the AHRC to lead a KE Hub for the Creative Economy (Creativeworks London), July 2011, p. 6.

[5] Application by Lancaster University to the London ERDF Programme 2007-13 to fund London Creative and Digital Fusion, August 2011, p. 13.

[6] The National Endowment for Science Technology and the Arts (NESTA) was established in 1998 as a public body designed to promote creativity and innovation. In 2012 it became an independent charity and adopted 'Nesta' as its official name.

[7] *A Guide to Creative Credits* (London: NESTA, 2011), p. 3.

[8] The importance of 'nudging' as theorized within both behavioural economics and psychology has become a prominent concern in the UK following the publication of Richard H. Thaler and Cass R. Sunstein's *Nudge: Improving Decisions about Health, Wealth and Happiness* (Yale University Press, 2008), and also the establishment of the Behavioural Insights Team (or 'Nudge Unit') within the UK Cabinet Office in 2010 (later to be part-owned by Nesta).

[9] Hasan Bakhshi et al., *Creating Innovation: Do the Creative Industries Support Innovation in the Wider Economy?* (London: NESTA, 2008).

[10] Hasan Bakhshi et al., *Creative Credits: A Randomized Controlled Industrial Policy Exerperiment* (London: Nesta, 2013), p. 6.

[11] David Docherty, *The Fuse: Igniting High growth for Creative, Digital and Information Technology Industries in the UK* (CIHE, 2010).

[12] For Harold Wilson's 1963 Speech, see http://nottspolitics.org/wp-content/uploads/2013/06/Labours-Plan-for-science.pdf

[13] Matthew Francis, 'Wilson, Benn, Blair and the Narrative of Technological Change,' *Nottspolitics.org* 1 July 2013.

[14] Stella Creasy, *LabourList.org* 2 June 2015

[15] *The Brighton Fuse* (2013), http://www.brightonfuse.com/wp-content/uploads/2013/10/The-Brighton-Fuse-Final-Report.pdf

[16] Sir Ron Dearing, *National Committee of Inquiry into Higher Education* (1997), p. 72; Sir Andrew Witty, *Encouraging a British Invention Revolution: Sir Andrew Witty's Review of Universities and Growth* (2013). p. 4 and p. 6.

[17] It is interesting in this context to note that the Higher Education Funding Council for England announced in September 2014 three new dedicated calls for bids to their Catalyst Fund, focusing on universities as 'anchor institutions'; on supporting technical education; and on innovative knowledge exchange.

[18] Proposal from QMUL to the AHRC, July 2011, p.3.

[19] See http://www.creativeworkslondon.org.uk/partners/ .

[20] CWL's research themes are: Capturing London's Audiences, London's Digital Economy, Place Work Knowledge. See: http://www.creativeworkslondon.org.uk/research/

[21] See statistical release: *Creative Industries Economic Estimates*, January 2014, p.9.

[22] See:

https://www.london.gov.uk/sites/default/files/2014%2008%2019%20ERDF%20contracts%20awarded%20as%20at%20Aug%202014.pdf

[23] ERDF Application for the London Creative and Digital Fusion project, 2011.

[24] The FCA model drew on findings presented in the CIHE 2012 KTP report commissioned by the Technology Strategy Board and the Research Councils. See: Ternouth, P., Garner, C., Wood, L., and Forbs, P., *Key Attributes for Successful Knowledge Transfer Partnerships,* August 2012.

[25] The three FCA multiple collaborations were: I-Publishing & Arc Software Consultancy Ltd & Kingston University (round 1), Innovare Design, Product Interaction and Goldsmiths, University of London (round 6) and Skills Hive Ltd, Energy Diamond Ltd, WCBMG Partners & Goldsmiths (round 2). Where collaborations were regarded as successful by the businesses involved, the SMEs in question either knew each other prior to joining the FCA programme or had the chance to develop their collaboration as part of a longer engagement with the university partner.

[26] As above, see statistical release: *Creative Industries Economic Estimates*, January 2014, p.9.

[27] The category "Other" is viewed to be represented by the following sectors: health / bio-medical, business and professional, advanced engineering, manufacturing and environmental. A number of SMEs belonging to this category were combined with one of the other sectors listed.

[28] It is outside the scope of this paper to discuss the usefulness of using applying such definitions to the cultural and creative industries. For a critique of using such definitions, see, for example: Galloway, S., and Dunlop, S., "A Critique of Definitions of the Cultural and Creative Industries in Public Policy", in: *International Journal of Cultural Policy,* Routledge, Taylor and Francis Group, Vol. 13, No. 1, 2007; Pratt, A., "Cultural Industries and Public Policy", in: *International Journal of Cultural Policy*, Routledge, Taylor and Francis Group, Vol. 11, No. 1, pp. 31-44, 2005, DOI: 10.1080/10286630500067739.

[29] According to the ERDF Initial Contact Form that all SMEs in the FCA programme were asked to complete in order to check their eligibility, 54% of the SMEs defined themselves as belonging to the "Digital/ICT" sector or to both the "Digital" and the "Creative" sectors. 30% of SMEs viewed themselves as belonging to the "Creative" sector. The remaining 18% viewed themselves as belonging to other sectors such as business and professional, advanced engineering or environmental.