Creating Prosperity: the role of higher education in driving the UK’s creative economy
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Creating prosperity

Preface

There can be no doubt that the UK’s creative economy is a jewel in our crown – a national success story and an area in which the UK can rightly claim to be a global leader. As we move out of recession, the importance of our creative industries is even more evident, being positioned firmly as a key driver of economic growth and recovery.

This has not happened by accident or even overnight. Creative talent doesn’t appear fully-fledged and successful, but has to be nurtured, developed and stimulated. As the report demonstrates, this is where UK universities play a critical role – developing and fostering creative talent and providing an environment where creativity can flourish, producing new ideas and providing cutting-edge research so that we can maintain our competitive edge.

However, we are in danger of jeopardising universities’ ability to continue to drive creative talent, growth and prosperity. A withdrawal of direct public funding for the arts and humanities education that underpin the UK’s creative economy, would threaten universities’ ability to contribute directly to the growth of the creative economy. This report therefore urges the Government to take a wider view of the strategic importance of these subjects and to consider areas which although not science-based, contribute significantly to our economic development, as well as the social and cultural wellbeing of the country.

The report makes a number of recommendations to government, higher education funding councils, key industry bodies, research councils and others and Universities UK looks forward to helping to take these recommendations forward with all the key partners to ensure that we can continue to build on the strengths of the UK’s creative sector. We hope that this report will be of interest to UK universities, businesses, policymakers and indeed anyone for whom our thriving creative and cultural sectors are important.

This report has been prepared by EKOS Consultants on behalf of Universities UK and we are grateful to the authors for identifying and analysing the issues so clearly. I would also like to thank fellow members of the steering group, which I have been pleased to chair, who have provided engaged and invaluable input into the report at every stage. We would also like to thank our partner organisations – Research Councils UK (RCUK), Skillset, Guild HE, United Kingdom Arts and Design Institutions Association (UKADIA) and the Council for Higher Education in Art and Design (CHEAD) – for their enormous contribution to this project. And, last but by no means least, we would like to thank the other individuals and organisations who helped to inform the report’s findings, including by providing case study evidence (we received 142 case studies from 65 higher education institutions across the UK) and by participating in the regional focus group events.

Professor Geoffrey Crossick
Chair, Universities UK Creating Prosperity Steering Group
Vice-Chancellor, University of London
Executive summary

Introduction
This report summarises the findings of research commissioned by Universities UK into the role and contribution of higher education in the UK’s creative economy. The research gathered evidence from existing data and research as well as case study analysis and contributions from industry, higher education and public sector partners.

The findings demonstrate not only the crucial role that higher education plays in the UK creative economy, but also why that contribution will become increasingly important to economic recovery.

During the latter stages of writing this report, it became evident, through the Independent Review of Higher Education Funding and Student Finance (Browne Review) and the subsequent announcements in the UK Government’s Comprehensive Spending Review, that it is likely that all direct public funding for teaching in universities, at least in England, could be withdrawn from the majority of subjects which support the creative industries. The importance of the creative industries to the economy, and the importance of the higher education sector in underpinning the strength of the creative industries, means that the arguments presented in this report are even more timely and relevant.

Why the creative industries matter
As the economy takes its first tentative steps out of recession, old certainties no longer hold, and the post-recession economy must be built around knowledge, creativity and innovation if the UK is to remain a significant economic force.

The creative industries, identified by the Work Foundation as one of four sectors with greatest potential to support economic recovery, have a central role to play in our future economic success, and were recognised by the chancellor as, ‘a key part of the new economy we are seeking to build’.

This is one of the areas in which the UK can rightly claim to be world-leading. Over a million people work in the UK’s creative industries, with a further 800,000 employed in creative occupations in businesses outside the creative sector. The sector accounts for more than seven per cent of UK GDP and has shown consistent, above-average growth for more than a decade. It is also proportionately larger than any creative sector in Europe (the creative industries account for 2.6 per cent of EU GDP) and consistently punches above its weight in global markets.

The creative industries are also important as pioneering sectors of the knowledge economy, developing and harnessing new technologies, and playing a central role in the transition to a digital economy. The pervasive influence of creativity is felt across the economy, and the creative industries not only enrich our lives, but make the UK more attractive to businesses, visitors and the highly-skilled people that will support future innovation. The case for investing in our creative industries is both clear and compelling.

The UK is not alone in recognising this potential. Countries across the world are making substantial investment in the creative industries and their supporting infrastructure, and global competition is accelerating. This investment ranges from the use of tax breaks and other fiscal incentives, such as those used to support the games industries in Canada and France, to the massive direct investment in new media cities and clusters in Asia and the Middle East. In this fast moving and highly competitive environment, the UK must look to its strengths, and invest in the development of high-level knowledge, creativity and skills. This is the essential role of higher education.
However, the emphasis of higher education policy, and associated funding, is not sufficiently flexible to fully encourage and incentivise higher education’s multifaceted contribution to the growth of the creative economy. At the same time, creative industries policy has paid only limited attention to the role that higher education plays in supporting the sector. This does not mean that either higher education or creative industries policies have always been ineffective, but rather that they are not well aligned. Nowhere is this misalignment more stark than in the recommendations of the Browne Review.

The contribution of higher education

Innovation is crucial to the future growth of the creative economy. Digital technology is reshaping the economic landscape, demanding new business models and multidisciplinary solutions that combine creativity with technological know-how and business skill. Previously held distinctions between creativity and science are increasingly irrelevant – the UK must excel in both.

This requires people with high-level specialism and expertise combined with the ability to work collaboratively across disciplines, challenge current practice and develop new solutions and opportunities.

Higher education has a central role to play in this agenda. It is the primary producer of the talent and skills that feed the creative industries and an important source of research that informs new ideas, practices and business models, with applicability within and beyond the creative sectors.

‘Higher education can play a crucial role in innovation in the creative industries by pioneering and delivering courses, opportunities and research that are truly connected to the changing nature of creativity. Areas such as web-delivered media, interactive games and mobile technologies are areas where education, research and the wider content industries can do more positive work together.’

Stuart Cosgrove, Director of Creative Diversity, Channel 4

Evidence also demonstrates the extent of higher education’s engagement with the creative economy. All kinds of universities are involved, from the specialist institutions in creative and performing arts to multidisciplinary, research-intensive universities. Eighty-one per cent of the universities in England have identified the creative industries as a target sector for external engagement – the next highest was energy, identified by 36 per cent.5

The study found evidence that higher education contributes to the growth of the UK creative economy through:

• research that supports innovation in the creative economy
• new models for interacting with creative businesses
• acting as hubs for innovation at the heart of regional creative clusters
• the development of talent and high-level skills for the creative economy
• activities that enhance the employability and enterprise skills of students and graduates
• provision of tailored and high-quality continuing professional development (CPD) to the creative industries

Executive summary
Research and innovation

Higher education makes a critically important contribution to innovation in the UK creative economy through research in an expanding range of academic disciplines. This is evident in a number of important ways:

• The quality is high and the economic, cultural and social impacts of research relating to the creative economy are considerable. Academic research not only contributes vital understanding to the creative economy, but also influences the development of new cultural and commercial practices, processes and products.

• There is growing focus on multidisciplinary research and innovation that brings together expertise and knowledge in science, engineering, creativity and business to address the innovation needs of the creative economy. This has been developing in higher education for some time, but has been given greater emphasis through the Research Councils UK (RCUK) Digital Economy Programme.

• The outputs of this research are finding successful application both within and beyond the creative industries in markets such as healthcare, defence, education and manufacturing, highlighting the wider value of the creative industries to the UK economy.

• There is widespread and multifaceted interaction between universities and the creative industries, evolving collaborative, informal and iterative processes in line with the characteristics of the industries.

• A number of universities have developed as regional hubs for innovation, drawing together academic and business talent in networks and spaces that encourage experimentation and risk taking – essential building blocks of successful innovation.

However, the level of investment in academic research relating to the creative economy, although increasing, is still modest in comparison to science disciplines. This partly reflects the high costs of science-based research, but is also a result of the belief of successive governments that science, technology, engineering and mathematics (STEM) subjects represent the exclusive route to economic success. This has been further confirmed in the recommendations of the Browne Review and the announcements in the 2010 Comprehensive Spending Review.

It also reflects the difficulties of assessing some forms of creative research, most obviously practice-based research in the creative and performing arts, and of demonstrating the impacts of collaborative and iterative research and knowledge exchange activities using science-based metrics (for example licences, patents, spin-outs).

There are also challenges for universities in structuring and delivering valuable multidisciplinary research within sometimes rigid faculty structures and subject-based funding models. It is therefore encouraging that the ref expert panels, reporting to hefce on the outcomes of the impact pilot exercise, have recommended that a broader definition of impact be adopted by the funding councils and that the initial list of impacts identified by hefce need to be developed further. Especially for the arts and humanities.

The structure of the creative industries as sectors comprising mainly small and micro-businesses makes engagement with higher education difficult, and there are barriers on both the demand and supply sides:

• For academics, engagement with small and medium enterprises (SMEs) is difficult due to the fragmented company base, and is not clearly rewarded. Constraints on academics’ time and cultural issues in academia may also be a major barrier.

• For creative businesses, costs and time are barriers, and many struggle to articulate their innovation needs clearly or even to recognise what they do as innovation.
Many of the valuable initiatives developed to encourage and support knowledge exchange between universities and the creative industries also rely on precarious sources of funding, which are either disappearing or are under serious threat.

**Skills, employability and entrepreneurship**

The creative industries thrive on talent, and are graduate rich. Demand for, and supply of, relevant courses is increasing. The research estimates that as much as 16 per cent of the student body may be involved in courses relevant to the creative economy, a strong indicator of higher education’s contribution to the sector.

However, the primary purpose of higher education is not to develop narrow skill sets, even though occupational skills are a necessary element in the education process. Higher education nurtures and develops creative talent, and produces graduates with deep specialism and, increasingly, the ability to work in multidisciplinary teams. It is this talent that will innovate new products, processes and business models to drive the creative economy of the future.

"In this industry the most important skills that recruits can have are communication and creativity. It is my belief that by fostering relationships between business and academic institutions we can ensure that graduates leave university with the necessary skills to make their mark on the business world."

Chris van der Kuyl, Chief Executive, brightsolid.

» De Montfort University’s BA (Hons) degree in game art design is the first game art course in England to be accredited by Skillset, the Sector Skills Council for Creative Media.
There is also evidence of growing engagement between higher education and industry at all stages of the education process, from course design and development to delivery. This is having a beneficial impact on students, industry and universities.

In addition to higher education’s role in developing next-generation talent, a number of other trends are also evident:

- There is an increasing focus on multidisciplinary education, particularly at postgraduate level, a trend that is consistent with the rise of multidisciplinary research initiatives (the two are frequently combined).

- Universities are increasingly embedding opportunities for practical learning in industry settings within their courses as a way of enhancing the employability of graduates and creating value for participating organisations.

- The educational process in many creative disciplines – problem solving, project-based, collaborative and experiential learning – helps to develop many of the skills and attributes required for successful innovators and entrepreneurs, skills that are in demand across the economy.

- There is growing focus on entrepreneurship education, and universities are actively engaged in incubation and enterprise support activities to encourage and enable more graduate start-ups.

- The growing engagement with industry has brought with it a rise in CPD provision.

Again, while of obvious value to the creative economy, there are issues in seeking to deliver these kinds of impacts:

- There is a need to invest to maintain the high quality of creative education. In particular, many creative subjects are expensive due to the need for space and facilities.

- There is a persistent issue with the different expectations and language used by industry and academia around skills provision and a need to build a better understanding on both sides.

- Although there has been substantial progress around employability, demand-side issues remain a barrier, and there are challenges in ensuring a consistent quality of student experience.

- Similar issues are evident in relation to CPD – the challenges of engaging with the diverse company base of the creative industries, many of which lack resources to engage in CPD, are considerable.

- More work is needed to fully understand the extent and quality of entrepreneurship education and support in areas relating to the creative economy, and there is currently a lack of consistent standards in this area.

- Much of higher education’s valuable work in these areas is dependent on external funding. Following the Spending Review, and the previous announcements on the closure of the Regional Development Agencies (RDAs), many of these sources of funding will come under increasing pressure, with consequent threats to both higher education and the creative economy.
The wider role of universities

The research also highlighted a range of other ways that universities across the UK are contributing to the growth of the creative economy as a result of the scale, credibility and international standing both of individual institutions and of the UK’s higher education system as a whole. These include:

- **anchoring regional clusters** through the attraction and retention of academic, graduate and business talent
- engaging significant industry players and **facilitating connections** with creative SMEs, creating new routes to major market opportunities
- building **international reputation** and credibility in ways that both enhance the UK’s reputation and also deliver direct benefit to regional creative businesses
- supporting active **networks** and bringing together business, academic and public sector partners – the triple helix of innovation

▲ The BaleHaus at Bath is a house made of prefabricated straw and hemp panels built at the University of Bath to test how these renewable building materials can be used for homes of the future. Straw and hemp are the ultimate environmentally-friendly building materials – they are totally renewable and because they absorb CO2 as they grow, buildings made from these materials can have a tiny or even negative carbon footprint.
Recommendations

The creative industries are a clear success story for the UK economy, and remain so even in the difficult financial climate. As such, they are vital to the future economic success of the UK.

The progress of higher education in supporting the UK’s creative economy is both clear and marked. Yet there is still more that universities could do. New approaches to knowledge exchange, lifelong learning and industry partnerships will be required within a more fluid and dynamic relationship between higher education and the wider economy.

We cannot build on the strengths of the UK’s creative sector without investment in higher education, and this means government, universities and the industries working together to address current barriers and invest in the areas of greatest opportunity.

However, if the implications of Browne and the Spending Review are followed through, we are in danger of seriously damaging one of the few economic areas in which this country is an established world leader. Some of the institutions with the strongest global standing in this area have traditionally received targeted funding on the basis that the higher costs of some creative subjects were justified in relation to the public good they delivered.

Therefore, there is also a need for a broader view of the subjects that ‘deliver significant social returns’ (Browne Review, p47) as well as contributing significantly to the UK’s economic growth and global competitiveness.

Addressing the barriers to successful engagement

Recommendation 1: Governments in the UK and the devolved nations should recognise the critical importance of the creative industries to future competitiveness and the key role of higher education in supporting their growth. This means according the creative industries policy emphasis in line with their economic importance, and investing to ensure that the UK maintains its strong global position in these industries. This investment should be prioritised through a clearly articulated and aligned strategy.

Recommendation 2: In the forthcoming higher education white paper (due to be published in spring 2011), the Government should resist the narrow view that STEM subjects represent the exclusive route to economic success, and should instead recognise the fact that STEM and creativity are inextricably linked – successful knowledge economies need strength in both. In practice, this means that the disciplines which support the creative economy should be identified as priority subjects and attract public investment for teaching in a post-Browne environment. This is particularly urgent in England and Wales, but is equally relevant in the other devolved nations.

Recommendation 3: Key industry bodies should ensure that the creative industries are included in their engagement with government in the UK and the devolved nations.

Recommendation 4: Government and the research councils should ensure adequate funding for research in disciplines relevant to the creative industries. This should include social science research into the nature of the creative economy. Research assessment mechanisms should also ensure that the outputs and impacts of creative industries-related research are fully recognised and rewarded. Indeed, the REF expert panels, reporting to HEFCE on the outcomes of the impact pilot exercise, have recommended that a broader definition of impact be adopted and that the initial list of impacts need to be developed further, especially for the arts and humanities.

Recommendation 5: Universities should work to address the structural barriers to multidisciplinary working. There is no single solution to these issues and different institutions will need to find the approach that works best for their circumstances.
Recommendation 6: Higher education should work to overcome some of the process barriers to working with the creative industries, particularly relating to the nature and speed of interaction. This will require changes to the ways in which academic performance is rewarded to allow more interaction with creative (and other) SMEs, as well as a willingness to create more flexible organisational structures to support this. This will also require policy support from the national and devolved governments and from the funding councils.

Recommendation 7: Encouragement and support for university-business interaction should be a priority issue for the new Local Enterprise Partnerships (LEPs) in England, and for the main economic development agencies in the devolved nations.

Recommendation 8: Intermediary bodies such as trade associations and industry groups (including Sector Skills Councils) should work to raise awareness of the benefits to industry of working with higher education across all forms of knowledge exchange activity.

Recommendation 9: Sector Skills Councils should work in partnership with the higher education sector and industry to articulate and translate the skills needs of employers, broker relationships, increase engagement and facilitate co-investment.

Recommendation 10: Universities should continue to develop flexible policies towards intellectual property rights so that this is not a barrier to effective knowledge exchange with the creative industries.

Investing in opportunity

Recommendation 11: Third-stream funding, in particular from the Higher Education Innovation Fund (HEIF), has been critical in supporting knowledge exchange between universities and the creative industries. Government and the funding councils across the UK should ensure ongoing support for these third-stream activities, for example through a reformed HEIF, to continue to build innovative solutions to knowledge exchange.

Recommendation 12: There should be increased investment into multidisciplinary research projects across the three main research councils with interests in the creative economy – the Arts and Humanities Research Council (AHRC), Economic and Social Research Council (ESRC) and Engineering and Physical Sciences Research Council (EPSRC). In particular AHRC should be resourced to participate fully in new cross-council initiatives.

Recommendation 13: Universities should continue to develop multidisciplinary education at postgraduate levels, bringing together creativity, technology and business. The links between the undergraduate and postgraduate provision are such that the viability of this multidisciplinary activity is threatened by the anticipated withdrawal of public funding for creative (and business) disciplines at undergraduate level. The Government should consider these issues as it reforms future higher education funding in England following the Browne Review.

Recommendation 14: Universities should structure new ways of interacting with the disparate sectors that make up the creative industries. Networks and subscription-based models offer potential to aggregate industry demand and are worth considering, not least because they can unlock the willingness of SMEs to contribute themselves.

Recommendation 15: Working through the Sector Skills Councils and other industry bodies and trade associations, the creative industries should build productive working relationships with higher education and contribute to the development of relevant educational provision.
Recommendation 16: Universities must continue to develop world-beating talent, but with increasing focus on industry exposure, employability and entrepreneurship. This will mean action on the development of consistent standards for industry experience and entrepreneurship education as well as continuing to engage employers in new models of interaction that deliver mutual benefit.

Recommendation 17: Creative businesses should work in partnership with universities to develop opportunities for industry placements, live briefs and practical experience for students at undergraduate and postgraduate levels.

Recommendation 18: Universities should continue to develop high-level and affordable CPD for the creative industries through more flexible, tailored courses that meet industry needs.

Recommendation 19: There is scope for industry to work with universities and public sector partners to build regional creative industries clusters and support innovation. Although higher education is a powerful and natural partner for this, the support of industry and the relevant public bodies (for example LEPs) is essential.

Recommendation 20: There should be ongoing support for the Skillset Media Academies, with Skillset continuing to play a coordinating role on strategic network development.
1.0 Foreword

1.1 The creative economy is an area in which the UK can rightly claim to be a global leader. We have the largest creative industries sector in Europe, accounting for more than seven per cent of GDP compared to around 2.6 per cent for the EU as a whole, which continues to demonstrate strong economic growth and commercial and cultural success around the world.

1.2 As the UK economy moves out of recession, the creative industries will be an increasingly important driver of economic recovery. A recent report by the Work Foundation identifies the creative industries as one of four key sectors that will lead economic growth in the future. This is due to the strong potential for growth in creative industries markets, but also to the wider contribution of the creative sectors to other parts of the economy through innovation and spillover effects, and to the attractiveness of our cities to different kinds of businesses and highly-skilled individuals (Work Foundation, 2010).

1.3 Higher education is a fundamental driver of the creative economy. However, while national and regional strategies frequently acknowledge the important role of higher education in the creative sector, it is not always apparent that this role is fully recognised or well understood.

1.4 With this in mind, Universities UK, supported by Skillset, Research Councils UK, Guild HE, the United Kingdom Arts and Design Institutions Association (UKADIA) and the Council for Higher Education in Art & Design (CHEAD), commissioned a study into the role and contribution that HE makes to the UK creative economy.

1.5 The overall aim of the study was to provide an evidence-based account of the scope and importance of the HE sector’s contribution to the creative economy and, where appropriate, to make recommendations to government, industry and universities. The research was focused on two broad strands of activity:

- research and innovation
- skills, employability and entrepreneurship

1.6 In line with the original brief, the study gives particular focus to the digital content and related industries that underlie the fast-growing digital economy. Drawing clear boundaries within the creative industries is problematic, and we recognise that the economic success of the creative industries is underpinned by the talent and vibrancy of the cultural sector as a whole. As a result, our research has given emphasis to the digital agenda, but not to the exclusion of the wider fields of the creative and cultural industries.

1.7 There were several elements to the study process, including an extensive literature review, interviews with a wide range of public sector, industry and higher education stakeholders, and case studies examining the different ways in which universities are engaging with the creative economy. The emerging findings were then debated at a series of six focus group discussions held across the UK with invited audiences comprising representatives from higher education, business and the public sector. These discussions were extremely useful in refining our thinking and helping to frame broad areas for recommendations. They also provided an opportunity for stakeholders to reflect on their own practice in light of the emerging findings.
Finally, it is important to note the timing of the research. We conducted the main fieldwork around the time of the 2010 UK General Election and the establishment of the new Coalition Government in Westminster. As a result, some of the main policy drivers were, at that time, still in development. However, the subsequent publication of the Independent Review of Higher Education Funding and Student Finance (Browne Review), and the Coalition Government’s 2010 Comprehensive Spending Review (CSR), has since clarified policy priorities in relation to higher education.

Although the Government has yet to publish its detailed response to the Browne Review recommendations (in a White Paper expected before the end of 2010), it is clear that higher education funding will change in fundamental ways. In particular, there will be substantial reductions in public funding for teaching, and future priority will be given to subjects identified as strategic priorities. In practice, this is likely to mean clinical training and science, technology, engineering and mathematics (STEM) subjects. In light of this, it is even more important that the role that HE and the creative industries can play in the future success of the UK is clearly articulated and well understood.
2.0 The context

Defining the creative economy

2.1 The term creative economy is increasingly used as a way of encapsulating a range of activities related to the central concept of the creative industries. The creative economy is broader than creative industries and might include, for example, culture and cultural tourism, the idea of creative cities, the creative class and even creativity itself.

2.2 In line with the study’s terms of reference, the primary focus of the research was on the creative industries as the heart of the creative economy. However, the relationships between the creative industries and the wider economy remain an important consideration.

2.3 The Department for Culture, Media and Sport (DCMS) defined the creative industries as:

‘those activities which have their origin in individual creativity, skill and talent and which have a potential for wealth and job creation through the generation and exploitation of intellectual property.’ [DCMS, 1998]

2.4 This definition was taken to include 13 sub-sectors (the DMCS 13), a classification that has proved remarkably durable and which is increasingly used as an international benchmark. The 13 sub-sectors are:

- advertising;
- architecture;
- the art and antique market;
- crafts;
- design;
- designer fashion;
- film;
- interactive leisure software;
- music;
- the performing arts;
- publishing;
- software;
- and television and radio.

2.5 One of the most debated issues is the extent to which these 13 sub-sectors represent a truly coherent set of industries, or are, in fact, more different than they are similar. The DMCS 13 operate as sub-sectors in quite different ways within often distinct and, in some cases well-established, supply chains and markets. While business models may share some common ground in content and copyright, there are other differences that highlight specific industry conditions. For example, the primary revenue source for commercial broadcasting is advertising, while in computer games it is product sales (and, increasingly, online subscriptions). Large parts of the design industries (for example graphics) operate more like professional services, while arts organisations typically exist within a mixed economy of public and commercial income.

2.6 It is also important to note that the creative industries do not sit in isolation from the rest of the economy. Many creative sub-sectors such as advertising, architecture, design and software are primarily involved in business-to-business transactions, and the outputs of creative sectors find application across the economy. In fact, 55 per cent of creative products are purchased by other sectors (Work Foundation, 2007).

2.7 The point here is that the creative industries are complex and it is important to bear in mind the richness of their diversity. This presents both opportunities and challenges for the UK economy and for the role of higher education in supporting the sector.
The importance of the creative industries

2.8 The importance of the creative industries to the UK economy is now widely accepted (see, for example, Work Foundation, 2007). According to the latest data published by DCMS (2010), in 2008, 1,165,500 people were employed in 157,400 businesses in the creative industries in Great Britain, with a further 805,700 employed in creative occupations in businesses outside the creative industries. By way of wider comparison, this far exceeds employment in life sciences and even financial services, and demonstrates the wider role of creative skills across the economy.

2.9 Creative employment has shown consistent growth, increasing 26 per cent between 1997 and 2008. This compares with total employment growth of 19 per cent between 1998 and 2008 (Figure 2.1).

2.10 In 2007, the creative industries contributed almost £60 billion in gross value added (GVA) to the UK economy, with software, computer games and electronic publishing accounting for 62 per cent of the total. The creative industries are also strong exporters, accounting for £16.6 billion in exports of services in 2007, a 74 per cent increase on 2000 figures (DCMS, 2010).

2.11 In addition to the direct economic contribution of the creative industries, creativity has a pervasive upgrading influence across the economy. This is evident, for example, in the contribution of design to innovation and growth, and the growing application of the outputs of creative industries in diverse markets from mobile phones and healthcare to military and police training settings. The UK also has world-leading cultural institutions which, in addition to providing the essential cultural energy on which the creative economy depends, are essential to sustaining national creativity and making our towns and cities vibrant places to live, work and invest. For example, the contribution of the UK’s cultural assets to its attractiveness as a tourism destination should not be underestimated.

2.12 The creative industries are important as trailblazing sectors for the wider knowledge economy. They are inherently knowledge-based businesses trading in intangibles – creativity, talent, intellectual property – and were ‘knowledge industries’ well before the term came into common usage.

2.13 Those working in the creative sectors are well educated, employing a higher proportion of graduates than the economy as a whole.
2.14 They are also multidisciplinary, bringing together creative and technical skills in a way that is now finding much wider relevance across the economy.

2.15 The typical pattern of large numbers of very small businesses, supported by self-employed freelancers is consistent with a high degree of entrepreneurialism. Many creative businesses opt to stay small, expanding and contracting as required through the use of short-term contract labour and collaborative, network-based models of production. This allows flexibility and agility, important characteristics when dealing with rapid change.

2.16 Technology plays an important role in virtually all areas of the creative industries, albeit to a varying extent and often in different ways. In particular, the creative industries have been profoundly affected by rapid developments in digital technologies. Digitisation has transformed the content development process in many sub-sectors, reducing costs and barriers to entry. There are also new platforms and channels appearing all the time. As recently as five years ago, Facebook, YouTube and Twitter did not exist and there was no BBC iPlayer, Apple iPhone or iPhone App Store.

2.17 These developments have disrupted existing business models and supply chains, driving innovations in business practice within and beyond the creative industries. These changes have prompted diversification and business model innovation in many creative industries, creating important learning opportunities for other industries.

2.18 The combination of the strong and growing economic contribution of the creative industries, their potential for ongoing growth and their wider economic benefits has been a key driver of policy interest in the creative economy in the UK for more than ten years.
More recently, there has been some interest in the contribution that creative industries can make to economic recovery. A recent Work Foundation report identified creative industries as one of four key areas that will drive future economic growth in the UK (Work Foundation, 2010). This reflects not only their potential for direct business and employment creation, but also their wider role in driving innovation in other parts of the economy, from manufacturing to tourism. Without a thriving creative sector, the UK will be a less potent force in the global economy.

The policy context

As noted, the creative industries have long been high on the policy agenda in the UK, as elsewhere in the world. As more developed economies realise the potential of the creative economy, there is increasing policy attention on and investment in the creative industries as a way of enhancing future economic competitiveness.

The Green Paper published by the European Commission, Unlocking the potential of the cultural and creative industries, is a recent example of this, and indicates a clear desire on the part of the Commission to develop a strategic approach to the sector at EU level.

In the UK, we are still in the early stages of the new Government and, as a result, specific policy priorities for the creative industries are not yet fully developed. High-level policy pronouncements such as the prime minister’s speech on transforming the British economy (May 2010) pledged ongoing support for the UK’s creative industries, and the new Secretary of State for Culture, Olympics, Media and Sport, Jeremy Hunt, confirmed the Government’s commitment to the sector in keynote speeches on the arts and the media. The important role of the creative industries in the UK’s economic future was also mentioned in the chancellor’s recent speech on the CSR (October 2010).

However, the recent CSR outlined very significant cuts in funding for arts and culture. A number of cultural bodies will be abolished, including the UK Film Council and the Museums, Libraries and Archives Council, and the CSR outlined reductions of 24 per cent to the DCMS budget and 30 per cent to the budget for the Arts Council England. The BBC’s licence fee income will also be frozen until 2016–17, and greater demands will be placed upon this money to support the development of the broadband infrastructure. At the same time, there are plans to reform the National Lottery to ensure more investment in the heritage and the arts, and the plans to improve ‘super-fast’ broadband will help the growth of the creative sector.

This is a somewhat confusing and conflicting policy picture. High-level statements promise ongoing support for the creative industries while the sector faces substantial cuts in public funding. Therefore, the policy priorities remain unclear. Indeed, a recent report by the Confederation of British Industry (CBI) has called on the Government to develop a new creative industries strategy (CBI, 2010).

Creative economy policy under the previous Labour Government was largely articulated in two key policy documents – Creative Britain and Digital Britain – and through the subsequent Digital Economy Act (2010), which the Coalition Government has decided not to repeal. While the role of higher education has been recognised within creative economy policy, it is generally more focused on skills provision than on research and knowledge exchange. There is little evidence that the wider role of higher education in ideas generation, creative entrepreneurship, regional development and talent attraction is recognised.

As well as tending to underplay the role of higher education, past creative economy policy presents this role in an often negative way, stressing the need to address a perceived mismatch between industry demand for skills and training, and education supply.
At the same time, higher education policy has become increasingly focused on impact, with emphasis on the linked priorities of research excellence, knowledge exchange and closer alignment with industry. Yet there has been limited reference to the creative economy within higher education policy, with an explicit, if not exclusive, emphasis on science and the promotion of STEM skills, areas that benefitted from additional investment under the previous government, and have also featured in recent speeches by ministers in the Coalition Government (for example Vince Cable: Higher Education, 15 July 2010).

More recently, the Browne Review has proposed a radical overhaul of the way in which higher education in England is funded. The Review acknowledges that there is a 'strong case for additional and targeted investment by the public in certain courses', and that these may be courses that 'deliver significant social returns', which could include subjects underpinning the creative industries. However, it goes on to identify two categories of programme that will attract investment: clinical training programmes, such as medicine and veterinary science (Price Group A), and science and technology and healthcare programmes under Price Groups B and C. While not explicitly excluding arts and humanities and the social sciences, they are in fact excluded by implication.

The CSR also outlined this strong policy focus on science. The science budget emerged relatively unscathed, and future public funding for university teaching will be directed, as recommended by Browne, at clinical training and STEM, as well as languages. Again, while not making explicit statements about many of the disciplines that contribute to the creative economy (which include STEM subjects), they are excluded by their omission.

▲ Student art project at the University of Bolton.
Devolved nations

2.30 Within the devolved nations there is considerable policy focus on the creative industries. The Scottish Government has identified the creative industries as one of six key sectors for development (Scottish Government, 2008) and has established a new agency, Creative Scotland, with strategic responsibility for the sector in Scotland. There is also a new strategy for the digital media industry, Digital Inspiration, which is strongly focused on innovation and recognises the vital role of higher education in supporting this process.

2.31 The Hargreaves Review in Wales has recommended greater alignment between creative economy and digital economy policy, along with a radical overhaul of the political and strategic structures governing creative industries policy and delivery. It also recommends greater focus on research and knowledge transfer activities within Wales’s developing higher education infrastructure.

2.32 The devolved administration in Northern Ireland has set a goal of growing the creative industries by up to 15 per cent by 2011. This is led by the Department of Culture, Arts and Leisure (DCAL) through the Northern Ireland Creative Industries Strategic Action Plan. Invest NI, the national economic development agency, has recently published a Digital Content Strategy in which it outlines priorities for developing the industry. In common with other approaches across the UK both skills and innovation feature, and the strategy notes the need to increase levels of interaction between digital content businesses and further and higher education.

2.33 Within higher education policy, science (in the sense of STEM) is again a strong priority across the devolved nations, and creative economy growth is given little explicit recognition. Although the Browne Review relates to England, it is likely to have wider repercussions across the devolved nations, particularly as public funding comes under increasing pressure.

2.34 Overall, our analysis suggests that the level of priority attached to the creative economy has not been fully reflected in higher education policy, and creative economy policy has not given full recognition to the role of higher education in driving growth. This policy mismatch creates the very real risk of future underinvestment, a risk that is now becoming more likely and more serious as the outcomes of Browne and the CSR become policy.

▲ Student at Cardiff University’s School of Music, one of the most vibrant in the UK and noted for its world-leading research.
3.0 Drivers of the creative economy

Introduction

3.1 In this section we summarise some of the key drivers for the creative industries as they relate to the two main areas of focus for the study – research and innovation on the one hand, and skills, employability and entrepreneurship on the other.

Innovation

3.2 Innovation is crucial to the future growth of the creative economy. Global competition is increasingly focused on higher value activities, and the UK must continue to innovate if it is to maintain its position as a world leader in the creative industries.

3.3 Thinking about innovation policy has progressed as understanding of innovation processes has improved. Research shows that most innovation in companies in all sectors is stimulated by the market – from customers, citizens, suppliers and competitors – as a system of dynamic interactions between people and organisations. This contrasts with the previous linear, science-based model of innovation as a sequential set of steps from the lab, through commercialisation to company product. These new models of innovation reflect much more closely the process of innovation seen in the creative economy, where organisations leverage connections, both competitive and collaborative, to access skills, resources and ideas.

3.4 Innovation in the creative industries is complex, and there are challenges in measuring these kinds of activities using existing methods and metrics, even though these innovation models are thought by many to be those that will prevail in the knowledge economy and not just in the creative industries.

The nature of innovation in the creative industries

3.5 In broad terms, innovation in the creative economy is focused on three main areas – technology, business models and creative content – and successful innovation typically involves all of them. Indeed, combining creativity with technology and commercial acumen is essential to the future success of the creative industries.

3.6 Technology-based innovation in the creative industries is both widespread and complex. Technology is, of course, an enabler of innovation, but in some areas it is also a focus for innovation, driven by creative ideas, most obviously perhaps in digital sectors such as computer games.

3.7 In other parts of the creative industries, technological innovation is less about the development of new technologies and more about their adoption, often in novel ways. In advertising, for example, new digital technologies are being used to target highly tailored messages to specific customer segments across a range of platforms and channels, and the performing and visual arts are increasingly involved in experimenting with the digitalisation of content and with digital distribution (for example the National Endowment for Science Technology and the Arts [NESTA]’s NT Live project). In these examples, technology is being adopted rather than created, but is combined with creative processes to constitute innovation.
3.8 In an increasingly digital environment, the development of commercially successful business models is a critical area for innovation. Previously established business models are breaking down. Online news content has hit newspaper sales, and channel fragmentation is exerting growing pressure on advertising revenues in broadcasting. Everyone is looking for new business models, with a focus on three main areas:

• exploiting new channels
• exploiting new markets
• exploiting rights and new revenue streams

3.9 The proliferation of media channels creates opportunity for the wider distribution and exploitation of creative content through its repackaging and re-engineering for different platforms. This kind of channel migration is most obviously evident for TV, advertising and publishing, where new media channels have started to change the ways that consumers interact with content.

3.10 The creative industries have also been active in exploring new opportunities in diverse market segments, from health and education to security and transport. The diversification of games from its traditional territory in entertainment into learning is a good example of this in practice, although this is not restricted to games. For example, there is increasing use of 3-D visualisation technologies to enhance the visitor experience in heritage and tourism as well as in healthcare and defence settings.

3.11 Crucially, many of the emerging business models in the creative industries depend on the ownership, protection and exploitation of intellectual property (IP) rights – typically in the form of copyright rather than patents – meaning that companies are seeking both to structure new kinds of deals and to develop the kinds of content with the potential for ongoing exploitation.

3.12 Therefore, while innovation in the wider economy is often conceived as functional, scientific or technological, resulting in a new or improved product (or process), innovation in the creative industries is also increasingly about business models, new channels and diversification. A third and crucial element of innovation must also be considered – that of creative, or ‘aesthetic’ or ‘soft’, innovation that ‘reflects changes of an aesthetic nature’ (Stoneman, 2009).

3.13 Aesthetic or soft innovation is at the very heart of the creative industries, and recent research (for example Stoneman, 2009), unsurprisingly, identified very high rates of soft innovation within the creative sector. In this analysis, such innovations were considered significant only if they were of immediate or short-term economic importance – a hit film, for example, or a successful new brand. However, for parts of the creative economy, economic importance will not always be immediately apparent. Practice-based innovation in the performing and visual arts, for instance, can and does lead to new understanding about both the creative process and new forms of expression.

3.14 Then there is the role of design as a crucial driver of innovation, not just in an aesthetic sense, but also through the application of design thinking and strategic design in the development of new products, new processes and means of delivering services, including public services.

3.15 Few in the sector would consider these activities important if they only led directly to an increase in sales; rather, their value will be in the knowledge that is created and subsequently disseminated for exploitation and use by others, even if it is not codified.
3.16 This raises the issue of how to measure innovation in the creative sector. Certainly, traditional measures of research and development (R&D) and innovation fail to capture adequately soft innovation, or indeed business model innovation. R&D and patent measures focus on science and technology innovation, and do not take account of aesthetic innovation. Instead, indicators such as trademarks, copyright and registered designs are more relevant, even if they are not always widely used as a means of protecting intellectual property. More recently, NESTA’s work on a new Innovation Index has made a useful contribution to thinking about innovation measurement, capturing these broader innovation concepts, and may offer some future potential [NESTA, 2009].

The process of innovation

3.17 Evidence suggests that the innovation process in creative industries differs fundamentally from traditional linear models of innovation in science – it is open, iterative and collaborative, working through networks and up and down supply chains in ways that are neither well researched nor understood.

3.18 The small scale of creative enterprises, the natural (creative) tendency to look for multiple perspectives and the growing demands of fast-changing technology make open and collaborative models of innovation a necessary part of the business process in the creative industries.

3.19 Such models are pervasive across the creative industries, with strong growth in co-production and network-based activity. The increasing shift online, and towards cross-platform and interactive media, is likely to lead to continued growth in collaboration between content creators, technology providers and distributors. This collaborative and networked approach places great emphasis on social and management skills, partnerships and networks.

3.20 Innovation support, however, especially for university-business interactions, has failed to keep pace with advances in policy thinking, and still focuses on a linear, technology-driven model rather than collaborative, interactive approaches. As a result, many creative businesses view the support structures as not relevant.

3.21 Research also suggests that innovation processes are not widely recognised as such within the creative industries, and are just seen as an integral part of business activity [Miles and Green, 2008]. Even in more technology-based sectors such as games, formal R&D is limited, and failure to account for the resources allocated to R&D work (for example on new tools) has restricted the industry’s access to R&D tax credits. This is despite considerable efforts on the part of trade associations to promote this opportunity.

3.22 The difficulty here is in the demarcation of innovation-related processes from core creative production activities. Innovation is more often integrated into the business of creative enterprises, and can be an ongoing feature of projects (for example the revision of tools throughout the development of a game or repackaging broadcast content for online or mobile platforms).

3.23 The multidisciplinary nature of innovation in the creative economy is such that valuable academic input could come from a very wide range of disciplines, from creative arts to computer science, business and social sciences. The iterative and collaborative nature of the innovation process also argues for new models of engagement between industry and higher education that move far beyond traditional technology transfer approaches and that combine input from a range of areas in a more fluid way.
3.24 This short discussion highlights a number of important features of innovation in the creative industries:

- Technology innovation is often necessary but it is not sufficient – innovation in business models and creative practice are also crucial.
- Innovation is open, collaborative and iterative, working through networks and up and down supply chains in ways that are neither well researched nor understood.
- Traditional definitions and measures of R&D and innovation do not capture the range and scope of these activities (for example Miles and Green, 2008; Stoneman, 2009; Devlin, 2010).

3.25 Although these issues are not unique to the creative industries, they are particularly acute in light of the competitive speed to market that is required, the integral position of creativity in the products and the need to rapidly adapt business models. Higher education has a critical role to play in supporting innovation in the creative economy both through research activity in creative practice, technology and business management, and by ensuring the transfer of academic expertise and knowledge to the creative sectors.
Skills and entrepreneurship

3.26 Higher education has an obvious role to play in developing the skills and talent that support the creative economy, particularly in light of the high proportion of graduates in the sector. The breadth and diversity of the creative industries means that they draw upon skilled graduates from a wide range of disciplines and often have diverse requirements.

Skills for the creative industries

3.27 The creative industries are characterised by high levels of self-employment (sole traders and freelancers). According to a recent large-scale, longitudinal survey of creative graduates (Creative Graduates Creative Futures), one in three creative graduates run their own business and/or work in a freelance capacity (Ball et al, 2010). This pattern of self-employment and portfolio working demands diverse skills relating both to technical capability and the successful management of what can be less secure and less predictable career paths.

3.28 The creative industries workforce typically comprises young, highly-qualified and highly-skilled individuals who are lifelong learners ‘keen to develop their skills and knowledge, enhance their job prospects, and follow personal interests often related to their creative practice’. (Ball et al, 2010, p xxv).

3.29 In a sector where innovation is critical, constant and pervasive, and new technologies rapidly move from cutting edge to industry standard, possessing the necessary skills to innovate is also critical (Skillset and CC Skills, 2009).

3.30 In particular, individuals must be equipped to understand and respond to the rapid technological changes inherent in the creative industries. According to Skillset and Creative and Cultural Skills (CC Skills) (2009), the ‘greatest single movement in skills requirements is due to advances in digital technology, transforming the ways in which creative content and creative products are created and distributed’ (p25). It is therefore essential that the UK’s creative sector has the ability and capacity to continue to generate new creative content.

3.31 Specialist knowledge (including the STEM subjects) is essential, and there is growing demand for multidisciplinary skills – both creative and technical (Skillset, 2009). While requirements for specialist skills tend to be sub-sector defined, the literature suggests a general demand for expertise in digital technology (e-Skills, 2009), highlighting the importance of STEM subjects to the creative economy.

3.32 Indeed, there is often a false opposition established between ‘creative’ subjects on one hand, and STEM subjects on the other. At one level, this is understandable, as the policy priority on STEM has meant a recent emphasis on increasing student places in these subjects, with a concern that this will come at the expense of places elsewhere. The outcomes of Browne and the CSR make this increasingly likely. However, STEM skills are also needed in the creative economy, whether engineers in broadcasting or maths and physics skills in computer games development. This is consistently overlooked in current debates that seek to polarise STEM and creative disciplines. We have already noted, in a parallel fashion, that graduates from creative subjects are to be found in businesses right across the economy and not simply within the creative industries. Indeed, creative skills are needed in all industries, including those supported by the STEM disciplines. This clearly challenges a narrow view of STEM as the sole route to economic growth.

3.33 Although the breadth of the creative industries is such that some skills requirements will affect only specific sub-sectors, common skills issues are also evident. In particular, there is an identified need to combine a breadth of core, softer skills with technical specialisms – the so-called ‘T’ skills (Skillset and CC Skills, 2009).
3.34 However, while it is accepted that the current workforce and potential entrants are highly qualified and highly skilled, this does not necessarily mean that the qualifications and skills are always considered fit for purpose. A frequent criticism levelled at higher education from industry is that it produces graduates with insufficient specialism (Skillset, 2009) and industry experience which, for some employers, carries greater weight than academic qualifications (CC Skills, 2006).

3.35 In order to gain experience, post-graduation ‘internships’ and unpaid working is an established feature of the creative industries landscape. For example, 42 per cent of respondents to the Creative Graduates Creative Futures survey reported undertaking unpaid or voluntary work experience since graduating (Ball et al, 2010). This contributes to oversupply in the entry-level workforce, especially in sectors that are seen as ‘glamorous’ (Skillset, 2009).

Continuing professional development (CPD)

3.36 As noted above, the creative industries require specific and highly specialised skills in a rapidly changing environment, and are characterised by a high concentration of young people with a desire for lifelong learning. The need for CPD to update specialist skills is apparent, but the broader skills of innovation, management and leadership have also been identified as disciplines in which CPD is particularly required (Clews, 2008).

3.37 Yet, while the importance of CPD is clear, not least because businesses that do not invest in training and CPD during a recession are two-and-a-half times more likely to fail (DIUS, 2008), investment in CPD by the creative industries is limited (Skillset and CC Skills, 2009).

3.38 There may be a number of reasons for this, most obviously cost. In an industry not characterised by large, mature companies, fees for both employers and the self-employed are a significant barrier, especially when the rate of change in technology and business requires that skills be constantly updated (e-Skills, 2009).

3.39 Added to this is the fear (on the part of the self-employed) of losing work should they take time out for training. This timing issue is not helped by the fact that much of the training offered involves long, extensive courses, which is in stark contrast to what small companies require – quick, short, sharp courses that focus on a prevalent need (e-Skills, 2009).

3.40 Finally, evidence suggests that CPD provision in the sector is dominated by expensive private providers and typically does not lead to a recognised accredited award, again hindering take-up (Skillset, 2009).

Entrepreneurship

3.41 As noted above, the creative industries comprise high numbers of micro-businesses, self-employed and freelancers. Consequently, the ‘entrepreneurial capacity of the creative industries workforce must be developed if the growth of the creative industries throughout the UK is to be maintained and enhanced’ (HE Academy and NESTA, 2007).

3.42 However, according to DCMS (2006), despite the fact that graduates from creative arts, design and media courses are more entrepreneurial than their peers (with around one-third of all self-employed first degree graduates coming from these disciplines), the majority of graduates leave education unprepared, due to limited opportunities for entrepreneurship training.

3.43 In order to raise the employability of graduates and of those currently working in the creative industries, entrepreneurship and skills needs must be addressed. In doing so, higher education has a significant role to play.
4.0 Higher education’s contribution

Introduction

4.1 In the course of our research we found much evidence and near universal agreement that higher education has been critical to the growth of the creative economy in the UK. In particular:

- It is the primary source of new talent for the creative industries and the UK has a global reputation for the quality of its creative education.
- Higher education research continues to inform the development of new ideas, practices and business models within the creative economy, drawing expertise from social sciences, computing and engineering as well as creative arts and design.
- University engagement with the creative economy is widespread – 81 per cent of English universities identified the creative and cultural industries as a target sector in their knowledge exchange strategies, the highest of all sectors [PACEC, 2010] – and is far from the sole preserve of the specialist institutions in creative and performing arts and design.
- The nature of higher education’s engagement with the creative economy has evolved in ways that are well suited to the needs of the sector through informal, collaborative, network-based models of engagement, rather than science-based linear models of technology transfer. However, this has meant that these activities are not well captured by existing metrics, which tend to favour science-related activities.
- Higher education has a crucial role to play in developing the entrepreneurial capacity of the creative industries and in stimulating enterprise activity, both through mainstream education and through a wider variety of extra-curricular provision.

‘Higher education can play a crucial role in innovation in the creative industries by pioneering and delivering courses, opportunities and research that are truly connected to the changing nature of creativity. Areas such as web-delivered media, interactive games and mobile technologies are areas where education, research and the wider content industries can do more positive work together.’

Stuart Cosgrove, Director of Creative Diversity, Channel 4

4.2 The case study research found numerous examples of the different ways in which higher education institutions are contributing to the growth of the UK’s creative economy. The evidence suggests six overlapping propositions that describe higher education’s contribution:

- Higher education is a crucial source of new ideas and practices that drive innovation in the creative economy.
- Higher education is adapting new models of interaction with the creative economy.
- Universities are regional hubs for innovation and the growth of creative clusters.
- Higher education is the primary source of talent for the creative economy.
- Employability and enterprise are areas of growing focus for higher education.
- Higher education can be an important provider of CPD for the creative industries.
Proposition 1.

Higher education research is a crucial source of new ideas and practices that drive innovation in the creative economy.

- A very wide range of higher education research contributes to the creative economy, both across different academic disciplines and industry sectors.
- This research is high quality and its economic, social and cultural impacts are strong.
- Existing mechanisms for assessing research quality and impacts do not always capture the full benefits of research for the creative economy, meaning that universities may not be fully rewarded for this activity.
- Much of this research is increasingly collaborative and multidisciplinary.
- Multidisciplinary research in universities increasingly bridges the gap between science, technology, creativity and business skills – essential to the future success of the creative economy.
- The outputs of multidisciplinary research initiatives are finding application in a broad range of sectors, underlining the wider contribution of creative industries across the economy.
- Although investment in research relevant to the creative economy has been increasing, it is modest compared to investment in science.
- There are challenges in multidisciplinary research in working across institutional faculty structures and within subject-based funding structures.
Higher education research is fundamentally concerned with developing new knowledge, new ideas and new practices. In the course of our work, we found numerous examples of research activity in higher education that was contributing valuable knowledge and insight to the creative economy. Importantly, this ranged across very diverse disciplines, from practice-based research in art, design and performing arts to technology research in engineering and computing faculties, as well as the contribution of social sciences and the humanities in understanding the ways in which the creative economy operates.

Some of this research is explicitly commercial in its focus, particularly in technology, while other projects are more likely to have a longer-term impact in areas such as the development of creative practice, evidence-based policy making and new ways of working in the creative industries. Both were recognised as being of enormous value by stakeholders across the UK, and many felt it important not to downgrade more ‘pure’ (and possibly less immediately commercial) research in favour of that which might find a shorter-term industrial application.

The scope of the research activity that relates to the creative economy is expanding, and investment is increasing through the research councils and organisations like the Technology Strategy Board. This research is high quality; the 2008 Research Assessment Exercise (RAE) showed that, on average, 51 per cent of research in the creative subjects conducted at UK universities was rated either 4* (world leading) or + 3* (internationally excellent) compared to the all-subjects average of 47 per cent (Universities UK, 2009), including practice-based research in the creative and performing arts.

The available evidence also shows that this research has an impact. For example, recent work by AHRC on economic impacts estimated that for £1 of research invested by AHRC, the immediate return to the UK economy is £10, with a further £15–£20 returned over the long term (AHRC, 2009).

The University of Ulster example below illustrates both the economic and cultural impacts of higher education research through a project that developed commercially viable digital media technology, and subsequently provided audiences with a new way of interacting with cultural material. It also demonstrates that spin-outs, while not a frequent outcome of university research in any discipline, do still happen in the arts, a finding confirmed by wider research on the impact of third-stream funding in English higher education institutions (HEIs) (PACEC, 2010).

The company created employment for four University of Ulster graduates and has since evolved into a specialist app developer working with a wide range of global security and webcam developers.

More recently, the company has expanded its services into the design and development of bespoke applications on multiple platforms and has recently launched a new portfolio app for the Apple iPad. The new app is the result of a collaboration with celebrated Irish artist Jim Fitzpatrick, renowned for his iconic and colourful Celtic artwork. The app allows the user to explore and expand the finest details of Jim’s intricate work, creating a new way of interacting with art.
An example of research with a clear economic and social impact is the work of the Design Against Crime Research Centre at Central Saint Martins College of Art and Design, an exemplar in innovative, practice-led design solutions that help reduce crime in society. Through a series of AHRC-funded research projects, the Centre, together with a range of industrial partners, developed a new bag-holding clip to prevent bag theft and secure cycle parking stands to reduce bicycle theft. Both products have not only contributed to the reduction of crime, but are also in the process of successful commercialisation (AHRC, 2009).

In the creative and performing arts, practice-based research has gained considerable currency and authority over the last decade, and is helping to advance the development of professional practice. A recent report published by the Cultural Industries Development Agency (CIDA) highlights a number of case studies to illustrate the ways in which academic research is contributing to the advancement of artistic practice (Devlin, 2010).

For example, ResCen, the Centre for Research into Creation in the Performing Arts at Middlesex University, collaborated with the Beijing Dance Academy on a practice-based research project to explore the ways in which creative performances can be seen as agents of change, helping us to make sense of an increasingly complex world. The outputs of the project (a series of short performance pieces) found a wide audience, and this intercultural exchange has cascaded new ideas and new practices not only within the participating institutions, but more widely across the artistic communities in the UK and China, highlighting the internal impact of the work (Devlin, 2010).

Higher education research also contributes to the development of the creative economy in other ways, for example by developing understanding of how creative businesses create value, and how their markets operate. Social science and humanities research centres at the universities of Warwick, Glasgow and Leeds and City University London, among others, are actively engaged in this kind of research, influencing and informing policy that can better encourage creative economy growth.

The growing importance of the digital environment to the creative economy has meant that EPSRC is now an increasingly important player in the research funding environment for the sector. With a budget in excess of £750 million, EPSRC is larger than both AHRC and ESRC, and supports research across disciplines relating to engineering and physical sciences. The digital economy is one of its identified priorities and EPSRC is leading the RCUK cross-council Digital Economy Programme (DEP), undoubtedly the single biggest investment in research relevant to the creative economy to date.

With a broad remit ranging across culture and the creative industries to healthcare, the DEP aims to support and enhance the UK academic community through multidisciplinary work. This includes funding for three large, multidisciplinary research hubs and seven Centres of Doctoral Training. The programme has a research budget of £83 million and a training commitment of £34 million.

The DEP is well aligned with the innovation needs of the creative economy. It is collaborative and multidisciplinary, with multiple industry partners. In addition to technology research, it is also looking at issues relating to business models and societal impacts, and has a strong focus on engaging the user community in the research process. As this approach indicates, the boundaries between creativity and technology are dissolving, and this dichotomy between creativity and science now looks increasingly outdated.
The Horizon Digital Economy Hub at The University of Nottingham is one of the DEP-funded research hubs, bringing together expertise from a range of faculties, partner universities and businesses to identify new opportunities in digital technology.

**Horizon Digital Economy Hub, University of Nottingham**

The Horizon Digital Economy Hub is a £40 million cross-disciplinary research centre, carrying out research into new ways of gaining value from the electronic ‘footprints’ we leave behind whenever we use mobile, internet and other digital technologies.

The Hub will focus on two key sectors – culture and creative industries, and transport – and will specifically examine how the digital footprints we leave behind could be harnessed to transform the way those sectors operate. The Hub brings together University of Nottingham researchers with backgrounds in social science, technology and business, and the University of Cambridge, University of Exeter and Brunel University are also contributing. In addition, the Hub has input from key external partners including the BBC, Alton Towers, BT, Experian, Jaguar, Oracle, Network Rail, Invensys and the Institute of Practitioners of Advertising, and is working with established artist groups such as Blast Theory and Active Ingredient.

The project is funded through the DEP, with match funding from university and industry partners, and although it is still too early to judge its success (the centre opened in October 2009) it constitutes a significant investment in multidisciplinary research in which creative input is embedded rather than seen as an additional extra. As such, it demonstrates the increasingly porous nature of the boundaries between creative activity, science and business. Horizon is also international in its ambition and has industrial collaboration at the heart of its research model, two characteristics that should help ensure substantial impacts from the research and related activities. Indeed, Horizon has already levered funding from international industry partners.

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**Case Study**

“We have been working with the Horizon Digital Economy Research Institute and the Mixed Reality Lab at The University of Nottingham. The partnership has been productive because of their flexible engagement style — although an academic institution, they seem to understand the culture of our creative businesses, and openly share their research and expertise with us. This provides a rich source of inspiration to the small creative and technology companies that we house in our hub, and enables them to source new funding opportunities and inspirational ideas for growth and development.”

Steve Chapman, Antenna [a commercial organisation that develops the creative and technology sector]

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Although the DEP has brought welcome focus and funding to multidisciplinary research, higher education has been moving in this direction for some time. Universities should be uniquely placed to do this kind of work. No other organisations, even large companies, can claim the same range and scope of expertise across disciplines.

However, structuring and managing multidisciplinary research within a university is challenging. The Serious Games Institute [see over] managed this by operating outwith faculty structures.
3. CASE STUDY

Serious Games Institute, Coventry University

The Serious Games Institute (SGI) was established in 2007, and combines specialist applied research with business incubation, support and training in a dedicated building on campus.

Research at SGI is multidisciplinary and industry partnerships are strong. The research team draws expertise from faculties across the university (for example psychology, computing science, creative arts) and is able to do so by not being aligned to any one faculty.

There is a strong strand within the research programme that is focused on demonstrating the educational potential of games-based learning. Companies report this to be of particular importance in helping to convince potential clients of the value and effectiveness of their products as learning tools. In this respect, the research work at SGI is helping to develop the market for serious games.

For businesses located in the Institute, ongoing and informal contact with researchers is a source of added value and differentiates the SGI from other business incubators.

The SGI has also been able to facilitate introductions to international companies on behalf of their SME clients by virtue of the Institute’s international reputation as an early mover in the serious games sector.

Despite this success, ongoing revenue costs are a challenge. SGI’s research income is modest compared to the costs of running the Institute and its business-facing activities generate insufficient income to address this shortfall, operating as it does in an embryonic market segment.

‘One of the standout examples of real business value that PIXELearning derived from our association with the Serious Games Institute was being connected, by them, to HP in Geneva with whom we secured a £100,000 project. This came about purely because of the awareness-raising activities that the SGI team carried out and we would never have made the connection ourselves.’

Kevin Corti, CEO and Development Director, SOSHI Games

4.18 Others have taken a different approach. For example, the Human Centred Design Institute at Brunel University identified multidisciplinary provision as strategically important – industry problems demand multiple perspectives – and made a commitment to work in this way. This has meant apportioning research income equally across schools and faculties, an approach that is now being discussed by other design schools.

4.19 In the case of the Smart Clothes and Wearable Technologies Research Centre at the University of Wales, Newport, the university has sought to structure a multi-partner initiative working not only across different departments but also with other universities and a range of industry partners. Although it is still in its infancy, the Centre is pioneering a new way of working within the university and is doing so not by establishing a new facility or structure but simply by bringing together different disciplines as a way of bringing down these barriers.
SCWTRC at the University of Wales, Newport is a multidisciplinary group working at the intersection between industry and academia. Informed by advances in the application of technical textiles, micro-technologies and new manufacturing techniques, the team is developing a shared language through collaboration in the research and development of innovative smart clothing that addresses end-user needs from technical, aesthetic and cultural viewpoints. The team at the University of Wales, Newport is collaborating across internal departments and disciplines, and with co-investigators from the University of Westminster, the University of Salford, the University of Ulster and the University of Brighton, and with a wide range of industry partners and trade networks which make up their Advisory Group.

The Centre was initially funded by the Higher Education Funding Council for Wales (HEFCW) and has since been successful in attracting major research funding as well as a large number of smaller grants and awards during its life.

SCWT has successfully integrated CPD, knowledge transfer partnerships (KTPs), academic research publications, symposia and conferences with a functional industry/academia network and provided staff for industry placement. Its outputs are both academic and practical, with an ambition to move towards production of wearable prototypes for industry. It has also housed the development of an MA/MFA in the field in response to industry requests.

4. CASE STUDY

Smart Clothes and Wearable Technology Research Centre

University of Wales, Newport’s Ryder Cup fashion show saw the winning designer picking up a coveted prize of work experience with top designer Paul Costello, demonstrating the strong link between the course and industry.
4.20 The fundamental issue here is that innovation in the creative economy is problem-focused rather than subject-focused, suggesting a need for a more flexible approach within higher education.

4.21 The Design London partnership between the Royal College of Art and Imperial College London is based on the principle that innovation is inherently multidisciplinary and on the understanding that research, teaching and knowledge exchange are mutually supportive and mutually dependent activities. It is also another clear sign of the growth in collaborative working across STEM, creativity and business skills.

4.22 Design London combines different elements of education, research and knowledge transfer with broad industry engagement and collaboration with a range of partners.

4.23 Like many other initiatives, Design London was originally supported by the HEIF. Research shows that HEIF has been critically important in developing knowledge transfer activities in English HEIs generally and among creative arts and design institutions in particular.

4.24 A recent report noted that creative arts and design institutions have been, 'taking advantage of the rapid increase in scale and profile of the creative industries in the UK, particularly in London. This is generating consultancy and contract research opportunities in addition to the more traditional opportunities in courses and CPD etc. A number of the larger arts HEIs are also funding new opportunities in the intersection between technology and the creative arts through collaborations with other HEIs.' (PACEC and CBR, 2010, p 63).
Our consultations confirmed the crucial role played by HEIF funding in supporting knowledge exchange with the creative economy, and underlined the importance of maintaining this source of funding. HEIF was seen as a very welcome mechanism for supporting wider, more innovative knowledge transfer activity. There was, however, some concern about the increasing emphasis placed on science-based metrics in the assessment of knowledge exchange favouring, for example, licensing and commercialisation measures over those that capture more collaborative models. The implication is that there will be future pressure on funding for university activities that do not align well with these measurement and assessment criteria.

5. CASE STUDY
Design London

Design London is a partnership between the Royal College of Art (RCA) and the engineering and business faculties at Imperial College London. Design London is supported by the Higher Education Funding Council for England (HEFCE), NESTA and the London Development Agency, and offers an integrated portfolio of teaching, research and enterprise activities for students, graduates and industry partners, with multidisciplinary innovation as the core focus.

The project has four linked areas of activity – simulator, teaching, incubation and research (STIR).

Simulator – Innovation Technology Centre
Students and business partners of RCA and Imperial have access to the Innovation Technology (IvT) Centre, which is home to world-leading design, visualisation, modelling and rapid prototyping technology. This can help Design London’s students and partners to develop their innovation capacity via simulation exercises, digital tools and facilitation.

Teaching
Design London’s teaching promotes knowledge interchange between MA, MEng and MBA students from the RCA and Imperial. It is open to industry and institutional partners seeking to transform the skills of professionals, managers and senior executives. More than 250 MBA students from Imperial College Business School and 80 engineers and MA design students from the RCA have successfully completed courses on design-led innovation, service design and design management.

Incubator
Entrepreneurial graduates, initially from RCA and Imperial, are given the opportunity to develop new ideas in the Incubator, a dynamic multidisciplinary environment for business development which supports unique or unexpected collaborations between different disciplines, organisations and places.

Research
Design London’s research programme explores how design can be more effectively integrated with business and technology to create world-beating products and services.

To this we might add the challenges arising from changes in the economic development infrastructure in England. Regional Development Agencies (RDAs) have also been important funders of research and knowledge transfer projects in the creative economy (and for many of our case studies), and this source of funding may no longer be available. Similar pressures on enterprise funding in the devolved nations may have parallel effects. It is also worth noting that the RDAs, through the contribution of Single Programme and European Regional Development Fund (ERDF) funding, have brought an emphasis on the industry perspective and economic outcomes. For higher education projects, this will have brought focus on economic impacts.
4.27 The new landscape for economic development in England is starting to take shape through the submission of bids for new Local Enterprise Partnerships (LEPs) and the planned centralisation of functions such as innovation. While the details are still to be clarified in the Government’s White Paper (imminent at the time of writing), it is important that the role of universities is recognised and supported within this new infrastructure.

4.28 It is clear, then, that higher education research in areas relating to the creative economy is increasingly multi-disciplinary in its focus. This shift is well aligned with the direction of travel in the creative industries and their markets, particularly as digital technology continues to blur the divide between creativity and science. It is also increasingly important as the application of creativity extends further beyond the creative industries themselves into wider markets such as defence, healthcare and learning.

4.29 However, the case study evidence also suggests that much of this activity takes place in spite of sometimes inflexible faculty structures in universities and the subject-based nature of funding policy and research assessment. That these kinds of barriers persist at a time when there is a clear industry rationale for multidisciplinary working argues for an approach that is more flexible, and more sensitive to the needs of the creative economy.

4.30 Industry engagement and collaboration was also a common feature of these multidisciplinary research initiatives. New models of industry engagement with research are evolving, particularly with industry partners involved at the outset in setting research agendas and sharing resources. This change is not exclusive to the creative economy; rather, it is a pattern that is reflected in innovation practice more generally. However, evidence from our research, especially the case studies, suggests that the creative industries are at the forefront of this thinking, despite the fact that these activities are not always well resourced, and incentives often work against, rather than for, engagement with the creative economy.

4.31 The degree of reliance on funds such as HEIF and the RDA Single Programme budget in England, and enterprise and knowledge exchange funding in the devolved nations, must also be a concern as public finance comes under growing pressure. In the CSR, the Government announced plans to review and reform HEIF, and enterprise funding will be significantly reduced. One solution would be to find more commercially sustainable models through deeper and wider industry engagement. In the creative economy, where companies tend to be small and financially constrained, the key to this may be to aggregate demand in ways that share out the costs while still supporting valuable academic input to the industry.

4.32 Although the investments of the research councils are substantial, an unknown proportion of this will be in areas that impact on the creative economy. In fact, given the diverse range of disciplines that could contribute to the creative economy, mapping the totality of this activity would be no small undertaking.

4.33 However, there can be no doubt that investment in creative economy-related research, even accounting for the DEP (which arguably extends beyond the creative economy), is dwarfed by investment in science. This is reinforced by the recent protection afforded the science budget in the CSR. Given the importance of the creative industries to the UK’s economic future and the role of arts and humanities research, particularly within multidisciplinary approaches, this may be an unsustainable position.
Proposition 2.

Higher education is adapting new models of interaction with the creative economy.

• Knowledge exchange between higher education and the creative economy is both extensive and varied in its form, reflecting the diversity of both higher education and the creative industries.

• Interaction is more often based on collaboration, consultancy, CPD and access to facilities than research commercialisation, again in line with industry needs.

• There are real challenges for higher education in interacting with a fragmented industry base, although universities are finding ways of doing this which deliver benefits to businesses and to the institutions themselves.

• Many of these initiatives are supported by funding streams that are now under real pressure.

4.34 Research activity on its own is necessary but not sufficient for industry growth. It is the application of research outputs that will drive the impacts of higher education research activity within the creative economy – the knowledge exchange agenda.

4.35 Knowledge exchange activity between higher education and the creative economy is multifaceted and widespread. It involves all kinds of institutions and disciplines, including Russell Group institutions and the less research intensive universities (PACEC, 2010).

4.36 Knowledge exchange activities in the creative economy do not conform to science-based, linear models [as discussed earlier]. Instead, activity is typically more focused on collaboration, consultancy, CPD and enterprise development than contract research, prototyping or joint research. As a result, traditional measures such as patents, licences and university spin-outs have less relevance, yet these measures still carry some weight for universities and funding bodies.

4.37 The creative industries are also strongly focused on the creation and subsequent exploitation of intellectual property (IP), an issue that can be a barrier to successful research collaboration. Not only can contractual negotiations over intellectual property ownership create delays in the research process, but there is a reported tendency for higher education to over-value its intellectual property.
4.38 In the University of Central Lancashire (UCLAN)’s Meld project, hosted at the university’s Sandbox Innovation Lab, the Meld team persuaded the university that they should not retain any IP rights, but rather should allow the new collaborations to own all IP. This was partly to minimise any barriers to participation, but also because it was hoped that the final outcomes would be a contract with a large media company. Although giving away IP rights may not always be feasible or desirable for universities, this is an example of the ways in which universities are becoming more open about IP.

4.39 Meld is also interesting because it is part of the university’s focus on developing **long-term** relationships with industry that go beyond placements and guest lecturers. Staff at Sandbox have no teaching responsibilities and are therefore able to dedicate more time to industry relationships. This is significant, as research has shown that the single biggest reported barrier to academic engagement with industry is lack of time (CBR, 2010).

6. CASE STUDY

**Meld, Sandbox, UCLAN**

Meld was hosted at UCLAN’s innovation lab, Sandbox, as a vehicle to test methodologies that encourage collaborative ways of working for the benefit of industry. The aim of Meld was to encourage journalists to work with interactive designers, programmers and games designers to develop new forms of non-linear digital narrative storytelling (that is, where old and new media collide). For the industry partners, it gave access to new ideas and new talent.

Meld was a collaboration between Northern Edge (funded by the North West Development Agency, NWDA) and UCLAN’s department of journalism, together with SMEs, freelance journalists and industry partners (Sky TV, Haymarket Publications and Johnston Press).

The competitive process involved media industry partners setting a brief on how to use new media to work in a different way and help take business forward. The response had to be a collaboration between journalists and digital creators (web programmers, coders and so on), with **collaboration** at the core.

The competition was launched at events in Manchester and Leeds, and attracted over 70 people. Those interested had a month to build a collaboration and respond, supported by the Sandbox team. There were 25 applications, with seven taken forward into a week-long workshop, including speakers, job swap, mentors and support to build their strongest proposition. The week culminated in a pitch to the industry ‘buyers’. This resulted in two projects being progressed by Sky, one by Haymarket and one by Johnston Press.

4.40 As we have argued, higher education research policy remains strongly focused on science-based disciplines, and mechanisms for funding research are still based on academic performance as measured by research publications and income. These do not always align well with activity in the creative economy, particularly as **collaborative, people-based** interactions that work well for creative businesses do not always translate into the kind of academic research that results in publications. Even though practice-based outputs are now well established in the RAE and the Research Excellence Framework (REF), they can be problematic compared to print publications.

4.41 In the Goldsmiths project [see over], academic research input from psychologists helped to improve business practice by introducing innovative mechanisms for culture change. However, this kind of activity is unlikely to be rewarded in subsequent research funding allocations as it does not fit with the requirements of existing frameworks, despite the fact that it clearly added value to the partners. It is possible that it might fall within the new impact assessment framework that is planned for the REF, but that is not yet established.
4.42 It is also unlikely to reward the researchers (other than personally and intellectually). A career progression system that rewards academic research and publication may actually be a deterrent to SME engagement, particularly where this does not result in publishable research outputs. This was frequently highlighted as an issue by academic researchers.

'Due to the scientific rigour used and the expert analysts in the Goldsmiths team, we were able to quantify our research results in a way we would never have been able to alone. Even in an intangible field like trying to increase the creativity and innovation of ideas, we can now allocate our effort and funds where they have most impact and also have hard evidence to encourage any changes that management are required to make.'

Hannah McBain, BBC

7. CASE STUDY

Goldsmiths, University of London

The department of psychology at Goldsmiths worked with the BBC on the development of new training activities to support multiplatform thinking within BBC Vision. The Goldsmiths team helped devise the training using established processes in organisational psychology and then evaluated the training outcomes.

The training proved very successful and the BBC has since rolled it out across the organisation and to external partners. The academic nature of the evaluation helped to secure senior management support, but although the research will be published, the research outputs will not feature as part of the psychology department’s REF submission as they are not likely to score as highly due to the kind of journals in which the findings will be published (management rather than psychology). The realities of working with an external partner such as the BBC also meant that the experimental conditions could not be as tightly controlled as academic research might otherwise be, requiring some compromise on the rigour of the research process. As such, this kind of activity is dependent on the personal interests of the academic partners rather than any clear incentives.

Despite these challenges, the project was very positively received, and resulted in important changes at the BBC that will, by embedding the training method developed and evaluated through the project, improve the quality of multiplatform content. The fact that the training will be made available to any UK media company is a very significant indication of the success of the project, and of the role that academic input can play in stimulating innovation and improvement in the creative economy.

4.43 There is also a challenge for higher education in engaging with an industry (or set of industries) in which there is a relative lack of large business. Most creative businesses are small and typically lack the resources, financial and human, to dedicate to building and maintaining collaborative relationships with academics. Lack of income from knowledge exchange will also affect future funding allocations and the method of allocating such funding to universities may not be rewarding knowledge exchange in the creative economy. New models are required, as at Digilab at The University of Warwick (see overleaf).
Digilab, The University of Warwick

The Digital Laboratory [Digilab] at The University of Warwick enables the internationally-renowned Warwick Manufacturing Group (WMG) and the wider university research community to undertake cutting-edge multidisciplinary research in a bespoke environment designed specifically to support research and knowledge transfer that can meet the needs of digital and creative industries.

SMEs in the West Midlands region can access university expertise and leading-edge technology at Digilab free of charge (this element of the project is supported by Advantage West Midlands). Additionally, SMEs with modest R&D budgets are able to take that assistance further to develop bespoke solutions. Digilab also provides a focus for industrial collaboration with world-leading industrial partners and is involved in Masters-level training programmes for industry.

Digilab is also a hub for creative economy activity. It created and operates an online platform for SMEs to showcase skills, find new opportunities, collaborate and compete for tenders by facilitating new multidisciplinary partnerships, and helps enhance SME competitiveness (West Midlands Collaborative Commerce Marketplace – WMCCM). The platform has over 10,000 SME members and provides access to over 50,000 tenders per year.
Digilab is interesting in a number of other respects. It emerged from the engineering faculty in The University of Warwick, again challenging the logic of considering creative industries and science to be separate domains. It has also taken advantage of the fact that the university is a credible organisation with scale and reputation, which has enabled Digilab to engage with other large organisations and connect SMEs in the region to these partners. Finally, while some services are provided free of charge to SMEs, companies pay a subscription to be part of a Digilab-initiated network (WMCCM), a model that has now become self-sustaining. This not only demonstrates the role of universities in facilitating active networks but also the value of aggregating SME demand through subscription models to develop more sustainable forms of support, even if this has required initial investment from the RDA.

‘Through the Digital Lab we anchored and helped to build a consortium to pitch for a new digital service commissioned by the Strategic Health Authority in the West Midlands. The new service will connect people living in the region to frontline staff in the NHS as well as providing online health resources and information using video, blogs and interactive tools. The winning team involves a mix of medical consultants, academics and digital media providers to produce a fully-integrated and highly-qualified health and digital team. It is early days but it can also be seen as an early example of the way public service content could be provided in an accessible and easy manner, and is very visionary.’

Lucy Hooberman, Director, Digital Media and Innovation, Digilab (formerly BBC)

Universities are also engaged in other forms of knowledge exchange with the creative industries. The Cardiff School of Creative and Cultural Industries at the University of Glamorgan hosts Medialab, a state-of-the-art facility providing equipment, technology and techniques to media production companies in Wales. Medialab includes high-definition TV facilities, digital editing suites and a CGI render farm. Originally confined to academic use, the Welsh Assembly Government provided funding to buy commercial licenses, opening up the facility to SME users. This has allowed local production companies to access a quality of production facilities and R&D support that would otherwise be beyond their financial reach. Medialab is not an isolated example. Evaluation of third-stream funding showed that income from facilities and equipment services was one of the fastest growing areas of knowledge exchange for creative arts and design institutions (PACEC and CBR, 2010).

Similarly, the University of the West of Scotland (UWS) and the Digital Design Studio of the Glasgow School of Art established a collaborative project, the Scottish Centre for Enabling Technologies (SCET) to provide advice, support and access to technologies to creative SMEs. The Centre is based off campus in Glasgow’s Digital Media Quarter on the River Clyde, and has consistently exceeded its targets for SME support and engagement. The Centre provides a space for informal interaction and collaboration between researchers and businesses, leading to an increase in turnover in the SMEs of almost £9 million and the creation and safeguarding of over 300 jobs from a total investment of just over £1 million.

Effective knowledge exchange with the creative sector is not easy. The sector is fragmented and diverse, and comprises mainly micro and SME businesses. While there was some feedback that funding schemes such as KTPs and Innovation Vouchers were useful, for many creative businesses the cost of KTPs in particular was still seen as prohibitive. Issues were also raised with universities’ requirements to price research on the basis of Full Economic Costs, a factor that had deterred some creative businesses from collaborating with institutions that would otherwise be considered natural research partners (for example on joint funding bids).
4.48 There are also issues with the extent of demand from creative businesses for interaction with universities. General SME demand for university interaction is growing, but remains low overall. Some evidence (for example EKOS, 2009) suggests that this is even more the case for creative industries. Engaging creative businesses is a challenge and the evidence suggests that universities are finding ways of doing this which bring benefits both to businesses and to the universities.

4.49 These examples illustrate the different ways in which universities are engaging with small creative businesses, offering valuable facilities and expertise that they would not otherwise be able to access. Importantly, many of the approaches are based not on standard commercialisation mechanisms but on less formal and more iterative relationships through networks and the provision of valuable services and facilities.
Proposition 3.

Universities have a wider role in supporting regional clusters as regional hubs for innovation.

- By virtue of their scale, permanence and credibility, universities are well placed to anchor regional clusters.
- Universities are natural focal points for formal and informal networks that can support growth in the creative economy.
- By developing integrated programmes of research, knowledge exchange and enterprise support and training, many universities are increasingly acting as hubs of regional innovation.
- The provision of physical space is a frequent element and provides a focal point for academics and businesses to interact and collaborate.
- The international reach and reputation of universities allows them to develop connections and market opportunities that would not otherwise be available to creative SMEs.

4.50 There are important, but often unrecognised, sources of added value that higher education contributes to regional development. These are often a function of the integration of research, teaching and third-stream activities, and the unique attributes of reputation, scale, international reach and credibility that universities can bring.

4.51 Virtually all of the case studies in this report describe activities that do not sit in isolation within institutions. They are part of wider approaches to working with the creative economy, and are often firmly embedded within institutional strategy. Academic representatives drew few distinctions between industry engagement for the purpose of research and on skills issues, seeing this as all part of the wider role of universities in regional clusters.

4.52 Through integrated programmes of research and knowledge exchange, often within dedicated physical spaces, many universities are increasingly functioning as regional hubs for innovation in the creative economy. This is true of the multidisciplinary research centres highlighted earlier, where research and industry collaboration is combined with undergraduate and postgraduate courses, CPD for industry and programmes of wider SME outreach. In fact, developing and resourcing innovation hubs in key regional centres is an explicit purpose of the EPSRC Digital Economy Programme.

4.53 Many of the case studies also included physical space that brought together academic researchers, students and creative businesses under one roof. This was consistently identified as important by academic and industry partners, not least because it provides a shared and ‘safe’ space for experimentation and dialogue, as well as a focal point for formal and informal networks.

4.54 The University of Abertay Dundee’s work with the games and digital media industries in Dundee (see below) is an excellent example of a university acting as a regional hub for innovation, skills development and industry engagement with international reach. This case study demonstrates the significant impact of a joined-up series of skills, employability, entrepreneurship, research and innovation initiatives set in the context of Abertay as the UK centre of excellence in computer games, with applications contributing directly to, and far beyond, the creative economy.
Institute of Arts, Media and Computer Games, University of Abertay Dundee

The University has a central role as a multidisciplinary innovation hub supporting the cluster of games development companies in Dundee, and is a stand-alone Skillsset Media Academy. Engagement with industry and employers spans a number of connected models. Games development employers have a high degree of input to course design, and many of the local companies were started by Abertay alumni, including some who have been through the University’s Embreonix entrepreneurship programme. The local workforce also includes a high proportion of Abertay graduates, supporting an active network across the region.

The Institute’s Dare to be Digital competition has pioneered a workplace simulation model which is now built in to taught programmes, and is being used in professional academic development across all university disciplines. Dare has been widely cited as a model of best practice and brings interdisciplinary teams of arts and science students together to create and demonstrate games prototypes using original IP, while working in industry conditions and mentored by a UK ‘accord’ of games development companies. Over 100 teams of five students representing 80 different universities internationally entered the 2010 competition. The project has a wide international reach and has led to a number of international partnerships.

The University has recently been awarded £5 million to run a business support project for the UK games development industry, where prototype games will be grant funded but part of the prototyping work will partly be undertaken by students and graduates across UK universities.

Abertay has also taken games technology to inter- and multi-disciplinary research environments to support the visualisation of complex data and models in a range of applications, from cancer treatment pathways to police firearms training and avatars in retail environments. In all cases, the projects include psychologists, mathematicians, biologists, environmental scientists and others involved in complex algorithm development work alongside industry partners and games technology and arts graduates.

The University has also established a targeted bridging programme to feed back the scientific narrative from this interdisciplinary research to games developers. The bridging programme supports innovation in games development via PhD and post docs developed through the interdisciplinary research portfolio, interacting in product innovation projects with developers.

The Institute is also leading Moving Targets, a research and knowledge exchange project investigating new models for new media audiences in a project funded by the Scottish Funding Council.

The model developed by Abertay is one of open collaboration with industry. Flagship initiatives like the Dare to be Digital talent competition are run from the university but engage across the UK and internationally, and the institution has piloted placement schemes supporting innovation in digital media companies across the UK.

For years, the institution has been at the centre of Dundee’s growing digital media community and has contributed significantly to the region’s reputation in areas such as games development and next-generation digital media. This activity has been funded through a range of internal and external sources, with the university making a clear and long-standing commitment to the sector. This has also returned substantial benefits to the institution itself, through growing reputation, increased revenues and stronger industry links.
The link between industry and academia is an essential piece of the UK’s economic puzzle, and within the digital media sector no academic institution has been more active in pioneering this link than the University of Abertay Dundee. Abertay was extremely responsive to industry feedback right from the start and has remained so to this day. As a result it is now reaping the rewards of more than a decade at the cutting edge of digital media research and teaching.

Abertay recognises that digital media, and games in particular, require considerable practical experience, and the design of their courses reflect that. Their undergraduate and postgraduate courses are currently exemplars within their field, and by also allowing the experiences from their Dare to be Digital competition to influence the design of the impressive new MProf course, it looks certain that Abertay will continue to lead the field in this area for many years to come.

Colin Anderson, Managing Director, Denki Games

4.57 A different example is that of Creative Manchester, a strategic initiative driven by Manchester Metropolitan University’s faculties of arts and design and business. It provides skills and expertise, supports new enterprises and facilitates the development of new networks and collaborations aimed at taking advantage of the opportunities in the major growth of the creative sector stimulated by the investments by the BBC and others at Salford Quays. This is a cross-university collaboration, with senior management support, responding to industry needs and playing a leading role in supporting regional cluster growth.

4.58 Similarly, building networks and distributing intelligence is a key part of Birmingham City University’s contribution to the region’s economic development. Creative Networks hosts 12 events per year and features practitioners of national and international standing to engage industry in reviewing best practice and identifying how to improve performance. Events are geared around promoting networking and contact generation for emerging businesses.
4.59 It is also important to note that universities do not move. They have a consistent location within their regions and, as such, offer a degree of permanence that allows them to act as key anchors of local and regional clusters through their ability to attract and retain graduate and academic talent as well as businesses. They are ‘sticky places in slippery space’ (Markusen, 1996).

‘With MMU we have a leading edge, academically rigorous partner to achieve our aspiration of developing world class, digitally integrated marketers of tomorrow. The programme they have put together is superb.’
Mark Kelly, McCann-Erickson Communications House

4.60 The role of universities as centres of regional innovation therefore needs to be reflected in the developing LEP structures across England where, as well as being large organisations in their own right, universities can help anchor and stimulate local economies.

4.61 The scale, credibility and reputation of universities also allows them to engage major industry players and facilitate links to creative SMEs, creating new connections and business opportunities that would not otherwise be feasible. Large research-led initiatives such as the Horizon Digital Economy Hub and Digilab are actively engaging international businesses, levering resources and bringing significant industry players into regional clusters.

4.62 Universities can also have catalytic effects on regional industry growth, raising the profile of the creative economy at national and international levels and showcasing UK talent. For example, the Anglo-Japanese Textile Research Centre at the University for the Creative Arts (see below) has helped to build strong links to the Japanese market for students and graduate talent, and the Serious Games Institute has established the UK as a leading force in the serious games market, securing international contracts for tenant businesses.

10. CASE STUDY

The Anglo-Japanese Textile Research Centre

The Anglo-Japanese Textile Research Centre was set up in 2004 as an outcome of an AHRB Fellowship. It was developed as a response to the pressures on the UK textile industry and an identified gap in the market for an initiative that prioritised contemporary textile practice and engaged with the Japanese market.

A number of partners are involved, including large commercial companies such as NUNO and Blue Print, as well as universities, local authorities and embassies. Universities in the UK become involved in the project through hosting workshops for visiting practitioners from Japan and elsewhere in the UK. The local authorities support working with schools and local businesses.

The initiative is funded through the research fund and externally by appropriate funding bodies (as appropriate for specific projects, for example research funding bodies) and commercial sponsorship, which helps to achieve greater publication values. The total budget for the activities from 2004 to date is circa £500,000 (excluding in-kind contributions).

The AJTRC is not a purpose-built centre, rather it is based within the university and comprises four PhD students, and research staff (a core of three, although this could be more depending on the project). It has helped to raise the profile of the University and is a good recruitment tool for students, especially at postgraduate and PhD level. It also helps to connect the University nationally and internationally and enhances the portfolio of relationships with businesses in the creative economy.
The Anglo-Japanese projects have added value to our work in a unique way. Rarely do you get to work with other designers, in other fields, in other countries, over an extended period of time. Rarely do you have the opportunity to gain their respect, trust and friendship. Rarely do you have the opportunity to design and publish such fascinating images and information. In a harder commercial world where we normally operate, it is uplifting.

Gerry Diebel, Direct Design

Proposition 4.

Higher education is the primary source of talent for the creative economy.

- Higher education has a crucial role in developing the next generation of talent that will drive innovation and growth in the creative economy.
- There is evidence of increasing industry engagement at all stages of the education process, from course design to delivery.
- Evidence suggests greater emphasis on multidisciplinary education, particularly at postgraduate level, again undermining the false distinction between STEM and creative disciplines.
- There is a persistent mismatch between industry expectations and higher education’s understanding of its role in developing graduates, and this needs to be addressed.
- It is important to recognise the high unit costs of learning in some of the creative disciplines as well as their economic and social value.

4.63 As shown previously (Figure 2.1), the proportion of employees who are graduates is greater for the creative industries than for the UK workforce as a whole. Therefore, ensuring a steady supply of suitable graduates is of vital importance.

4.64 In order to provide a review of higher education’s core education activities in this area, we conducted an analysis of data from the Universities and Colleges Admissions Service (UCAS) and the Higher Education Statistics Agency (HESA). We defined subjects related to the creative economy to include some, but not all, subjects within the broad categories within the Joint Academic Classification System (JACS) (see Appendix C for a definition).

4.65 Using this definition, in 2008/09 there were just over 390,000 students in 5,054 courses in subjects related to the creative economy. This accounted for approximately 16 per cent of the total student population. Even assuming that not all will pursue careers within the creative industries (indeed, as noted earlier, creative graduates can be found in working right across the economy), this is still a clear indication of the scale of higher education’s contribution to the sector.
Table 4.0: Creative economy-related courses 2008/09

<table>
<thead>
<tr>
<th>Number of courses</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computing science</td>
<td>1,532</td>
</tr>
<tr>
<td>Media studies, publishing and journalism</td>
<td>1,450</td>
</tr>
<tr>
<td>Marketing</td>
<td>1,338</td>
</tr>
<tr>
<td>Creative art and design</td>
<td>326</td>
</tr>
<tr>
<td>Engineering and technology</td>
<td>207</td>
</tr>
<tr>
<td>Architecture, building and planning</td>
<td>201</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>5,054</strong></td>
</tr>
</tbody>
</table>

Source: UCAS
Note: includes all course types

4.66 From 2002/03 to 2006/07 the number of students in the creative subjects increased year on year, following the same pattern for students of all subjects (Figure 4.1). However, in 2007/08 both encountered a negative change before recovering again in 2008/09.

Figure 4.1: Number of students in creative economy-related subjects 2002/03–2008/09

Source: HESA

4.67 Looking in more detail, it is at once apparent that the decrease in the number of creative economy students over the period from 2005/06 to 2008/09 can be attributed to falling numbers in computing science. On the other hand, growth in architecture, creative arts and design and communications studies has continued (Figure 4.2, over).
That there has been strong and steady growth in student numbers in disciplines related to the creative economy (computing science apart) should be unsurprising. The creative industries have obvious appeal, and have been widely promoted. Indeed, many commentators have noted that there is concern over a perceived over-supply of graduates (for example Ball et al, 2010). However, a recent large-scale longitudinal survey of creative graduates (that is, those in creative arts, media and design courses) found that the majority of creative graduates are working in creative occupations (Ball et al, 2010).

The fall in numbers in computing science should be a concern, even if some of the fall may be due to the diversification of degree courses for students who might previously have followed computer sciences courses, for example in computer games or digital media.

We have already highlighted the industry view that graduates are not ‘industry-ready’, although the evidence for this relies heavily on the perceptions of industry. Nevertheless, this raises a fundamental question about the role of higher education. As Crossick (2006) noted, it is not the purpose of higher education to focus on the development of narrow skill sets. Rather it is to develop the core capacities of graduates in relation to creativity, innovation and adaptability.

Throughout our consultation work, there was a consistent theme regarding the role of higher education in developing creative talent. Talent is a crucial driver of the creative economy. Even within a more technology-driven environment, ‘traditional’ artistic and creative skills are still highly valued, and this is an area of undoubted strength for the UK.

The UK’s creative education is based on a rich art school tradition, with 150 years of innovation in educational practice generating a set of values that encourage experimentation, creative practice, and critical and lateral thinking. Our creative art and design schools and performing arts institutions, as well as equivalent departments in multi-faculty universities, are world renowned and, as noted, higher education more generally produces a substantial and growing number of graduates in disciplines related to the creative economy.
4.73 There is, however, a reported tendency to consider creative and artistic talent as something that individuals are simply born with. This is, to some extent, a myth. Talent needs to be nurtured and developed. This is quite specifically the role of higher education, and one that is too easily taken for granted in wider debates about the production of skilled graduates. It is important, therefore, to bear in mind that a crucial part of the contribution that UK higher education makes to the creative economy is its world-renowned creative education, nurturing and developing creative talent.

4.74 It is also important to recognise the high unit costs of education in some of the creative disciplines, particularly in studio-based education where there is a large space requirement, and in areas of the performing arts. Some of the institutions with the strongest global standing in this area, and who train the greatest number of students to become successful professionals within this industry, have traditionally received targeted funding on the basis that the higher costs of these subjects were justified in relation to the public good they delivered. The almost exclusive focus of the Browne Review and the CSR on STEM and medicine means that this funding is likely to be removed, despite the potential of the creative disciplines to ‘deliver significant social returns’ (Browne 2010, p 47) as well as contributing to the UK’s economic growth and global competitiveness.

4.75 Research shows that graduates in creative arts and design subjects typically consider their education to be valuable in developing creativity and innovation, and visual and presentation skills. There is also growing evidence to suggest that many of the attributes required for employment, including creativity, problem solving, independence, innovation and collaborative working are intrinsic to a creative education, particularly in practice-based creative and performing arts.
However, this still conflicts with the reported view of industry that graduates are unprepared for industry. This is often presented as a tension between the pursuit of creative practice for its intrinsic value and the preparation of graduates for employment. In fact, these are not incompatible goals, and higher education is well placed to deliver on both.

There is evidence of increasing engagement between higher education and industry in course development and delivery. Over 60 per cent of higher education institutions involved in creative arts and design reported that external engagement impacts on their teaching – more than any other group of institutions (PACEC, 2010).

The Skillset Media and Screen Academies provide a clear example of this engagement in practice, bringing together industry and academic partners to develop and deliver world-class industry-relevant education. Skillset is working with universities and colleges to collaborate with industry partners to develop new curricula, innovative teaching, world-class research and development, and enhanced business acumen.

The model is based on accessibility, flexibility, adaptability, integration and responsiveness to address the needs of a fast-paced, digitally-enhanced industry. It is anchored by the Skillset Academy Networks (Media and Screen), and a corresponding system of degree and course accreditation to benchmark standards of excellence. There are now 22 Media Academies across the UK, some led by individual institutions and others through partnerships across higher and further education.

The model is based on partnership and real dialogue between industry and education and is already having a positive impact on universities, industry and individuals. By forging strong links between education and industry, the Skillset Media Academy Network has transformed the capability of universities offering practice-based media education to produce, market and deliver high-quality, industry-focused training. Universities have also benefitted from a closer relationship with industry in terms of enterprise income and contemporary insights into current practices.

In June 2010, Skillset launched a communications campaign to promote the accredited courses within the Media Academies (Pick the Tick). Post-Browne, this kind of industry endorsement may help to demonstrate the strategic importance of subjects relevant to the creative economy.

CASE STUDY

The Skillset Media and Screen Academies

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‘We approached the University of Gloucestershire with a project to involve some second-year students on a live client-led production. The University’s response was everything we would have hoped for, in terms of recognising the significance of the opportunity for the students, in assisting with the recruitment and ongoing support of the students involved in the production, and also in their responsiveness and flexibility in working with an external production company. I believe it is exactly the kind of approach that will enhance the University’s ability to work with professional companies to the ongoing benefit of students, the University and the commercial sector, which can only improve the interface between education and employment.’

Chris Kemp, Director, Suited and Booted
North by Southwest Media Academy, University of Gloucestershire

The Academy is a unique partnership between the University of Gloucestershire and three further education colleges (Gloucestershire College, Wiltshire College and Cirencester College). The partnership received accreditation as a Media Academy from Skillset as a result of the quality of its provision across the education sector. Examples of joint working include:

- In recognition of the need to provide flexible short courses for media industry professionals, the Academy developed business-focused CPD units. The primary example of this is the development of a 15-credit MA module in community media. This unit has been developed with the sector and has been designed to serve the community media sector’s needs rather than being ‘about it’. The module was developed following a community media workshop in March 2010 in which five community media agencies in the south-west came together to fine-tune the offer to the sector. Other modules in this programme will include new provision focusing on entrepreneurship and festival management. The modules will be offered as stand-alone options as well as elements within an MA programme.

- Working with Skillset, the Academy took the lead in the development of a new Foundation Degree Internship model as part of a national programme. The Academy, in association with community and media groups, explored the need for and the necessary structures/course content for Foundation Degrees in cross platform media and animation.

4.82 Industry has benefitted from an increased choice of CPD provision, access to contemporary research, the development of new skills and the opportunity to reflect on current practice and prepare for future challenges and opportunities. Individuals have benefitted from a wider and more flexible range of courses that set them in good stead to become the future leaders and innovators within the industry.

4.83 A unique partnership between the Guildhall School of Music and Drama, the Barbican Centre and the London Symphony Orchestra (LSO) has taken this a step further. The catalyst for the LINK Alliance has been a new building for the Guildhall School, Milton Court, due to open in 2013. This £80 million development will give the Barbican campus a world-class 600-seat concert hall and two more theatres, together with new teaching, rehearsal and performance support for music and drama. This was an ideal opportunity to integrate the performance and education elements of the three organisations.

4.84 Although efficiency gains were the original driver, the project has been extended to key artistic and educational activities. The Creative Learning division brings together all of the Guildhall School’s outreach activities with the Barbican’s education programme, reaching over 30,000 young people in London, the UK and internationally. It offers them a wide range of cross-arts performance activities, encouraging participation, providing pathways to more formal education, and offering a continuous cycle of lifelong learning and personal development.

4.85 The Centre for Orchestra provides a high-quality programme of activities drawing on LSO professional expertise, including orchestral training and mentoring, coaching from LSO principals, masterclasses from LSO visiting artists, rehearsal and performance opportunities, training for auditions and audience development. This is very deep industry engagement in the educational process.

4.86 The overall trend here is towards industry involvement at all stages in the development and delivery of courses, as well as increasing use of industry practitioners in course delivery. There is a long tradition of this, particularly in the creative and performing arts, where many academic staff also maintain involvement in professional practice. However, with developments such as the Skillset Media Academies, this is a model that is fast extending into other areas of the creative economy.
There is also widespread evidence of a growing focus on multidisciplinary education in areas relating to the creative industries, particularly at postgraduate levels. In fact, the case study research suggested that this is best delivered at postgraduate level, once students have developed specialism in their specific discipline.

The DEP funds seven multidisciplinary Centres for Doctoral Training, in which students carry out a PhD-level research project together with taught coursework. For example, HighWire at Lancaster University is a world-class, cross-disciplinary Doctoral Training Centre which places innovation at the heart of its curriculum and ethos. It goes beyond traditional multidisciplinary approaches by seeking a creative fusion between three key disciplines – computer science, management and design.

The emphasis of the DEP Centres for Doctoral Training is on producing a new breed of innovative people who understand and are able to advance the state of the art in technical, creative and business innovation: innovative people prepared to work in challenging roles in organisations and ready to drive radical change in the digital economy.

Many institutions have also been developing multidisciplinary Masters courses, supported either by internal investment or through initial HEIF support. These often feature multidisciplinary team working on real business issues and challenges, as in the Multidisciplinary Masters Programme at Nottingham Trent University. The programme brings together four faculties – the school of architecture, design and the built environment; the school of art and design; Nottingham Business School; and the school of science and technology – and graduate teams work with industry partners on live business issues. This is a win-win situation in which all parties benefit.

"Nottingham Trent University gave me the vital skills needed to become the designer I am today. As well as the practical side of design, my degree and placement opportunities taught me about the business world and how to market myself and my company. Education is the foundation of a good designer and it gave me the conviction to launch Philip Watts Design and to explore my natural creativity and design skills."

Philip Watts, Philip Watts Design

However, multidisciplinary education is not easy, not least because of the time it takes to negotiate new courses across faculties. Manchester Metropolitan University is developing a taught Masters with the business school and the faculty of arts and design, both delivering modules in response to industry needs. However, the development process has been made more challenging by faculty structures. Given the similar issues in multidisciplinary research, this suggests a need for new solutions.

Although there is a strong and growing focus on industry-informed education, it is important to recognise that it is rarely appropriate for universities to focus solely on narrow skill sets. Rather, their role is to produce the kinds of graduates that will challenge current practice and drive future innovation. Many of the interviewees from industry recognised this distinction and were clear that expertise with specific technologies or techniques could be developed. What was more important was that university graduates were innovative, creative and adaptable.

However, the evidence suggests that not all in the creative industries fully accept this model. This may be partly a difference in language, and in expectations of what higher education can and should be doing. These issues do need to be addressed. There are undoubtedly many skills gaps affecting the creative industries, as identified, for example, in the research work of the Sector Skills Councils. Addressing these gaps will require effective partnership between industry, the public sector and higher and further education, and much good progress has already been achieved.
The long-term success of the UK’s creative industries will depend on a steady supply of creative and innovative people that can work across disciplines, develop new solutions and add value in new ways. Higher education is the essential vehicle for developing this talent, both in specific disciplines of relevance to the creative economy and through growing multidisciplinary provision. It is crucially important that this is recognised, particularly in light of the threat posed by the Browne Review both to individual disciplines relevant to the creative economy and to the multidisciplinary education that is increasingly important to future growth.

Proposition 5.

Employability and enterprise are areas of growing focus for higher education.

- Universities are increasingly embedding opportunities for practical learning within courses as a way of improving students’ employability.
- Many of the skills inherent in entrepreneurship are also intrinsic to the practice-based and experiential learning methods of a creative education.
- Evidence suggests that entrepreneurship education is still uneven across the higher education sector, and there is a lack of common standards.
- Universities are well placed to support graduate enterprise with incubation, access to knowledge and facilities, and business support, and have been actively pursuing models based on partnership with industry where all parties stand to benefit.
- On-campus incubators provide physical space that can support the collaborative working practices that characterise the creative economy.
- There are challenges for higher education in this area, not least in engaging with a fragmented industry and in ensuring (and assessing) a standard quality of educational experience in work placements.
- Although the extent of this activity in relation to the creative industries is unknown, there are examples of good practice.

As noted earlier, evidence suggests that a ‘creative’ education is more valued for the way in which it develops creative thinking and the capacity to learn and to be innovative than solely for its ability to train occupational skills. The hands-on problem solving approach of creative subjects equips graduates well by producing flexible and adaptable employees and entrepreneurs. These are highly transferrable skills, relevant both within and beyond the creative industries. Graduates in a recent survey reported that many of the attributes required for employment, including creativity, problem solving, independence, innovation and collaborative working, were inherent in a creative education (Ball et al, 2010).

Beyond specific initiatives such as the Media Academies, and the development of industry-relevant courses, the challenge may be to integrate employability-related projects with other learning and teaching initiatives. This includes integrating employability skills into the curriculum and encouraging extra-curricular activities such as work experience, volunteering and personal development planning while at university.

Evidence also suggests that creative graduates have a greater inclination towards enterprise than those in other disciplines (DCMS, 2006), and it is important that higher education provides appropriate support. The HE Academy particularly noted the need to support the preparation for business start-up through CPD, incubation units and access to graduate bursaries and apprenticeships, for example through regional development funding from HEIF (HEA, 2007).
We found evidence of widespread efforts to embed employability and industry experience within courses. Many of our case studies (three of which areSkillset Media Academies) include some or all of the following within their course provision:

• work placements with creative businesses
• students working on live industry briefs and problems
• opportunities for students to work in a freelance capacity within industry

All of these approaches help to develop industry awareness and the kinds of skills that are increasingly in demand in the creative economy, as well as delivering benefits to participating businesses. However, they are not without issues.

The scale and capacity of the creative industries limits the availability of work placement opportunities (in 2008 there were 390,000 students and 157,400 creative enterprises), making other collaborative opportunities, such as live project work, increasingly important (see Glasgow School of Art example, below).

13. CASE STUDY

Work-related learning at The Glasgow School of Art

The Glasgow School of Art (GSA) aims to provide an opportunity for every student to engage with relevant professional practice activities during their programme of studies. Placements are an extremely valuable component of work-related learning (WRL) but are not always possible for practical reasons, and there is a need to think innovatively about alternative and additional ways to deliver WRL to suit the context. At the GSA, therefore, WRL includes a wide range of approaches, including live projects, developing and using case studies, exploring and designing online approaches, simulated and virtual work experiences, facilitating workplace visits, organising talks, and mentoring opportunities by GSA graduates and employers.

Across the GSA there are many examples of sustained and productive WRL activity operating within and between departments. The case study below represents one example which involved partnering with a national skills development agency in Scotland.

The Glasgow School of Art product design (PD) department has collaborated with Skills Development Scotland (SDS) since 2007. The collaboration originated with an SDS-commissioned Live Project that asked Year 3 students to examine aspects of their public service offering, and has since evolved into a partnership of mutual benefit.

The students have been given live project experience with ‘real’ clients; have enhanced their graduate attributes; have had funded internship and postgraduate study opportunities; have had a tangible impact upon both the private and public sectors; and have, directly and indirectly, found related employment.

For the PD department there have been opportunities to develop and refine pertinent elements of the course; to undertake practice-based research; to create and sustain links with industry beyond SDS; and to develop strong knowledge transfer partnerships.

SDS have developed and implemented ideas generated through the Live Projects; have given briefs to service design consultancies based on project outcomes; and have recognised the collaboration as a source of CPD.

Importantly, this has evolved into a sustainable relationship rather than the more fragmented, ad hoc interactions that have existed in the past. It is the creation of these kinds of ‘win-win’ partnerships that can help build relationships of mutual benefit between higher education and external partners.
4.101 Opportunities for universities to link into employers in this way have also been affected by the recession. On the one hand, many reported increased difficulties in finding placement opportunities as industry partners focused on maintaining business through the downturn. However, others reported opportunities in areas such as live briefs, as businesses sought more cost-effective ways of solving problems or seeking opportunities.

4.102 More generally, there are obvious demand-side issues to consider here. Even where placements are offered free of charge, there is a considerable time input required of employers, which can be challenging for very small businesses such as those in the creative industries.

4.103 There are also challenges for universities in ensuring a standard quality of student experience in placements and devising suitable means of assessing these kinds of activities. The case study evidence suggests that senior management support is also crucial for employability initiatives.

4.104 In the case of the University of Wolverhampton’s Creative Employability Studio [see over], establishing a central physical facility for all creative employability activity has enabled a more coordinated and holistic approach as well as providing a central point of interaction for industry, academics and students.

Around 1,500 students of media and technology-based courses at the University of Salford will soon be taught at a brand new facility next to the BBC studios at Media City UK in Salford Quays.
The Creative Employability Studio, University of Wolverhampton

The school of art and design at the University of Wolverhampton established the Creative Employability Studio in May 2008. The Studio, which is wholly funded by the school, promotes and enhances student employability through real-work initiatives and the development of commercial awareness skills. It creates a central point for all creative employability activity undertaken by the University, which was previously limited, fragmented and ad hoc.

The Studio model comprises four core elements that overlap:

- **Work**: this provides real-work opportunities (placements and live briefs) that allow creative students to use their skills in a commercial context. In recognition of the difficulties for creative businesses in providing long-term placements, short-term placements are offered. The Studio also advertises employment opportunities and assists the sector with recruitment.

- **Skills**: this develops the employability skills of the students by seeking out exhibition space for their own work, advertising and encouraging students to enter competitions, investigating how and where students can promote and sell their work, and assisting students to develop commercial skills through networking and self-promotion activities.

- **Industry**: this involves the provision of workspace to current practitioners and micro-businesses, and industry communication, events and sponsorship. Crucially, the Studio provides a focal point for industry and gives industry the means to talk to the University.

- **Practitioners**: this seeks to engage those currently working in the sector, and comprises practitioners-in-residence schemes, ‘honorary practitioners’ providing workshops and seminars, and the creation of ‘success stories’ to provide local examples of what previous students have achieved.

The holistic approach of combining a collection of activities under the one project is of value and recognises that employability skills cannot simply be learned, but they must be acquired over time and refined through a variety of methods.

The background of the staff, with many having been practitioners, helps achieve industry and academic buy-in. With many industry practitioners sceptical with regards to what academics know about the realities of industry, persistence in relationship building is required.

At a more practical level, having one main physical space where all employability activity is centred provides a focal point for all key stakeholders: industry, students/graduates and academia.

A similar set of issues arises in the context of entrepreneurship education, a distinct but related component of the wider employability agenda. Research has identified a lack of entrepreneurship as a barrier to the effective growth of the UK’s creative industries (NESTA 2006), and yet the freelance culture demands a degree of entrepreneurial skill. Evidence regarding the extent of entrepreneurship education in higher education courses related to the creative industries is somewhat conflicting.

In their review of entrepreneurship education for the creative industries, NESTA and the HE Academy (2007) found ‘significant enthusiasm for entrepreneurship education’ within art, design and media subjects as well as a wide range of different approaches. Eighty per cent of the respondents in their survey reported some form of entrepreneurship teaching in their institution. However, the National Council for Graduate Entrepreneurship (NCGE, 2007) found that entrepreneurship education is still dominated by business and management schools (61 per cent of all provision), with less provision in creative arts and design courses (eight per cent). Although based on different analyses, this does suggest a degree of mismatch.
4.107 At least in part, this apparent discrepancy may relate to differences in definition and in the extent to which entrepreneurship is made explicit within creative disciplines. There is a long tradition of practice-based and experiential learning in creative disciplines, which is often strongly aligned with entrepreneurship skills. However, this link may be implicit rather than explicit, in part due to negative perceptions among both students and academics regarding entrepreneurship (Higher Education Academy Art Design Media Subject Centre [ADM-HEA] and NESTA, 2007).

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‘In this industry the most important skills that recruits can have are communication and creativity. It is my belief that by fostering relationships between business and academic institutions we can ensure that graduates leave university with the necessary skills to make their mark on the business world.’

Chris van der Kuyl, Chief Executive, brightsolid

4.108 It is also important to draw a distinction between entrepreneurship education and training graduates for success in precarious labour markets. In our consultations there was considerable resistance to the idea of universities training students to fill out tax returns. There was more enthusiasm, however, for provision that could encourage graduates to be more enterprising, whether in their own business or as an employee.

4.109 These issues notwithstanding, it is clear that entrepreneurship education does take place in the creative disciplines, and is typically delivered through a subject-specific module and integrated into practice-based learning and project-based learning, rather than being part of a general business studies course (ADM-HEA and NESTA, 2007).

4.110 In many ways, this should be unsurprising, as learning by doing and reflection on and application of knowledge arising from the learning process are key elements of both entrepreneurship and creative practice. In this respect, the pedagogy of practice-based creative education may be particularly well suited to developing entrepreneurship learning, although there is a need for a clearer framework to support greater consistency (ADM-HEA and NESTA, 2007). As entrepreneurship and enterprise become increasingly relevant in the context of economic recovery, the finding that creative education processes may be particularly effective in developing some of these skills may be of wider importance.

4.111 Research also suggests that entrepreneurship education is best delivered in partnership with industry (ADM-HEA and NESTA, 2007). Despite the fact that as much as 80 per cent of the curriculum in some creative arts, media and design courses may be taught by teacher-practitioners who also work in the creative industries (Clews, 2008), the level of collaboration with industry partners in course development is considerably lower (ADM-HEA and NESTA, 2007), although our research suggests that this is changing.

4.112 The case studies suggest that many institutions are placing increasing emphasis on entrepreneurship education with strong links into industry. For example, within the Creative Employability Studio (above), arts and design students comprise approximately half of the annual university-wide places (and funding) on the entrepreneurship education programme.

4.113 The example of FuelRCA [see over] is interesting in that it makes clever use of recent graduates, thereby engaging industry in a way that keeps provision fresh and relevant, and reinforces the idea of enterprise as a lifelong learning activity.
FuelRCA is, however, again reliant on third-stream funding (HEIF). Indeed, HEIF funding has been an important contributor to the development of entrepreneurship education in creative disciplines. NESTA estimated that as much as 78 per cent of entrepreneurship education was supported by initiative funding, in which HEIF plays a significant role (for example in supporting enterprise and incubation units) (ADM-HEA and NESTA, 2007). In the future, there is a need to consider more sustainable ways of supporting entrepreneurship education in the creative industries.

FuelRCA

FuelRCA is the Royal College of Art’s central professional development resource, aimed at helping current students and recent graduates develop their careers. It provides a coherent mix of inter-disciplinary events, information, training and mentoring designed to complement departmental provision – from developing presentation skills and understanding intellectual property rights to debate on philosophical themes such as ‘ambition’ and ‘values’.

A distinctive feature of FuelRCA is that it is run by recent graduates of the RCA, who are supported by a network of experienced creative business advisors, including the Faculty of Royal Designers for Industry at the Royal Society of Arts (RSA). The branding and culture of the unit have also been specifically developed to engage young artists and designers, and help them view business and enterprise as a natural part of professional life, not an add on.

As a result of its creative approach, the programme is now being recognised as a model of best practice by other universities and organisations such as Enterprise Educators UK.

Each year, between 50 and 70 students regularly attend FuelRCA events and approximately 70 per cent go on to set up their own business or pursue freelance careers. The programme has also helped RCA to recruit students, as it is seen as a way of enhancing the chances of professional success post graduation.
More generally, there has been a proliferation in recent years of creative entrepreneurship and management courses, often at postgraduate levels. These often share some common methods and approaches, including:

• action learning
• business plan development and business coaching
• new start incubation
• business simulations
• ’Dragon’s Den’-style presentations and pitches
• summer schools

However, there is a lack of common standards among education providers, leading to varying levels of provision of enterprise education and in some cases a lack of awareness among students of facilities in their own institutions that are supposed to support entrepreneurship, such as enterprise or incubator units (NESTA, 2007).

While the evidence indicates greater focus on entrepreneurship in higher education courses and more innovative means of providing this in partnership with industry, more work is needed on the effectiveness and impacts of this learning. There is undoubtedly a need to ensure that graduates are fully prepared for working in what can be a demanding and uncertain environment. There is also a need for educational provision that can both encourage more graduates to set up their own business and provide them with the skills and knowledge to succeed.

In 2005, HEFCE announced funding for 74 Centres for Excellence in Teaching and Learning, 15 of which were targeted at creative industries sectors (DMCS, 2006), with others targeting work-based learning and entrepreneurship. Similarly, the 2005 Higher Education Business and Community Interaction Survey found that 39 per cent of universities had on-campus incubators, a figure that will undoubtedly have risen with increased third-stream funding (for example from HEIF).

There is a need for further research to establish the extent to which university incubators are providing support appropriate to the creative industries, and the impact of these initiatives. In particular, given the collaborative and network-based character of the sectors, the role of physical space (alongside other support) may be of specific interest.

For example, Birmingham City University Screen Media Lab’s Insight Out programme has been recognised as a leading creative enterprise programme which has directly contributed to increasing creative start-ups in the Midlands. The programme has engaged the support of 48 organisations and 121 participants, specifically supporting graduate retention in the region. The project has directly contributed to the creation of 58 start-ups in five years. This is being extended with support from Birmingham city council for incubation space, which also involves Aston University and the University of Birmingham, in assisting city-based graduates to establish their own businesses.

'Birmingham City University’s Screen Media Lab helped our company start up and we have continued a productive relationship ever since. The staff are clued up, well connected and flexible and have given consistent, practical advice that has helped our business to innovate and grow.'

Andy Hartwell, Managing Director, Substrakt (digital media and design company)

Creating Prosperity: the role of higher education in driving the UK’s creative economy

4.0 Higher education’s contribution
The Enterprise Pavilion at the Arts University College at Bournemouth (see below) has established a successful and well-regarded incubator that provides space for new start and growing creative businesses combined with networking and business support services. Here the role of physical space was considered important as a way of facilitating collaboration and providing a focal point for the sector.

Again, initiative funding, particularly HEIF, has been important in enabling universities to develop these kinds of projects. The risk is that enterprise support and business incubation, although they can contribute to ‘third-stream’ outcomes, are not always considered as important for higher education. It is also unclear whether or not the planned reform of HEIF will result in continued support for these activities, and the priorities for the reduced level of enterprise funding in England (and the devolved nations) have not yet been defined. In an increasingly tight financial environment, activities such as these could be threatened, particularly if they incur costs to institutions or occupy space that could be used more profitably in other ways.

Enterprise Pavilion, Arts University College at Bournemouth

The Enterprise Pavilion at the Arts University College at Bournemouth has demonstrated considerable success in supporting new start creative businesses in the local area, with a very high survival rate (95 per cent of previous tenants are still trading).

The Enterprise Pavilion provides a physical space for a whole range of support activities and networks, including enterprise competitions, entrepreneurs clubs, networking events for creative businesses and potential clients, business skills support and collaborative networking opportunities. Importantly, the facility sets stringent criteria for tenants, provides substantial levels of pre-entry support and admits only those with a clear commitment to the business. This degree of focus has allowed the centre to support the creation of 75 new creative businesses, contributing £3.84 million of Gross Value Added (GVA) to the local economy.

It is also an impressive building with a 'creative community', instilling confidence in tenants and visitors and providing a neutral space for creative interaction and collaboration.

The "extra-curricular" nature of the facility creates funding uncertainty, although it definitely contributes to HEIF outputs for the University. The Pavilion is now looking at new business models to ensure it is cost neutral to the University.

It is clear that the arguments behind locating incubators and start-ups in the creative economy on university campuses is less that of market failure in the provision of appropriate space, but rather the specific benefits, identified above, that accompany such a location, including nurturing collaboration and interaction – fundamental to creative industries’ company development.
Proposition 6.

Higher education can be an important provider of CPD for the creative industries.

- CPD is a growing opportunity for higher education, and is a common feature of many knowledge exchange initiatives in the creative economy.
- While creative professionals want and expect to be involved in lifelong learning, industry demand for CPD is less well articulated and costs can be a barrier.
- There is evidence to suggest that academic qualifications are appealing to individuals and their employers, indicating an important role for higher education.

4.124 If there is a need for greater focus on employability and entrepreneurship skills within undergraduate teaching provision, there is also a need for ongoing CPD support to industry. According to NESTA, creative businesses report a poor record on CPD, and yet there is an accepted requirement for improved business, management and leadership skills.

4.125 Again, this is an area in which higher education has an important role to play. The evaluation of HEFCE third-stream funding found that CPD, along with consultancy and contract research, was the most common form of industry interaction across English universities, and was particularly important within creative arts and design institutions (PACEC, 2010). However, there is a paucity of research into the ways in which CPD is delivered and the effectiveness of current provision.

4.126 Although now less current, HEFCE, in partnership with Arts Council England and the Design Council, commissioned a study into higher education’s provision of CPD for the creative industries. The study, published in 2001, found at that time a considerable range and volume of CPD provision for arts and design within higher education, as well as growing demand, particularly as the pace of industry change accelerates (HEFCE, 2001). There was also evidence that higher education enjoyed a strong brand and reputation in CPD provision, based on:
- academic quality, quality control and validation
- advanced pedagogy
- good understanding of the realities of professional life in the creative sectors
- access to resources and new ways of thinking about professional practice

4.127 This suggests both that higher education was in 2001 already playing an important role in providing CPD to the creative industries and that there is further potential to expand this work. In the absence of any equivalent report since, the scale of the growth in provision is unknown, though it has certainly taken place. What is perhaps less clear are the ways in which this is delivered, across which disciplines and how provision is currently received by industry.
4.128 CPD for industry is an important element of the Skillset Media Academies. As noted earlier, these have typically sought to develop accessible and affordable short-form modules for industry practitioners. The credit-bearing framework has proved attractive to employers and individuals alike, and has helped to generate revenue streams for the institutions.

4.129 Skillset reported that their experience of the Media Academies was that the opportunity to build up a series of short modules to achieve a university qualification appealed both to individuals and their employers.

4.130 Many of those involved in the development and delivery of these courses also commented on the need for flexibility when working with creative businesses, and identified a range of important benefits as follows:

- **students**: appropriate skills development
- **industry**: ability to influence course development and practical benefits through placements and live briefs
- **universities**: valuable industry input to course development and research activity, and enhanced reputation
- **creative economy**: better skilled and more industry-ready graduate population

4.131 At **Bournemouth University** a targeted programme of CPD for creative industries has been developed in a way that has both met the needs of employers and developed a sustainable model for the university.

### CPD, Bournemouth University

Bournemouth University has developed an ambitious and innovative portfolio of CPD for media professionals which aims to:

- **provide** education, development and innovation support for creative media employees and freelancers who are either unemployed or at risk of redundancy, to enable them to develop new skills and understanding of digital media and thus become more competitive in the job market
- **provide** professional, technical and business knowledge and expertise to creative media companies so that they are better equipped to survive the economic downturn and have the capacity to succeed in a global market as the economy emerges from recession

Each short course is worth 20 Masters-level credits and is delivered by experienced academics and practitioners to ensure its relevance.

The short courses have attracted a small number of Additional Student Numbers from HEFCE, the equivalent of 75 people doing one 20-credit unit. The activities are, however, primarily funded through student fees (£800 per short course) and through co-funded arrangements whereby employers support and contribute to provision.

Media companies, who have traditionally seen universities as the place to recruit junior staff, are now working with the University to provide staff development for their most senior staff. This CPD work has resulted in the BBC and the Guardian offering credit-bearing provision for the first time. The University is also in advanced discussions with a major games developer and television and film production body to establish similar provision.

At a time when the unit of resource provided by HEFCE to support teaching and learning is being decreased, this activity is generating valuable fully economically-costed income.
4.132 As part of the Skillset Media Academy ‘Build Your Own MA’ framework, Bournemouth is offering a Masters course comprising bite-sized CPD modules, and has successfully engaged employers in the training of senior staff. The combination of academic and industry input ensures quality of educational provision and industry relevance and currency.

4.133 The University for the Creative Arts has an extensive portfolio of projects providing CPD to different parts of the creative industries. This includes:

- leadership and management development support
- digital media skills training for specific target groups such as black and minority ethnic groups, women, older people and those with disabilities
- online careers resources for creative graduates
- entrepreneurship training and business start-up support
- e-learning opportunities
- graduate placement and artist residency programmes

4.134 These activities have levered around £3 million in European funding and provided support to hundreds of creative practitioners and businesses across the south-east of England, with international links to similar initiatives in France.

4.135 As well as providing practical skills training and support for new business creation, these initiatives have helped establish new networks across the creative sector in the region, facilitating links into mainstream industry. Through activities addressing specific groups, UCA’s work has also contributed to improving social inclusion and diversity within the creative sector.

4.136 Although higher education clearly has much to offer in CPD for the creative sector, the challenge of engaging with a fragmented and under-resourced business base is a major barrier. Universities also face difficulties in keeping pace with new technologies, as funding for new equipment and facilities is hard to secure. This suggests, then, that higher education must focus on where it can truly add value in CPD for the creative industries.

Fran Conrad, a graduate from Bournemouth University’s BA (Hons) in product design, created her highly successful pop-up tent whilst a student at Bournemouth, which the University helped her to commercialise.
5.0 Conclusions and recommendations

Introduction

5.1 The purpose of the research was to establish the contribution of higher education to the UK creative economy, with a focus on two specific areas:
- research and innovation
- skills, employability and entrepreneurship

5.2 Based on the findings of the research, and the feedback from the six focus groups held around the UK to debate the study findings, we have identified a number of broad conclusions and a series of recommendations for consideration by government, the higher education sector and the creative industries.

General conclusions

5.3 Both the creative industries and higher education play an important role in national competitiveness. This is largely uncontested. However, the emphasis of higher education policy continues to favour science-based models and associated funding, and is not sufficiently flexible in places to fully encourage and incentivise higher education’s multifaceted contribution to the growth of the creative economy. In particular, if the implications of the Browne Review and the CSR are followed through, we are in danger of seriously damaging one of the few economic areas in which this country is an established world leader.

5.4 At the same time, creative industries policy has paid only limited attention to the role that higher education plays in supporting the sector. This does not mean that either higher education or creative industries policies have always been ineffective, but rather that they are not well aligned. This needs to be addressed by the UK and devolved governments alike, although these issues may be less stark in the devolved nations.

5.5 The UK has the largest creative industries sector in the EU and possibly the largest (proportionally) in the world. While there are many reasons for this success, higher education has undoubtedly been a significant factor. Creative education in the UK is world renowned, producing creative talent that consistently excels at global level and academic research that is a powerful spur to wider innovation.

5.6 The future success of the UK economy, and of the creative industries in particular, will depend on the ability of UK firms to innovate and compete in fast-moving global markets. To do so, they need access to high-level knowledge, creativity and skills. This is the essential role of higher education, and without that input our creative industries would not be where they are today.

5.7 Universities across the UK are extensively engaged with the creative industries, and this engagement spans a very wide range of faculties and academic disciplines as well as institution types. The evidence is clear that involvement with the creative industries is not restricted to the specialist arts and design institutions, but is also a common feature in large multidisciplinary and research-intensive universities. The creative and cultural industries are, by some margin, the most frequently targeted sector in universities’ knowledge exchange strategies.
The growing focus on multidisciplinary activity within the creative industries and higher education strongly challenges entrenched divides between STEM and creativity. This is a false opposition, which should be resisted in favour of an approach that considers STEM and creativity to be interconnected and essential components of a successful knowledge economy. This is of crucial importance in light of the integral role that digital technologies now play in many creative industries, and the role that creative skills play in driving wider economic success. It also challenges the exclusive priority afforded to STEM subjects in the Browne Review recommendations and the CSR.

Conclusions: Research and innovation

Higher education makes a critically important contribution to innovation in the UK creative economy through research in an expanding range of academic disciplines. This is evident in a number of important ways:

- The quality and the economic, cultural and social impacts of research relating to the creative economy. Academic research not only contributes vital understanding of the creative economy, but also influences the development of new cultural and commercial practices, processes and products on which future competitiveness depends.
- There is growing focus on multidisciplinary research and innovation that brings together expertise and knowledge in science, engineering, creativity and business to address the innovation needs of the creative economy.
- Research outputs are finding successful application both within and beyond the creative industries in markets such as healthcare, defence, education and manufacturing.
- There is widespread and multifaceted interaction between higher education and the creative industries, evolving collaborative, informal and iterative processes in line with the characteristics of the industries themselves.
- A number of universities have developed as regional hubs for innovation, drawing together academic and business talent in networks and spaces that encourage experimentation and risk – essential building blocks of successful innovation.

However, the level of investment in academic research relating to the creative economy, although increasing, is still modest in comparison to science disciplines. This only partly reflects the high costs of science-based research; it is also a result of the belief of successive governments that STEM subjects represent the exclusive route to economic success.

It also reflects the difficulties of assessing some forms of creative research, most obviously practice-based research in the creative and performing arts, and of demonstrating the impacts of research and knowledge exchange activities using existing science-based metrics. Innovation in the creative industries does not conform to models of science-based commercialisation. As a result, higher education structures and the metrics against which knowledge exchange performance are measured (such as licences, patents, spin-outs) do not capture the value of higher education’s contribution to the creative industries.

There are also challenges for universities in structuring and delivering valuable multidisciplinary research within sometimes rigid faculty structures and subject-based funding models. There is no one-size-fits-all solution to this, reflecting both the diversity of higher education and the diversity of the creative economy.
The structure of the creative industries as sectors comprising mainly small and micro-businesses makes engagement with higher education difficult, and there are barriers on both the demand and supply sides:

- For academics, engagement with SMEs is difficult due to the fragmented company base, and is not clearly rewarded (for example as publishable research). Constraints on academics’ time are also a major barrier.
- For creative businesses, costs and time are barriers to interaction with higher education, and many struggle to articulate their innovation needs clearly, or even to recognise what they do as innovation.

Many of the valuable initiatives developed to encourage and support knowledge exchange between HEIs and the creative industries also rely on precarious sources of funding, many of which are either disappearing or under serious threat. With the demise of the RDAs, many have also lost powerful regional partners that helped with industry engagement and brought valuable focus on economic outcomes.

Conclusions: Skills, employability and entrepreneurship

The creative industries thrive on talent. Graduate employment is high across the sector and both the demand for and supply of relevant courses is increasing. Our research estimates that as much as 16 per cent of the student body may be involved in courses relevant to the creative economy. Even if not all of these students eventually work in the creative industries or in creative occupations elsewhere, this is a strong indicator of higher education’s contribution to the sector.

It is important to be clear that it is not the primary purpose of higher education to develop narrow skill sets, even though occupational skills are one necessary element in the education process. Higher education nurtures and develops creative talent and produces graduates with deep specialism and, increasingly, the ability to work in multidisciplinary teams. It is this talent that will innovate new products, processes and business models to drive the creative economy of the future, and this is not a need that other training providers can easily meet.

This does not mean that higher education is somehow remote from the needs of industry; in fact, there is evidence of growing engagement between higher education and industry at all stages of the education process, from course design and development to delivery. This is having a beneficial impact on students, industry and universities and, ultimately, will further enhance higher education’s contribution to the creative economy.
5.18 In addition to higher education’s fundamental role in developing next-generation talent, a number of other trends are also evident:

- There is increasing focus on multidisciplinary education, particularly at postgraduate level, a trend that is consistent with the rise of multidisciplinary research initiatives (the two are frequently combined). This again undermines the false opposition between STEM subjects and the creative disciplines and is highly consistent with the requirements of the creative industries as they become ever more digital.

- Universities are increasingly embedding opportunities for practical learning in industry settings within their courses as a way of enhancing the employability of graduates. This is not only well received by industry, but also delivers practical benefits to participating organisations (for example through live briefs or work placements).

- There is evidence to suggest that the educational process in many creative disciplines – problem solving, project-based, collaborative and experiential learning – helps to develop many of the skills and attributes required for successful innovators and entrepreneurs.

- There is also growing focus on entrepreneurship education, typically delivered through a stand-alone module and often with industry input.

- Higher education plays an important role in providing CPD for industry professionals. Academic qualifications have appeal for individual practitioners and employers alike, and higher education has a strong brand on which to capitalise. The growing engagement with industry has brought with it a rise in CPD provision.

- Universities are actively engaged in incubation and enterprise support activities to encourage and enable more graduate start-ups. On-campus incubators often combine enterprise support and advice with physical space that can encourage collaborative working and interaction between new start businesses, academic expertise and more established companies.

\[\text{Image: Student working in the print room at the London College of Communication, part of the University of the Arts London. Credit: Elaine Perkins.}\]
Again, while of obvious value to the creative economy, there are issues in seeking to deliver these kinds of impacts:

- There is a need to invest to maintain the high quality of creative education, which is currently under serious threat with the proposed removal of public funding as recommended in the Browne Review. Many creative disciplines are costly to teach due to specific requirements for equipment and space, and targeted funding has been provided on the basis of the public good that these subjects deliver. In a post-Browne environment, there is a need to take a broader view of the subjects that ‘deliver significant social returns’ as well as contributing significantly to the UK’s economic growth and global competitiveness.

- There is a persistent issue with different expectations and language used by industry and academia around skills issues. This perpetuates an image of a remote higher education sector serving its own needs rather than those of industry, and of an over-demanding industry wanting high-quality training for free. Neither picture is accurate, but there is a need to build a better understanding of these issues on both sides.

- Although there has been substantial progress around employability, demand-side issues remain a barrier. It can be hard to engage creative businesses in placement models and live briefs, and there are challenges in ensuring a consistent quality of student experience from the educational perspective.

- Similar issues are evident in relation to CPD – the challenges of engaging with the diverse company base of the creative industries, many of which lack resources to engage in CPD, are considerable.

- More work is needed to fully understand the extent and quality of entrepreneurship education and support in areas relating to the creative economy, and there is currently a lack of consistent standards in this area.

- Much of higher education’s valuable work in these areas is dependent on external funding. Following the previous announcements on the closure of the RDAs, and the Spending Review, many of these sources of funding will come under increasing pressure, with consequent threats to both higher education and the creative economy.

Conclusions: The wider role of universities

The research has also highlighted a range of other ways in which universities across the UK are contributing to the growth of the creative economy. These include:

- anchoring regional clusters through the attraction and retention of academic, graduate and business talent
- engaging significant industry players and facilitating connections with creative SMEs, creating new routes to major market opportunities
- building international reputation and credibility in ways that both enhance the UK’s reputation but also deliver direct benefit to regional creative businesses
- supporting active networks and bringing together business, academic and public sector partners – the triple helix of innovation

Many of these impacts are the result of the scale, credibility and international standing both of individual institutions and of the UK’s higher education system as a whole. Combined with the global standing of the UK’s creative economy, this must be a powerful force for growth.
The creative industries are a clear success story for the UK economy, and have continued to grow even in the difficult financial climate. They are vital to the future economic success of the UK, and were recognised by the chancellor as, ‘a key part of the new economy we are seeking to build’.

The progress of higher education in supporting the UK’s creative economy is both clear and marked. Yet there is still more that universities could do. New approaches to knowledge exchange, lifelong learning and industry partnerships will be required within a more fluid and dynamic relationship between higher education and the wider economy.

We cannot build on the strengths of the UK’s creative sector without investment in higher education, and this means government, universities and the creative industries working together to address current barriers and invest in the areas of greatest opportunity.

This is particularly challenging in light of the exclusive emphasis of the Browne Review and the CSR on STEM subjects, an emphasis that constitutes a narrow view of the UK’s economic future and significantly diminishes the role of creativity in economic growth. It is essential that a broader view is developed and supported.

Recommendation 1: Governments in the UK and the devolved nations should recognise the critical importance of the creative industries to future competitiveness and the key role of higher education in supporting their growth. This means according the creative industries policy emphasis in line with their economic importance, and investing to ensure that the UK maintains its strong global position in these industries. This investment should be prioritised through a clearly articulated and aligned strategy.

Recommendation 2: In the forthcoming higher education white paper (due to be published in spring 2011), the Government should resist the narrow view that STEM subjects represent the exclusive route to economic success, and should instead recognise the fact that STEM and creativity are inextricably linked – successful knowledge economies need strength in both. In practice, this means that the disciplines which support the creative economy should be identified as priority subjects and attract public investment for teaching in a post-Browne environment. This is particularly urgent in England and Wales, but is equally relevant in the other devolved nations.

Recommendation 3: Key industry bodies should ensure that the creative industries are included in their engagement with government in the UK and the devolved nations.

Recommendation 4: Government and the research councils should ensure adequate funding for research in disciplines relevant to the creative industries. This should include social science research into the nature of the creative economy. Research assessment mechanisms should also ensure that the outputs and impacts of creative industries-related research are fully recognised and rewarded. Indeed, the REF expert panels, reporting to HEFCE on the outcomes of the impact pilot exercise, have recommended that a broader definition of impact be adopted and that the initial list of impacts need to be developed further, especially for the arts and humanities.

Recommendation 5: Universities should work to address the structural barriers to multidisciplinary working. There is no single solution to these issues and different institutions will need to find the approach that works best for their circumstances.
Recommendation 6: Higher education should work to overcome some of the process barriers to working with the creative industries, particularly those relating to the nature and speed of interaction. This will require changes to the ways in which academic performance is rewarded to allow more interaction with creative [and other] SMEs, as well as a willingness to create more flexible organisational structures to support this. This will also require policy support from the national and devolved governments and from the funding councils.

Recommendation 7: Encouragement and support for university-business interaction should be a priority issue for the new Local Enterprise Partnerships (LEPs) in England, and for the main economic development agencies in the devolved nations.

Recommendation 8: Intermediary bodies such as trade associations and industry groups (including Sector Skills Councils) should work to raise awareness of the benefits to industry of working with higher education across all forms of knowledge exchange activity.

Recommendation 9: Sector Skills Councils should work in partnership with the higher education sector and industry to articulate and translate the skills needs of employers, broker relationships, increase engagement and facilitate co-investment.

Recommendation 10: Universities should continue to develop flexible policies towards intellectual property rights so that this is not a barrier to effective knowledge exchange with the creative industries.

Investing in opportunity

Recommendation 11: Third-stream funding, in particular HEIF, has been critical in supporting knowledge exchange between universities and the creative industries. Government and the funding councils across the UK should ensure ongoing support for these third-stream activities, for example through a reformed HEIF, to continue to build innovative solutions to knowledge exchange.

Recommendation 12: There should be increased investment into multidisciplinary research projects across the three main research councils with interests in the creative economy – AHRC, ESRC and EPSRC. In particular, AHRC should be resourced to participate fully in new cross-council initiatives.

Recommendation 13: Universities should continue to develop multidisciplinary education at postgraduate levels, bringing together creativity, technology and business. The links between undergraduate and postgraduate provision are such that the viability of this multidisciplinary activity is threatened by the anticipated withdrawal of public funding for creative [and business] disciplines at undergraduate level. The Government should consider these issues as it reforms future higher education funding in England following the Browne Review.

Recommendation 14: Universities should structure new ways of interacting with the disparate sectors that make up the creative industries. Networks and subscription-based models offer potential to aggregate industry demand and are worth considering, not least because they can unlock the willingness of SMEs to contribute themselves.

Recommendation 15: Working through the Sector Skills Councils and other industry bodies and trade associations, the creative industries should build productive working relationships with higher education and contribute to the development of relevant educational provision.
Recommendation 16: Universities must continue to develop world-beating talent, but with increasing focus on industry exposure, employability and entrepreneurship. This will mean action on the development of consistent standards for industry experience and entrepreneurship education as well as continuing to engage employers in new models of interaction that deliver mutual benefit.

Recommendation 17: Creative businesses should work in partnership with universities to develop opportunities for industry placements, live briefs and practical experience for students at undergraduate and postgraduate levels.

Recommendation 18: Universities should continue to develop high-level and affordable CPD for the creative industries through more flexible, tailored courses that meet industry needs.

Recommendation 19: There is scope for industry to work with universities and public sector partners to build regional creative industries clusters and support innovation. Although higher education is a powerful and natural partner for this, the support of industry and the relevant public bodies (for example LEPs) is essential.

Recommendation 20: There should be ongoing support for the Skillset Media Academies, with Skillset continuing to play a coordinating role on strategic network development.
Appendix A

Endnotes

2. Statement by the Chancellor of the Exchequer to the House of Commons on the Comprehensive Spending Review, 20 October 2010
3. Creative Industries Economic Estimates, DCMS, 2010
6. 51 per cent of research in creative disciplines (on average) was rated 4*(world leading), or + 3* (internationally excellent). The all-subject average was 47 per cent [RAE, 2008, HEFCE]
8. The term ‘universities’ is used throughout the report to refer to higher education institutions
9. 42 per cent of the workforce in creative media is under 35 years and 52 per cent under 40 years
10. 54 per cent of the workforce in creative media has a degree-level qualification or equivalent, compared with an average of 35 per cent for the working age population
11. Statement by the Chancellor of the Exchequer to the House of Commons on the Comprehensive Spending Review, 20 October 2010

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Appendix A
Susan Amor, Head of Knowledge Transfer, AHRC quoted in the Creative Industries Knowledge Transfer Network Beacons for Innovation document, 2009
Appendix B

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As part of the University of Sheffield’s Autumn Concert Series, members of the public were invited to watch the Tashi Lhunpo Monastery Monks in a rare performance which showcased the talents of a unique and endangered Asian culture.
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<td>Hilary Price</td>
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<td>Julie Taylor</td>
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<tr>
<td>Kerstin May</td>
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<td>Lesley Millar</td>
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<td>Lisa Mooney-Smith</td>
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<td>Martin Downie</td>
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<tr>
<td>Matt Desmier</td>
<td>Enterprise Pavilion, The Arts University College at Bournemouth</td>
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<tr>
<td>Mairi Mackenzie</td>
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<tr>
<td>Paul Egglestone</td>
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<tr>
<td>Paul Durrant</td>
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<td>Professor Alan Cummings</td>
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<td>Professor Andrea Liggins</td>
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<tr>
<td>Professor Frank Bond</td>
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<td>Professor Gavin Henderson</td>
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List of contributors

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<th>Institution</th>
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<tr>
<td>Professor Huw Morris</td>
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</tr>
<tr>
<td>Professor Joseph Giacomi</td>
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<td>Professor Kate Oakley</td>
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<td>Professor Steve Benford</td>
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<td>Professor Tom Fisher</td>
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<td>Thomas Connolly</td>
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<td>Tim Luft</td>
<td>Serious Games Institute, Coventry University</td>
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<td>Tim Parry-Williams</td>
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<tr>
<td>Trish Cooper</td>
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<tr>
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<td>The University of Northampton</td>
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</table>

Students from the Postgraduate Diploma course in broadcast journalism at London College of Communication, part of University of the Arts London. The course was one of the first of its kind in the UK and is accredited by the Broadcast Journalism Training Council (BJTC).
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Press Association
Appendix C

Definition of creative economy-related courses

The table below lists the subjects considered to relate to the creative economy. The definition is based on the Joint Academic Classification System (JACS).

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Note 1: these subjects are not listed on JACS but are listed on HESA
Top: Falmouth’s new Performance Centre based at University College Falmouth includes a high-end recording studio complex that is resourced to support radical electro-acoustic and electronic music; high-spec theatre and music spaces with sophisticated acoustic architecture; innovative sound and lighting technology; and numerous practice and rehearsal studios.

Above left: Awards winners at the British Book Design and Production Awards 2010. The awards are organized by the British Printing Industries Federation (BPIF) and Oxford Brookes University.

Above: Image from artist in residence at Writtle School of Design based at Writtle College, a partner of the University of Essex.

Left: Emerge Festival, a Cultural Olympiad project awarded the London 2012 Inspire Mark, featuring BA street arts students from the University of Winchester.