The role of universities in enhancing creative clustering

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Juan Mateos-Garcia
Jonathan Sapsed
CENTRIM, University of Brighton

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Executive Summary

Industrial clustering is a source of regional advantage
Clustering occurs when firms within a sector locate in the same place, and connect with each other, and other supporting institutions such as universities. In doing this, they benefit from agglomeration economies (access to important resources such as a pool of skilled labour), more efficient value chain linkages, and an innovative atmosphere brought about by knowledge spillovers. The drivers and intensity of clustering vary across sectors depending on the infrastructures and resources that matter to them, their knowledge base, and wider trends in their technologies and markets – these factors explain variation in sectoral patterns (and places) of clustering. Although industrial clusters have gained great currency in the policy arena, there are still ongoing debates about what sectoral mixes – in particular specialisation versus diversity – make them sustainable, and about the best ways to support them.

The Creative Economy shows distinctive patterns of clustering
The Creative Economy (encompassing the multiple sectors of the creative and digital industries and the public cultural infrastructure of museums, galleries, libraries, orchestras and theatres) is increasingly acknowledged as an important driver of growth, employment and innovation. It also clusters in particular ways, linked to the distinctive sources of value, industrial dynamics and relevant knowledge bases of the Creative Economy.

Many creative organisations produce expressive (that is, symbolic, cultural and aesthetic) value, frequently organised through short-term projects, and this is a source of uncertainty in their industries and labour markets. This drives creative talent to those places with a critical mass of employment opportunities. Rapid shifts in markets and trends, together with sector fragmentation, makes it important for creative organisations to locate close to clients, consumers, audiences, investors, funders and potential collaborators. Local creative networks and communities are important for the diffusion of information about new work and funding opportunities. There are steady flows of new ideas, inputs and labour across different creative sectors.

All these factors lead to a strong clustering of creative activities, most prominently in internationally renowned ‘Creative Cities’ or ‘Metropolises’. There are also smaller yet still significant creative clusters with their own idiosyncratic scenes, and distinctive sources of competitive advantage and attractions for cultural, creative and digital practitioners – not least the lack of urban congestion and higher quality of life.

Although there can be little doubt about the importance of creative clustering, it would be a mistake to study these clusters in isolation from the ‘global pipelines’ of creative outputs, ideas and trends through which they are connected. Events, conferences, festivals and shows in particular act as hubs where practitioners from all over the world network, do businesses and stay on top of the latest developments in their fields. Large organisations such as broadcasters and multinational companies, also draw on a creative cluster’s outputs ‘from the outside’, and distribute them nationally and internationally.

Many local initiatives have been put in place to support the emergence of creative clusters in order to drive urban regeneration, economic growth and innovation. This policy trend, influenced by the work of American Economist Richard Florida, has informed urban branding activities and the construction of iconic buildings aimed at attracting the ‘creative class’. Academics and policy analysts have raised concerns about some of these initiatives’ lack of attention to the needs and interests of local creative communities, and the adoption of ‘one size fits all’ approaches that neglect
important differences between the resources and infrastructures on which some sectors in the creative economy (but not others) rely for their activities.

**How can universities impact on creative clustering?**

There are several academic activities through which universities could be expected to strengthen the creative clusters in their vicinity:

The **knowledge** generated by researchers in many academic disciplines is relevant for the activities of creative organisations – this includes scientific and technological knowledge that is applied by digital sectors, the findings and practice-based outputs of Arts and Humanities scholars which feed into the debates through which creative communities assess and contextualise knowledge and outputs, and management and innovation studies research, which can help creative organisations put in place better business strategies and manage their processes more effectively. Universities also organise, curate and provide access to the stock of past knowledge, often embodied in cultural texts and artefacts (all of which are important resources for the creative processes) in archives, libraries and museums.

The outputs of academic research are also embodied in **technologies, tools and methodologies** that creative organisations can deploy in their production, distribution and commercialisation activities.

Universities are the predominant source of highly qualified **creative talent** – not least because there are complementarities between their teaching and research, which in principle should enable them to produce graduates with the cutting edge knowledge and skills that the Creative Economy requires. Over the years, universities have developed institutions such as the Art College, that help future arts professionals develop their practice through collective, peer-supported learning processes, and introduces them into wider cultural communities and networks. Changes in technologies, techniques, ways of working and markets also make it imperative for creative practitioners to keep their skills refreshed- universities can help here through the provision of Continuous Professional Development (CPD) services.

**Networks** are key for the dissemination of new ideas and information about commercial and professional opportunities which are the lifeblood of creative clusters – many universities are central to the cultural life of the places where they are located, organising activities and providing spaces that can act as venues for such networking, often with an outwards-facing dimension that helps local clusters and communities connect with wider national and international creative scenes.

Universities provide **problem-solving** services through contract research, consultancy projects and access to facilities – all of which can be valuable for predominantly micro and Small and Medium Enterprise (SME) creative organisations lacking the time and resources to develop such capabilities internally.

Last but not least, universities can **nurture creative entrepreneurship** through spin-off firms, and supplying organisations and practitioners in their vicinity with incubator spaces, business services and access to networks of like-minded entrepreneurs.

**And what is the reality?**

Although just over 8 out of every 10 universities in the UK flag up the ‘creative industries’ as a target sector for external engagement, we know little about the modalities and channels through which this engagement takes place because most research on this area has until now been undertaken from the standpoint of academic disciplines, rather than industry groupings.
Studies of University – Higher Education and Community interaction that have looked in detail at Creative Arts and Design universities, and the Knowledge Exchange (KE) activities of Arts and Humanities scholars (both of which could reasonably be expected to engage more often with the Creative Economy) suggest that the provision of talent, support for SMEs and wider community engagement are more important than technology transfer via patents or contract research. Within the Arts and Humanities, Creative Arts and Media scholars are shown to undertake high levels of applied and user-driven research.

There are barriers to fruitful engagement between universities and the creative economy

Small creative organisations usually lack the time and resource to build strong relationship with universities, and the absorptive capacity to make the most of their research results. On their part, universities find it hard to keep up with the rapid rates of change in creative technologies and markets, and are not always geared to offer creative organisations the interdisciplinary outputs and services that they need. The technology-centric policy approach that has traditionally dominated Knowledge Transfer and KE may be creating barriers to the development of relationships with creative organisations, for whom patents and contract research are not necessarily the right form of engagement.

Make it happen: good practices for the design and implementation of KE initiatives for creative clusters

Universities seeking to engage in KE with creative clusters need to ensure that their KE activities are relevant for them, and this requires access to timely information about their needs and challenges. Identifying the right interlocutor – the ‘voice of the cluster’, as it were – and engaging it in a sustained manner is one way to accomplish this. Where such interlocutors are absent, universities may have to ‘build them up’ through networking activities – this is valuable in itself as it can help mobilise latent, disconnected creative clusters. Universities should also lower barriers to engagement – particularly for time-strapped SMEs, micro-businesses and sole-traders – by removing bureaucracy, lowering transaction costs and speeding up reaction times. When reaching out the Creative Economy, they should complement the use of university spaces with those venues and spaces already being used by local creative organisations and professionals. The structures for the governance of university – industry engagement should include local creative players, both big and small.

Universities need to demonstrate the potential of KE to attract organisations who may be otherwise wary of engaging. ‘Talking the talk and walking the walk’ – focusing on outcomes and solutions rather than processes, and deploying ‘boundary spanners’ to act as ambassadors into creative clusters can help build trust between universities and local organisations. At the same time, universities should emphasise what is distinctive about their value proposition (for instance, access to facilities and skillsets lacking in industry), as well as wider benefits from engagement – not least access to the cream of the crop of the specialist talent that they produce, as well as reputational benefits, international connections and funding opportunities.

Good practices, resources and smart processes have to be in place to ensure that Creative KE projects produce high-impacts. Agile development approaches with regular and useful interim deliverables can help keep university and creative partners energised and in the same page, and alleviate any real or perceived misalignments between their timeframes. In some cases – particularly with interdisciplinary initiatives – it may be necessary to train academic staff in project management and team working. Finally, it is important to think innovatively about what are the most appropriate formats for KE outputs so as to achieve the widest dissemination. Universities may want to take a leaf from the creative economy here, and go ‘multiplatform’.
Increasing the ‘absorptive capacity’ of creative organisations will maximise the benefits from their KE with universities – One way in which universities can help build this capacity is by providing CPD training for creative practitioners in order to get them up to speed with relevant research findings and methodologies, as well as via ‘knowledge exchange on legs’ through academic secondments, ‘practitioners in residence’ schemes, mentoring and student placements. There is scope for expanding and improving peer-supported learning initiatives given the evidence of success in this area.

Universities can strengthen and further link up the networks that underpin creative clusters. Many already do so through the provision of spaces, incubators and cultural venues for neighbouring cultural and creative communities. Connecting existing creative silos is particularly important. Universities should find ways to facilitate and enhance cross-sectoral collaboration through different activities such as events and training sessions that address the common needs of different industries, projects to develop convergent technologies and tools, as well as mechanisms – for instance, vouchers – that increase the incentives for engagement across sectors. A proactive mobilisation of their national and international networks can help connect creative clusters to potential partners elsewhere in the UK and overseas. Leading academics can often provide a valuable ‘window’ into global activities, events and international organisations that creative organisations may find it difficult to access or even identify on their own.

To conclude – maximising synergies and opportunities for learning
Universities should do this across the portfolio of Creative Economy-relevant activities, whether they are ‘strictly KE’ or otherwise – including research, teaching and university procurement of creative and digital goods and services. In regards to learning, there is currently a dearth of studies examining in detail what works and what does not in the area of creative KE. The only way this can be addressed is from the bottom up, by ensuring that, going forward, University creative KE initiatives have rigorous (and fit for purpose) evaluation methodologies built into them from day one. This will help minimise the risk of universities reinventing the wheel, putting in practice low impact or poorly designed initiatives, improve the diffusion of good practices across the sector and help demonstrate the potential role of universities as drivers of creative clustering, innovation and growth.
Introduction and purpose

a. Background

Economic geographers and innovation scholars have long recognised that industrial clustering matters for innovation, competitiveness and growth – tightly knit geographical concentrations of firms within a sector have been shown to generate positive ‘agglomeration’ economies (by attracting a pool of skilled labour and justifying investments in shared infrastructures), develop more efficient local value chain linkages, and benefit from knowledge spillovers as ideas flow across the cluster inducing the adoption of best practices and other innovations (Porter, 1998, Krugman, 1991, Audretsch and Feldman, 2003).

Public institutions such as research laboratories and universities can be an important part of clusters (Porter, Ibid). Universities in particular can strengthen them through the provision of skilled graduates, research outputs that can be applied in practice, and third stream activities that contribute to local business capacity and stronger networks (Kitson et al, 2009). There are many accounts of leading universities such as Stanford, M.I.T., Tsinghua University or the University of Cambridge taking a lead role in the emergence and growth of ‘exemplary’ clusters in Silicon Valley, Massachusetts’ Route 128, the Hardan district in Beijing, and Cambridge (Saxenian, 1994, Athreye, 2001).

Although the literature (e.g. De Propris et al, 2009) has established that organisations in the creative economy (including the creative, digital and cultural sectors) cluster too, and examined the dynamics through which this happens, very few studies have identified universities as a key (or direct) driver of creative clustering outside of their role as suppliers of creative talent. This is linked to a traditional unawareness of creative and cultural industries as potential beneficiaries of academic research by contrast to S&T (Science and Technology) based disciplines (a neglect that only recently has started to be remedied), difficulties measuring the impacts of academic research outside STEM (Science, Technology, Engineering and Mathematics), which is of relevance for the Creative Economy, and barriers to engagement between creative organisations and universities (linked to the small size of most creative organisations, and rapid changes in their markets).

b. Purpose

This report is the first output of the Brighton FUSE, an AHRC funded collaborative research project involving researchers at the Universities of Brighton and Sussex, Wired Sussex and the Confederation for Industry and Higher Education (CIHE) (see text-box for a summary). The report draws on the academic and policy literature, and the experience of Brighton’s universities and creative clusters, to take stock of what we already know about industrial and creative clustering, articulate the way in which universities can strengthen creative clusters (and the barriers to achieving this), and put forward good practices to achieve such beneficial impacts.

In doing this, the report will provide the AHRC funded Knowledge Exchange (KE) Hubs for the Creative Economy with a field guide to support the design and implementation of their KE programmes and initiatives.
We begin, in the following section, with a brief overview of the literature on industrial clusters - what they are, why they emerge and are some of their defining features. Having highlighted how clustering patterns differ across sectors, in Section 2 we identify some important features of sectors within the creative economy and the way they cluster which need to be taken into account by universities aiming to support their growth through ‘creative KE’ initiatives.

The rest of the report focuses on university – Creative Economy engagement. Section 3 lists a set of ‘academic activities’ through which universities can support the Creative Economy, while Section 4 focuses on the ‘reality’ of such engagement, outlining the barriers that stand in its way, presenting existing evidence about current modalities of engagement, and putting forward good practices for the design and implementation of Knowledge Exchange (KE) initiatives between universities and creative clusters.

Section 5 concludes the report.

1. **A primer on clusters**

   a. **Industrial clusters and their drivers**

   Persisting divergences in the economic performance of countries and regions in the face of globalisation and digitisation have brought industrial clusters back into the policy and academic debate (Martin and Sunley, 2003). Michael Porter, one of the main popularisers of the term, defines clusters as “Geographic concentrations of interconnected companies, specialised suppliers, service providers, firms in related industries, and associated institutions (for example universities, standards...
agencies, and trade associations) in particular fields that compete but also co-operate” (Porter, 1998:199)).¹

By contrast to classical economics accounts of international (or regional) trade, where different places specialise in the production of those goods for which they have a comparative advantage because of the widespread availability of (usually natural) resources – which is why, in David Ricardo’s account, Portugal made wine, and England made cloth –, the clusters literature argues that the mere presence of an critical mass of businesses in a given place can, by itself, become a source of competitive advantage (Porter, 1998, Krugman, 1991). It does so by generating:

- **Agglomeration economies**: Businesses in a cluster benefit from improved access to productive resources. This includes a large pool of specialised labour (prospective employees are attracted to the cluster, and this makes it easier to recruit personnel), infrastructure (the pooled demand from businesses in the cluster justifies investments in a transport or telecommunications network) and ancillary services (such as law, accountancy and investment firms with sector-specific expertise who locate close to a critical mass of potential clients and investees).

- **Effective value chain linkages (including proximity to markets)**: Proximity enables businesses in a cluster to coordinate their activities more effectively (for instance when a client gives a supplier feedback about the design of the components that she needs), and to build up trust (which reduces transaction – for instance legal – costs). By being located close to their markets (which can be other businesses, or consumers), businesses are able to access rapidly information about changes in demand, and respond adequately.

- **Spillovers**: Clustering generates beneficial knowledge spillovers – innovations (e.g. the adoption of new organisational practices and production processes) spread more easily between businesses located close to each other.

### b. Salient features of clusters

Here we examine some features of clusters in further detail, highlighting several open questions and debates around them. This way, we show that clusters are not a standardised concept - or a homogenous reality. There are significant differences between the clustering dynamics present (or not) in various sectors:

- **Sectoral composition**: In Porter’s definition, clusters are composed of firms in the same sector, or at different stages of a single value chain – some examples include the ‘industrial districts’ in the North of Italy or the German Mittelstand. Industrial specialisation makes it possible for these businesses to reap the collective benefits from clustering: they generate agglomeration economies and gain from information spillovers because their needs, capabilities and languages are similar, and they co-ordinate their productive activities better because they operate within the same value chain.

Advocates of the ‘Urbanisation economies’ view inspired by urban theorist Jane Jacobs (Jacobs, 1970) do however argue that it is diversity (rather than specialisation) in the industrial make-up of a place that generates the largest benefits (Feldman and Audretsch, 1999). This is because proximity between diverse industries creates the conditions for the

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¹ This is not to say that the geographical dimensions of economic growth and innovation had not been examined by scholars before Porter – cf. Martin and Sunley, 2003. However, it is the ‘clusters’ concept that has proved to be more popular amongst policymakers, managers and, eventually, academics.
serendipitous transmission of ideas across sector boundaries, giving rise to unexpected and novel kinds of innovation (Desrochers and Leppälä, 2011). The debate between both views continues in the literature (Beaudry and Schifauerova, A., 2009).

More recently, the ‘Related Variety’ concept has started to gain currency amongst economic geographers (Boschma and Iammarino, 2007). According to its proponents, diversity in a locality’s industrial composition generates benefits insofar as the sectors present are somehow related – for instance, because they draw on similar knowledge bases. This would explain why industries such as Software and Biotechnology benefit from proximity to each other in spite of their apparent differences – it is not only that Biotechnology companies draw on the services of software suppliers, but also that they recruit the same kind of talent, and many research methodologies and innovation approaches (e.g. data modelling and simulation techniques) are transferrable between them.

ii. Geographical proximity: The discussion above assumes that there are benefits from geographical agglomeration that are substantially captured within a cluster (and degrade or become negligible outside its ‘boundaries’). Businesses far away from the cluster will evidently find it harder to access infrastructures, labour pool and specialised services present there. Within the innovative milieu of clusters, face-to-face communication speeds up and improves the transmission of knowledge and information, and the accumulation of trust between participants (Storper and Venables, 2004, Gertler, 2008). This makes it easier to coordinate production and reduces transaction costs. Proximity is particularly important for the acquisition of ‘tacit’ knowledge that is difficult or expensive to codify into texts, blueprints or instructions that could be transmitted at a distance (Asheim and Gertler, 2005).

The geographical span of a cluster (and the ‘exclusivity’ of the benefits accruing those within it) depends on the characteristics of the knowledge on which a sector draws for its activities (its ‘knowledge base’). Where knowledge needs to be communicated face to face, or through close-knit social networks, there will be a stronger tendency to cluster in smaller geographical areas. This contrasts with fields where knowledge is easier to codify and communicate further away (for instance through academic papers, or in standardised blueprints for factories as is the case in high-volume manufacturing).

iii. Relationships and information flows within a cluster: A geographical agglomeration of businesses within a sector starts to become (and benefit from being) a ‘cluster’ when these businesses develop formal (e.g. supplier/buyer, collaborative R&D projects) and informal (social networking) relationships which help in the transmission of information between them, the coordination of productive activities and other forms of collective action (for instance joint investments in infrastructure, lobbying or bargaining with suppliers) (Saxenian, 1994, Murmann, 2006).

These relationships are not the only channels through which information flows within a cluster – when personnel moves across businesses (or spin-off from established companies) they take valuable knowledge with them (Power and Lundmark, 2003) Brokers and intermediaries such as support agencies, consultancies and professional services working within a cluster can also help to connect its information circuit (Porter, 1998)

iv. The role of large firms: Clusters are ecosystems – that is what sets them apart from ‘one company cities’ where there may be a strong degree of specialisation within a single sector, but explained by the presence of a large central player on which perhaps other smaller businesses – for instance specialist suppliers - rely. This does not mean that clusters are
formed exclusively of small and medium enterprises - large organisations (both private and public, such as universities) can act as valuable ‘anchors’ that support the activities of smaller organisations, help build international connections, and produce entrepreneurial spin-offs that drive innovation and competition in the cluster (Klepper, 2010, Adams, 2011).

v. International aspects: The emphasis on clustering as a source of competitive advantage needs to be balanced with an awareness of the high level of internationalisation in the value chains, markets and sources of innovation of many industries – successful clusters do not operate as ‘self-contained’ production or innovation hubs disconnected from globalised flows of resources and knowledge, but should instead be seen as ‘local nodes’ in global production pipelines (Bathelt, Malmberg and Maskell, 2004). The local connectivity that we have discussed is thus complemented with wider national and international linkages with other agents (for instance, suppliers, collaborators or clients)(Belussi, Sammarra and Sedita, 2010). This suggests that outward-looking, internationally connected clusters should, other things being equal, trump inward looking or nationally focused clusters.

vi. Dynamic aspects: Clusters emerge in an organic and arguably unpredictable fashion - the academic literature is much better at explaining why some regions become dominant in given sectors post-hoc, than it is at predicting the outcome of the competitive race before it happens (Malecki, 2007). The relationship between policy and clustering is not linear, and it is often unrelated interventions that bring about cluster growth in an unexpected fashion (e.g. Frederick Terman’s efforts to promote high-tech entrepreneurialism and semiconductor spin-offs in Silicon Valley – Leslie, 1996). Although one of the reasons for the popularity of the ‘cluster’ concept amongst policy audiences is its supposed practicality, the actual record of ‘cluster-building’ policy initiatives leaves, to this day, to be desired, partly because cluster policies have tended not to play sufficient attention to the specificities of the places where they are applied (Tödtling and Trippl, 2005).

What is clearer is that those clusters that do eventually become dominant (Silicon Valley in IT, Boston in biotechnology etc.) tend to benefit from virtuous circles that strengthen their position further, at least in the short and middle term. Agglomeration economies, value chain inter-linkages and knowledge spillovers make firms in the cluster more efficient and innovative vis a vis their competitors, driving growth and attracting highly skilled talent and investment (as when multinationals decide to base research labs in the proximity of a cluster, while keeping their production facilities in cheaper locations). Many of the relationships and networks that underpin the cluster are eventually formalised into interest groups, knowledge exchange networks or cluster organisations that help businesses within the cluster to coordinate their activities better and engage with (and lobby) other important actors (such as policymakers and educational institutions). Successful clusters are able to transform the local context to further their competitiveness by shaping the supply of talent, developing strong relationships with the research base, and influencing public spending and fiscal policies (Saxenian, 1994, Murmann, 2006).)

This does not mean that regional patterns of growth and industrial concentration are immutable – as the decline of the UK’s manufacturing industry, or automotive in Detroit, show. The fate of clusters is very much linked to wider trajectories of evolution and change in the sectors and markets where they participate - for instance, shifts from small-scale experimentation in the early days of an industry to large volume production once the industry becomes established may erode the rationale for clustering, and lead companies to relocate to lower cost areas. The literature on cluster lifecycles suggests that disruptive transformations in industrial sectors can bring about shifts in their geographical distribution,
leading to the emergence of new clusters and the decline of established ones, as past sources of competitive advantage turn into inertias that hinder adaptation to the new landscape (Menzel and Fornahl, 2010). Even then, robust, well-resourced and connected clusters have a head start in the race to harness the opportunities from such technological and market changes – not least because they are often the ones responsible for them.

2. Creative clusters

The previous section has shown that there is no ‘one size fits all’ model for industrial clustering. Different sectors will be attracted to places with specific characteristics, and benefit in diverse ways from clustering depending on the types of resources and infrastructures that they need to operate, the configuration of their value chain, their knowledge base, and wider dynamics of change in their technologies and markets.

This section describes those characteristics of sectors within the Creative Economy that explain their distinctive clustering dynamics, which we illustrate with an overview of Creative and Digital cluster in Brighton (Box 2.1 at the end of the section). But before doing so, it is important to define them, and introduce other influential ways of thinking about their geographical distribution and the role that the play in those places where they are located.

a. Definitions

Following the terminology in the AHRC’s Knowledge Exchange Hubs for the Creative Economy call\(^2\), we use the term ‘Creative Economy’ to refer to a collection of sectors including:


- The Digital and Information Technology industries captured within the ‘CDIT’ sector as described in the Confederation for Industry and Higher Education 2010 ‘The Fuse’ Report (CIHE, 20010). The Fuse articulates the increasingly digitalised nature of the creative industries, and highlights the significance of other digital industries such as Social Network and Search platform developers that are not considered explicitly within the DCMS definition of the creative industries.

- Sectors such as Heritage, Archives, Museums and Libraries which were excluded from the DCMS, yet are critical components the local artistic and cultural infrastructure.

For the sake of convenience, we use the term ‘creative’ or ‘Creative Economy’ sector to refer to sectors within these three ‘Creative Economy’ categories, encompassing both commercial, digital and not-for-profit cultural institutions and practitioners. This is also why we use the term ‘organisation’ (rather than business, with its commercial connotations), across the report. We do all of this mindful of the substantive differences between the sources of value, industrial dynamics,

\(^2\) http://www.ahrc.ac.uk/About/Policy/Documents/KEHUBEOICALL.pdf

\(^3\) Namely Advertising, Architecture, Arts and antique markets, Computer and video games, Crafts, Design, Designer Fashion, Film and video, Music, Performing arts, Publishing, Software, Television and Radio
technologies, audiences and knowledge bases of these different sectors. We highlight such differences were relevant.

Our definition of creative clusters mirrors, to begin with, that which was proposed by Michael Porter – a creative cluster is a geographical agglomeration of organisations within a Creative Economy sector that compete and collaborate with each other, as well as other support institutions including universities, and trade and funding bodies. One important feature of this definition is that it defines clusters around a single creative sector (e.g. an ‘Advertising cluster’ or an ‘Arts cluster’). However, as we will show, different sectors of the Creative Economy tend to cluster in the same places, and crucially comprise not only organisations such as creative businesses and arts and cultural institutions, but also freelancing and self-employed cultural and creative professionals.

This creative diversity has led some scholars to propose an alternative definition of creative clusters which goes beyond industrial specialisation to focus, instead, on the presence of a local community or network engaged in a wide range of cultural and creative activities. In this vein, De Propris defines a creative cluster as “(a) a place that brings together a community of ‘creative people’ who share an interest in novelty but not necessarily in the same subject; (b) a catalysing place where people, relationships, ideas and talents can spark each other; (c) an environment that offers diversity, stimuli and freedom of expression; and finally (d) a thick, open and ever changing network of inter-personal exchanges that nurture individuals’ uniqueness and identity” (De Propris et al, 2009). This definition appears to assume the presence of local organisations and projects providing employment opportunities for the creative communities that inhabit and comprise a creative cluster.

b. Related concepts

Creative Cities and Cultural Quarters are two influential concepts that have also been used to examine the geographical dimensions of creativity.

The concept of Creative Cities championed by Richard Florida has focused on the way in which certain features of cities (particularly an atmosphere of tolerance and the presence of cultural amenities) act as magnets for a ‘creative class’ (that encompasses not only cultural and creative practitioners but also managers, engineers, scientists and other knowledge workers) and the innovative (often high technology) companies that employ this creative class (Florida, 2002, Florida, Mellander and Stolarick, 2008). According to Florida, it is the presence of the ‘three Ts’ of Talent, Technology and Tolerance that lead to the emergence of ‘Creative Cities’, hubs of growth and innovation in the global economy. With its emphasis on the ‘human capital’ aspects of local creativity, Florida’s framework complements the focus on creative production systems implicit in the clusters approach.

Meanwhile, a Cultural Quarter is a ‘geographical area of a large town or city which acts as a focus for cultural and creative activities through the presence of a group of buildings devoted to housing a range of such activities, and purpose designed or adapted spaces to create a sense of identity, providing an environment to facilitate the provision of cultural and artistic services and activities’ (Roodhouse, 2010, p. 24). Cultural quarters are the visible manifestation of the clustering of specific creative sectors (e.g. heritage, music, performance and the arts) in urban areas, and they present important consumption, urban regeneration and tourism (in addition to production and business) dimensions.

c. Clustering patterns in the Creative Economy
Regardless of the framework that one uses to look at the geographical distribution of cultural and creative activities, it is clear that they tend to cluster strongly in specific places. This is exemplified by those ‘creative metropolises’ that dominate the creative and cultural landscape of their countries and, in some cases such as London, Paris, New York, Los Angeles or Tokyo (GLA Economics, 2002, Currid, 2007), also globally and, at a smaller scale, creative hot-spots such as those identified, for the UK, in Chapain et al, (2010).

The evidence shows that such clustering often brings together a wide range of sectors (in other words, these sectors ‘co-locate’) (Chapain et al, ibid, Lazzeretti et al, 2008). Quantitative studies of clustering and the patterns of co-location between different creative sectors in the UK, USA, Italy and Spain do however reveal that such co-location happens more frequently between sub-sets of related sectors (such as creative service providers or creative content providers) (Chapain et al, ibid, Lazzeretti et al, ibid, Currid and Williams, 2006).

Another important finding in the literature on creative clusters is that, differently from other sectors such as manufacturing, where the span of industrial clusters can be measured in kilometres (that is, the meaningful unit of analysis is the region or, in some cases, such as with pharmaceutics, the country), most creative organisations tend to cluster in close proximity to each other (within cities or, more often, specific neighbourhoods and city quarters) . This is perhaps best exemplified by the way in which diverse creative sectors can be found in different areas of London (film and visual effects cluster in Soho, while digital media companies can be found in Shoreditch) (Chapain et al, 2010, Pratt, in press).

d. The dynamics of creative clustering

The empirical patterns of clustering that we outlined are explained by some distinctive features of the creative economy (see Figure 1 for a summary, and De Propris et al, 2009, for an in-depth review of research on creative clusters).

- **Uncertainty in demand, reliance on creative talent and project-based working drives talent clustering:** Many creative sectors produce, distribute, commercialise and preserve goods, services and experiences (heretofore referred to as ‘outputs’) with expressive value (Andari et al, 2007) – this means that their value is (at least partly) determined by cultural, symbolic (e.g. uniqueness and authenticity) and aesthetic (including novelty) considerations rather than their mere usefulness, or the value of the intermediate inputs used to produce them. Expressive value is thus intangible and ‘socially constructed’ (it emerges through a dialogue within communities of cultural and creative practitioners, stakeholders and audiences) (Potts et al, 2008) - it is very difficult to anticipate whether a cultural or creative output will be successful (for instance, in terms of audience demand) – As American screenwriter William Goldman said when talking about the predictability of commercial success in the film industry, ‘Nobody Knows’. (Caves, 2002).

Creative talent is the main source of the expressive value in the Creative Economy. In many sectors, this creative talent is marshalled through projects (within specific organisations, or in some sectors such as film, outside) where teams of creative professionals (very frequently freelancers) come together temporarily, and disband once the project is over. This way,

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4 Of course, there are differences between sub-sectors regarding the balance between expressive value and use-value - compare design, which fulfils aesthetic and functional goals at the same time, with the performing arts whose value is almost purely expressive.

5 Most creative sectors (again, with exceptions such as arts and cultural institutions relying on substantial investments in infrastructure) are less capital intensive than other sectors such as manufacturing.
different skill-sets and disciplines are combined flexibly to generate novelty (Storper and Christopherson, 1987, Grabher, 2002).6

One implication of this is that creative professionals tend to have low job security, and often adopt portfolio careers (working in several projects at the same time) (Eikhof and Haunschild, 2006). Even in those creative sectors where firm-based employment relationships predominate (for instance, video games, digital media or visual effects), the unpredictability of demand results in a high level of ‘churn’ (enterprises go out of business very often). In the face of such uncertainty, creative professionals are attracted to locations with a critical mass of employment opportunities in many organisations, businesses and projects (so that once their current project is over – or their current employer goes under - they can easily find a new one) (Pratt, 2006, Sedita, 2008). The clustering of creative talent and organisations go hand in hand – the geographical concentration of labour makes it easier for local creative entrepreneurs and organisations to select from a large pool of talent the skill-sets that they need for a project, which makes them more competitive vis a vis those without such access.

- **Proximity to clients and consumers is also important in rapidly shifting markets**: Different creative sectors have distinctive value chains, business models, and customer focus (NESTA, 2006). While creative content providers such as film companies, music labels, authors and TV companies produce content that is often funded and distributed by ‘gatekeepers’ (e.g. studios, publishers or broadcasters), creative service providers (such as designers or advertisers) supply services to business clients. Arts and cultural practitioners often use the cultural infrastructure of museums, galleries and live venues to reach their audiences.

Regardless of their market focus, these organisations and professionals need to locate close to their markets (or in the case of sectors with ‘hybrid’ business models7, funders) so that they can rapidly access valuable information about new creative and commercial opportunities, and identify emerging trends that are relevant for their activities. For instance, a recent study of the design industry in London has shown that proximity to clients is one of the key factors that explains the sector’s strong concentration in the capital (Sunley et al, 2009) – being able to meet these clients face to face at the onset of a project is seen as key to build trust and a good working relationship, and obtain feedback rapidly.

- **Sector fragmentation and dynamism in markets and technologies increase the need for collaboration**: Most creative sectors have very skewed size distribution, with many micro, small and medium sized enterprises (and of course, freelancers and self-employed professionals) and a few large organisations (gatekeepers such as publishers, movie studios and broadcasters, as well as large scale arts and cultural institutions) (Andari et al, 2008).

In the face of this fragmentation, clustering helps creative organisations and professionals to build relationships with a reliable pool of potential collaborators (e.g. other businesses in the value chain) and freelance talent to scale up production when demand increases, and to develop smooth value chain inter-linkages which make them more efficient and flexible (Nachum and Keeble, 2003). In the fashion industry, where demands emerges to a large extent in a ‘bottom up’, chaotic way, these highly connected ‘industrial district’ models are

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6 In the case of the film industry in Hollywood, the end of the studio model (where a small number of large film producers kept most production capabilities in-house) was a consequence of increased uncertainty in demand linked to competition in film distribution, and from TV. The need to differentiate their output from the competition led studios to organise production through one-off projects, rather than through a ‘Fordist’ assembly line (Storper and Christopherson, 1987)

7 Bakhshi and Throsby, 2010.
seen as an efficient way of tapping into diverse sources of knowledge about the nature of demand, and minimising the risk of ‘not knowing’ what is happening in the market (Aage and Belussi, 2008).

- **Social networks are key for the dissemination of valuable information and knowledge:** Creative organisations mostly rely on two types of knowledge – synthetic knowledge (which is applied, practical and problem focused), and symbolic knowledge (which is aesthetic and social) (Asheim, Coenen and Vang, 2007, Gertler, 2008). Synthetic knowledge concerns the application of creative techniques to accomplish a goal (e.g. the achievement of a given aesthetic effect in a painting, or the coding of a software algorithm), while symbolic knowledge concerns the reasons to fulfil that goal (in the case of a painting, what the nature of the aesthetic effect to be achieved is, and why this is a worthy endeavour from an artistic standpoint).*

While synthetic knowledge is mostly acquired by engaging in a professional practice, and collaborating with clients and suppliers, symbolic knowledge is accessed (and built upon) through participation in debates and discussions taking place in cultural and creative communities and social networks that circulate, assess and validate new ideas and trends. These social networks are also important conduits for the dissemination of information about labour market opportunities, and act as repositories of knowledge that help put together creative projects quicker, and with more predictable outcomes (because many participants in a project will already have worked together in the past, and reputation within the network helps identify the right partners). These social networks operate more effectively when participants are able to communicate face to face, creating a ‘buzz’ around certain venues or locales (Storper and Venables, 2004) – all of which intensifies the tendency for the Creative Economy to cluster geographically by contrast to other industries where knowledge can be circulated in a codified format.

- **Sectoral crossover produces important benefits:** There are substantial flows of knowledge, personnel and resources across different creative sectors. There are several reasons for this: first, cultural and creative professionals are often inspired by other art forms outside of their area of ‘specialism’ (Currid, 2007) – this means that new ideas, techniques and trends move across sectors (think of Expressionism in art and film, or punk rock in music and fashion). Second, many creative projects draw on a wide range of disciplines (e.g. film projects incorporating actors, photographers, writers, visual effects software experts, fashion designers etc.), which means that there are important labour flows across sectors. Third, when cultural and creative professionals are not able to gain employment within their preferred area, they tend to seek work in other creative sectors rather than in the wider economy (a classic example here is aspiring novelists working in advertising or newspaper publishing) (Oakley, Sperry and Pratt, 2008).

These synergies and knowledge and labour flows between different creative sectors explain why they often cluster in the same places – this way, they increase demand for each other’s outputs (not least because artistic and cultural venues act as an infrastructure for networking) and improve access to complementary resources (e.g. suppliers of support services such as law firms or production facilities, and professionals with skill-sets that are relevant for several creative sectors at the same time). Such creative co-location helps in the transmission of ideas and innovations, often embodied in labour flows, across sectoral

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8 Some creative sectors operating in the frontier of technological knowledge may also need to tap on and build on analytic (theoretical and abstract) knowledge to develop wholly new technologies (this is the case with video games and computer science, or increasingly, advertising and statistics).
boundaries, in some cases leading to the emergence of new kinds of activities (the example of digital media clusters integrating advertising, marketing, software development and graphic design come to mind).

e. Other issues

The discussion above has sketched a general model of creative clustering, where some of the defining features of the Creative Economy generate a strong pressure towards geographical clustering comprising a diverse set of sectors. Here we examine a number of additional issues, such as factors that explain differences between creative sectors in their clustering (and co-location) patterns, the international dimensions of creative clusters and a brief overview of policy initiatives to catalyse and nurture local creativity, which will lead us into the impact of universities on creative cluster development (which is the focus of section 4).

- Different creative sectors present distinctive patterns of clustering and co-location:
  Although different creative sectors share a number of distinctive features, there are also significant differences between them that impact their clustering patterns. For instance, TV production companies tend to locate close to broadcasters and commissioners (e.g. BBC regional production bases in the UK) to access information about funding opportunities easily (Chapain et al, 2010, Bassett, Griffiths and Smith, 2002). Meanwhile, design and advertising companies are found in the vicinity of business clusters that use their services. Differences in a sector’s knowledge base are also important – software companies that rely on analytical knowledge (such as the outputs of computer science departments) will be attracted to places with a strong research base, while arts organisations where symbolic knowledge is more important will stay closer to cultural and creative social networks.

  Similarities and differences between creative sectors in their client and knowledge bases, talent pools and relevant infrastructures, as well as the extent to which they trade with each other inform the distinctive patterns of co-location that we highlighted in 2.c. For instance, creative content providers (including Radio and TV and film) draw on the same types of talent and support services (such as post-production), which means that they tend to be found in the same places (De Propris et al, 2009). Something similar happens between advertising and digital media companies, or arts, cultural and performing arts organisations that draw on a shared cultural infrastructure and often target overlapping audiences (Currid and Williams, 2007).

- Creative clusters and global networks: Many creative value chains are globalised – there is an international division of creative labour within sectors (Andari et al, 2007). This is a consequence of variations in costs (which has for instance led the video games sector to outsource labour-intensive activities such as testing, which are also less intrinsically creative and easier to ‘standardise’, codify and coordinate at a distance), an uneven distribution of resources (finance for film-making remains in Hollywood, but it funds projects all over the world, often produced with local talent), and the need to tap into local markets with distinctive tastes (and of course, languages).

  Large organisations with a global presence (such as multinationals), as well as footloose agents (for instance, venture capitalists in the case of sectors such as digital media) help integrate geographically distributed clusters. In other cases, it is the reputation or brand of a given cluster as a centre of creative excellence which attracts international collaborators and resources.
Figure 2.1: The implications of Creative Economy features for clustering
A growing body of research has examined how ‘temporary clusters’ (such as trade fairs, conferences and, crucially in the case of the Arts and cultural sectors, festivals and exhibitions) provide a setting where professionals and businesses from all over the world can come together to share knowledge, learn about the state of their field, and kickstart new relationships (Maskell, Bathelt and Malmberg, 2005). Overlaps and linkages between these events (think of the sequence of global fashion weeks in New York, London, Milan and Paris) have led some scholars to argue that they should be thought of as ‘cyclical clusters’ which are reproduced in a similar format across different places, thus helping ‘repeat’ attendants to build trust, which is more conducive to fruitful collaborations and the transfer of tacit kinds of knowledge (Power, 2008).

- **Local creativity policies:** Over the last three decades, there has been a strong policy drive towards building up the local Creative Economy as a way of increasing economic growth and employment, and regenerating urban areas hollowed out by the decline in manufacturing (O’Connor, 2010). This trend, linked to the popularisation of the creative clusters and cities, and cultural quarters concepts described previously, has led to substantial investments on ‘place-building’ and ‘urban brands’ through the erection of iconic buildings (best exemplified by the Guggenheim Museum in Bilbao), the transformation of downtown areas into cultural quarters, participation on competitions such as the European City of Culture, and the provision of generous subsidies for creative and digital content companies.

Although ‘kick-starting self-sustaining trajectories of regional innovation and growth’ (Chapain et al, 2009, p. 8) has obvious attractions for policymakers, the results of their efforts have been mixed. Cultural policy analysts and commentators have pointed out that the outcomes of large-scale investments on signature buildings have not been evaluated properly (Markusen et al, 2010), that many initiatives aimed at supporting the emergence of creative clusters have been ‘transferred’ from other places without paying sufficient attention to the local context (in other words, they have been ‘spatially blind’, McCarthy, 2005), or have followed a ‘one size fits all creative approach’ neglecting the differences between creative sectors (or, what works for design will not necessarily work for the arts) (De Propris et al, 2009). More substantially, there is a perception that regional policymakers have in some cases adopted an ‘aspirational’ rather than evidence-based approach to the development of local creativity, oblivious to (and unable to countervail) the strong centripetal tendencies towards creative clustering that we described above (Chapain et al, 2010).
Box 2.1: The Brighton Creative Cluster

De Propris et al (2009) identified Brighton as one of Britain’s leading ‘creative hotspots’ (places with a strong creative presence in more than one sector) using official business registry data and the DCMS definition of the creative industries. NESTA’s analysis showed that, of all the creative hotspots identified outside of London, Brighton was the one that showed greater diversity in its creative industries – it scored highly in creative content industries such as Radio and TV, Video Film and Photography, as well as digital media (Software, Computer Games and Electronic Publishing) and sectors with a stronger cultural component (Music and the Performing Arts). This contrasts with other places that tended to specialise either in creative content sectors, or creative service provision. Clifton’s (2008) application of Richard Florida’s Creative Class framework to the UK using 2001 census data also showed that Brighton has one of the highest concentrations of ‘bohemians’ (people in ‘Culture, Media and Sports’ occupations) in the UK.

A preliminary analysis of the evolution of the Brighton Creative, Digital and IT (CDIT) cluster undertaken as part of the Brighton Fuse project suggests that, between 2003 and 2008, employment in Brighton’s creative and digital industries grew by 22% (twice the rate of the wider South East, and three times as fast as Britain overall). The digital part of Brighton’s creative economy played an important part in this growth, with Brighton’s Software, Computer Games and Electronic Publishing sector effectively doubling its headcount during the considered period. According to our analysis, in 2008 the Brighton CDIT industries employed over 8100 people in around 2700 firms. In addition to this, in 2008 there were six thousand creative freelancers based in Brighton (Hackett and Massies, 2008).

Brighton and Hove boosts leading digital media agencies such as iCrossing, CogApp, PropellerNet and Nixon McInnes, video games studios (Relentless, Zoe Mode or Disney Online amongst others), film and TV producers (Ricochet, Electric Sky, Lambent), and music record labels (Skint, FatCat). It also has a vibrant arts and cultural scene, including 12 ACE regularly funded organisations, over 20 independent visual arts galleries and a plethora of music venues and theatres.

The Brighton creative and digital cluster has a strong reputation for its openness and high levels of collaboration and networking (HSBC, 2011). This is visible in a rich variety of technology and entrepreneurial meet-ups – Wired Magazine has identified 11 such ‘recurrent events’ taking place in Brighton, ranging from digital design in UX to Free and Open Source Software with Likemind (Wired, 2011). Wired Sussex has a membership of over 2000 businesses and freelancers in the digital media sector, providing them with business support services, visibility, access to office space and networking opportunities and events. Other local networks for creative professionals include BANG (Brighton Animators Networking Group), BMG (the Brighton Music Group) or Blip (which brings together creative artists, scientists and technologists). The high levels of crossover between creative, digital and cultural sectors is manifested in professionals who have ‘slash/slash’ careers that span commercial and not-for-profit activities (HSBC, 2011), as well as Brighton’s Digital Festival, a yearly celebration of digital culture where digital arts, innovation and entrepreneurship overlap. Brighton’s other ‘temporary clusters’ include Brighton Festival (which attracts over 300,000 visitors each year), Brighton Fringe (the third largest open-access multi-art form festival in the world), the Great Escape (an international showcase of new bands accompanied and music industry conference) and Develop Conference (one of the largest video games industry get-togethers in the UK).

Last but not least, Brighton is the home of two Universities – Brighton and Sussex - which between them enrolled over 26,000 undergraduates in 2009/2010. These universities host many prestigious schools and departments producing talent and knowledge relevant for the Creative Economy. We focus on them in section 3.
3. **The potential of university – creative economy engagement**

Having overviewed key features of creative clusters, we now look at the ways in which universities can impact on their activities. We do this after a brief overview of the wider university – industry engagement agenda, drawing on and augmenting a typology of impacts of publicly funded research developed by Martin and Tang (2007). The literature on ‘knowledge spillovers’ suggests that these benefits will, other things being equal, accrue first to businesses and organisations clustering close to a university, as they will be better able to develop the relationships leading to the emergence, identification and capture of these benefits.

*a. The University – Industry engagement agenda*

Policymakers and researchers have long recognised that universities are a cornerstone of the innovation system. However, their understanding of the relationships between these institutions, industry and society has shifted over the last few decades (Mowery and Sampat, 2005). In particular, there has been a move away from ‘linear’ models of innovation where universities were seen as independent wellsprings of new knowledge that then flowed downstream into industry, and towards more ‘iterative’ and ‘connected’ models that emphasise feedback loops and interactions across the innovation system (sometimes called ‘5th generation’ innovation systems) (Rothwell, 1994, Dodgson, Gann and Salter, 2005).

This has gone hand in hand with attempts to improve coordination between universities and industry so as to increase the economic impacts of publicly funded research. This in some cases controversial ‘impact’ agenda is visible in the US Bayh-Dole Act of 1980 (which enabled universities to patent and license the outputs from federally funded research), and the emphasis on ‘third stream’ activities in the UK.

*b. A typology of university activities that impact on the Creative Economy*

Science and technology intensive sectors have traditionally been seen as the most likely beneficiaries of the knowledge generated at universities, and this has influenced both policy and research. One important implication of this is that, until very recently, barely any studies have looked at the impact of university research activities (regardless of discipline) on the Creative Economy. Indeed, the definition of the creative industries adopted by DCMS in 1998 (see p. 10) emphasises the importance of ‘individual creativity and talent’ as a source of value for the creative industries, with no reference to the role of universities or other public institutions.

Recent reports such as Universities UK (2010) and The Fuse (2010) have shown that universities can support, through a wide range of activities, the Creative Economy, and that their impact on them are likely to, if anything, be magnified going forward as different creative sectors become more dependent on digital technologies for their production and distribution activities. Bearing this in mind, we have built on the typology of ‘exploitation channels’ for academic research proposed by Martin and Tang (2007) to articulate the ways in which university activities impact on the Creative Economy. When considering this typology, it is worth bearing in mind that the knowledge needs of

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9 We put forward this framework mindful of the work undertaken by researchers at the Cambridge Centre for Business Research (e.g. Hughes et al, 2011), who have focused on the ‘modes of interaction’ between universities and industry – including ‘People-based activities’, ‘Community-based activities’, ‘Commercialisation activities’, and ‘Problem-solving activities’. We contend that these two frameworks are complements rather than substitutes (insofar the modes of interaction capture the interfaces between universities and their external collaborators and audiences through which academic research outputs are shaped and disseminated).
different creative sectors vary – while some mechanisms will be key for some of them, they will be less relevant for others. One university activity that is not strictly academic (and therefore not considered below) but could play a potentially significant role in the case of Creative Economy is the demand for cultural and creative goods, services and experiences that universities generate. This includes the cultural and leisure spending of their academic staff and students, as well as university procurement of creative services (e.g. software, social media, design and web design, architecture or advertising).

The university activities that we have identified are thus:

1. **Increase and organise the stock of knowledge**: University research produces new knowledge that supports innovation in the Creative Economy. This includes STEM findings that are relevant for creative sectors operating at the technological cutting edge (e.g. software, video games, visual effects and digital sectors reliant on advances at the frontier of knowledge in computer science, maths or physics)\(^{10}\), social sciences research (e.g. in the area of management and innovation studies), and the outputs of Arts and Humanities scholars whose work can help creative businesses make sense of the emerging media landscape and develop the right competitive strategies to harness its potential (this is exemplified by the work on convergence and user generated content of MIT media scholar Henry Jenkins, and the studies of the global cultural industry undertaken by Scott Lash and Celia Lury at Goldsmiths). Some Arts and Humanities research outputs feed directly into creative economy innovation - It is no coincidence that the philosophical theories advanced by philosopher Ludwig Wittgenstein at Cambridge played a part in the development of Google’s search technology (Levy, 2011). Indeed, as the late Steve Jobs said when launching the latest iteration of the iPad tablet in 2011, ‘*Technology alone is not enough. It’s technology married with liberal arts, married with humanities, that yields the results that make our hearts sing.*’\(^{11}\)

Arts and Humanities departments also make important contributions to the stock of symbolic knowledge that animates the creative economy through their analysis, contextualisation and rediscovery of cultural artefacts, texts and trends, and the findings of practice-based research – these outputs feed into the discussions through which old and new ideas are validated and recombined within creative communities and networks.

Last but not least, many universities manage and provide physical (and increasingly digital) access to libraries, museums and archives. These are key resources (often literally, in the case of Open Access content that can be freely drawn upon and recombined) for the creative process.

2. **Create new instruments, tools and methodologies**: Research outputs are not only embodied in papers, books and presentations, but also in technologies – these can be the ultimate aim of a research project, or come about as a by-product of research, when new methodologies, techniques and tools are developed to address a research question (Salter and Martin, 2001).

As the Creative Economy comes to rely more on digital tools for the production, distribution and organisation of content, services and experiences, there is increasing scope for creative organisations to benefit from adopting these technological outputs of academic research. Some important instances where this has happened include the MP3 audio encoding format produced by the Fraunhofer Institute (which has revolutionised the music industry), or the techniques and

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programs developed with DARPA funding at the University of Utah, which now form the cornerstone of computer generated animation. It should also be noted that some of the sophisticated content analysis and visualisation techniques currently being developed by Arts and Humanities researchers could also be meaningfully deployed in the Creative Economy.12

3. **Supply human capital (‘talent’) including skilled graduates, researchers and continuous professional development:** Existing data show that the UK creative economy presents a higher proportion of university graduates in their workforce than most other industries (Skillset, 2009, Creative and Cultural Skills, 2010). This should not be surprising, given these sectors’ reliance on highly qualified creative talent to deliver expressive value, often through sophisticated technologies. As hubs of intellectual and social and demographic diversity bringing together experienced lecturers, researchers, practitioners and students, universities can nurture the creativity on which the Creative Economies thrive.

In the case of high tech creative sectors, a university education can also help students acquire a deep understanding of the core (slower changing) scientific principles of their field, which will then enable them to adapt to changes in applied techniques (for instance, in the dominant programming languages or software applications) when they happen. Consistent with this, the Livingstone and Hope Independent Review of Skills for the Video Games and Visual Effects industry revealed that almost three quarters of the video games workforce had at least an undergraduate degree and a quarter had postgraduate qualifications, including three per cent with PhDs.13

The renowned studio system of UK Arts Colleges helps future practitioners develop their craft and symbolic knowledge—via engagement in their chosen practice in interaction with their peers and (through outwards facing events such as exhibitions and degree shows) wider communities of creative practitioners (Oakley, Sperry and Pratt, 2008).

In addition to producing an inflow of new talent into the Creative Economy, universities can also help improve the skill sets of the creative workforce through the provision of Continuous Professional Development (CPD) courses. This is becoming increasingly important as changes in the landscape make old techniques and ways of working obsolete, and senior creative personnel realise that they need to top up formally the business skills that they have ‘picked up in the job’ in order to scale up their organisations and manage their creative process (an area where Arts and Humanities scholars—from arts to design—have much to contribute) (Sapsed et al, 2008).

4. **Build and convene networks:** As we showed before, networks are key for creative clusters—they act as channels for the dissemination and debate of new ideas, as well as valuable information about projects and work opportunities. Temporary and cyclical clusters such as festivals and conferences help, on their part, in the development of wider national and international connections. Universities can support these networks by providing hubs—for instance, cultural venues such as museums and exhibition and performance spaces, as well as conferences and festivals—for established creative communities, and brokering relationships between disconnected creative organisations and practitioners.

5. **Problem solving:** Universities increasingly deploy their expertise, equipment and facilities to help businesses and other stakeholders solve practical problems. This can be done through contract research, consultancy work, or other mechanisms for university-industry collaboration such as Knowledge Transfer Partnerships (KTPs). Many of these services may be relevant for

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13 The figures for the visual effects industry are very similar, see NESTA, 2011.
small creative organisations lacking the time or resource to resolve urgent technical or organisational challenges, or to ‘stand back from their day-to-day’ and think strategically about emerging challenges and opportunities in their markets.

The scope of disciplines and university staff with Creative Economy-relevant problem-solving expertise is potentially very wide, encompassing STEM researchers that can develop useful technologies and research methods, social scientists and business/innovation researchers who can help address management and strategic problems, and Arts and Humanities scholars with expertise on media and artistic and creative practice. The potential value of this pool of research expertise for the Creative Economy is illustrated by the recently launched Digital R&D for the Arts fund jointly funded by the Arts Council England, NESTA and the AHRC 14 – one of the goals of this fund is to improve the learning outcomes from digital innovation in arts and cultural organisations by partnering them with research teams often composed of academics who have the skillsets required to evaluate rigorously the impacts of such innovations, thus generating knowledge which is relevant for the wider sector.

6. **Supporting entrepreneurship:** Universities contribute to entrepreneurial capacity through ‘spin-off’ firms that commercialise academic research outputs and technologies. Some provide incubator spaces for start-up companies. As the Creative Economy becomes more technology intensive, there should be greater opportunities for university spin offs providing innovative tools and services for cultural and creative markets. Small creative businesses also stand to benefit from low cost access to high quality infrastructure, studio and office space in the proximity of university experts and other innovative businesses, with the ensuing opportunities for networking and information sharing.

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<table>
<thead>
<tr>
<th>Activity</th>
<th>Outputs</th>
<th>Observations</th>
</tr>
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<tbody>
<tr>
<td><strong>Increase and organise the stock of knowledge</strong></td>
<td>Papers, books, dissertations and reports</td>
<td>High tech creative sectors rely on advances in the state of STEM knowledge</td>
</tr>
<tr>
<td></td>
<td>Workshops, conferences and presentations</td>
<td>Arts and humanities research helps creative organisations make sense of emerging media landscapes, and contextualise and understand creative ideas and cultural trends</td>
</tr>
<tr>
<td></td>
<td>Archives, museums and content repositories</td>
<td>Practice-based research outputs act as sources of new ideas, inspiration and debate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Archival content inspires and, in some cases, form part of new creative works</td>
</tr>
<tr>
<td><strong>Create new instruments, tools and methodologies</strong></td>
<td>Patents and other IPs [E.G. copyright; informal IP advantages]</td>
<td>Technology outputs from STEM disciplines are valuable for increasingly digitised creative sectors.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Methodologies and tools developed by Arts and Humanities researchers are applicable in the Creative Economy.</td>
</tr>
<tr>
<td><strong>Supply of talent/human capital</strong></td>
<td>Graduates and post-graduates</td>
<td>Creative talent is the main source of value in the Creative Economy.</td>
</tr>
<tr>
<td></td>
<td>Events that socialise graduates into wider creative communities</td>
<td>Rapidly shifting technologies and markets mean that practitioners need strong 'core skills' that can be adapted rapidly to new developments in the field, as well as ways to upgrade their skillsets.</td>
</tr>
<tr>
<td></td>
<td>CPD courses</td>
<td>Studio model in UK Arts colleges help students to learn their practice and get socialised within their peer group and wider creative communities</td>
</tr>
<tr>
<td><strong>Build and convene networks</strong></td>
<td>Events, conferences and workshops</td>
<td>Highly networked creative organisations use university events and spaces as venues for discussion and information sharing</td>
</tr>
<tr>
<td></td>
<td>Festivals, exhibition and performances</td>
<td>University conveyed/sponsored ‘temporary clusters’ support the creation of wider connections (e.g. from regional to national to international)</td>
</tr>
<tr>
<td><strong>Problem solving</strong></td>
<td>Contract and collaborative research and access to facilities</td>
<td>Creative SMEs draw on university expertise &amp; infrastructures to resolve technical and organisational challenges, and access strategic insights</td>
</tr>
<tr>
<td></td>
<td>Consultancy</td>
<td></td>
</tr>
<tr>
<td><strong>Support entrepreneurialism</strong></td>
<td>Spin offs</td>
<td>The potential of spin offs as a channel for the commercialisation of STEM outputs for cultural and creative markets increases as the Creative Economy becomes digitised</td>
</tr>
<tr>
<td></td>
<td>Start-up incubators and SME Networks</td>
<td>Incubators help high growth creative businesses by providing them with cheap office space, access to university expertise &amp; opportunities to network with other organisations</td>
</tr>
</tbody>
</table>
c. Geographical dimensions of university impacts

In principle, any creative organisation could conceivably benefit from some of these ‘Academic activities’, regardless of whether it is clustered close to the university exercising them or not. This is particularly the case for those university activities that produce ‘codified’ outputs (such as papers or books), and technologies and platforms (e.g. online archives) that can be adopted or accessed without the need to interface with their creators. The opposite is true of ‘spatially anchored’ functions such as the spaces and venues that support creative networking, or business incubators (all of which require, by definition, proximity or even location within the university offering them).

Other things being equal, one would in any case expect businesses close to a university engaging in these activities to accrue more benefits from them because proximity makes it easier to develop a close relationship with it.\(^{15}\) This applies to all the activities outlined above – in the case of ‘access to the stock of knowledge’, organisations connected to a university will find out sooner about promising research findings, and even be able to influence the direction of research to address their needs. Something similar happens with the production of talent, the advantage for businesses being the ability to access the ‘cream of the crop’ amongst students, and shape course content to address its needs. Where they exist and are prioritised, good relationships enable businesses and universities to decrease the transaction costs of engaging with each other (e.g. identify the right person to speak to), build up trust and learn about each other’s needs and capabilities (what can they do for each other). SME’s who lack the capacity to build distant relationships with far-away universities (or even set up a facility in their proximity) are especially reliant on the universities in the vicinity (HMT, 2003).

4. The reality of University – Creative Economy engagement

Having outlined how university activities can impact on creative organisations (and their clusters), here we examine the reality of engagement between both groups – what is the quantitative evidence of this taking place, what are the barriers standing in the way of more and more effective engagement, and what are the good practices that universities seeking to engage in KE with the Creative Economy can adopt to overcome these barriers and increase their beneficial impacts.

a. Evidence of University – Creative Economy engagement

Over the last few years there have been several large-scale surveys of University – Industry engagement (UIE), but these have usually been organised around academic disciplines rather than industries – this means that their findings capture differences between the patterns of external collaboration of different disciplines, but not the reverse, that is, how different industries engage with universities.\(^{16}\) Although it is clear that the propensity to tap into particular knowledge bases should differ across industries (e.g. advanced manufacturing will be attracted to engineering departments, and pharmaceuticals will collaborate with health sciences), the disciplinary focus of recent UIE studies makes it difficult to study creative sectors which, as we showed above, have reasons to engage with a wide range of academic disciplines (from Arts and Humanities to social sciences and STEM).

\(^{15}\) This is a robust finding from the literature on knowledge spillovers from academic research that has mostly focused on STEM disciplines and industries (Anselin, Varga and Acs, 1997). The value of proximity explains why multinationals often set research labs and facilities close to leading universities in spite of the fact many of the research findings that those universities generate are publicly available in reports and peer-reviewed publications.

\(^{16}\) One exception to this is Bruneel at al (2008), which focuses on the EPSRC’s industrial collaborators, but does not consider creative organisations.
Tables 4.1, 4.2 and 4.3 present some selected findings from these studies, focusing on Creative Arts and Designs institutions and Arts and Humanities scholars, who could be expected to engage more frequently with creative organisations than ‘generalist’ institutions, and academics in other disciplines.

Table 4.1: Partners/customers targeted by knowledge exchange strategies

<table>
<thead>
<tr>
<th>Partners</th>
<th>All (n=125)</th>
<th>CAD (n=18)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMEs</td>
<td>83</td>
<td>83</td>
</tr>
<tr>
<td>Public organisations</td>
<td>72</td>
<td>67</td>
</tr>
<tr>
<td>Large corporations</td>
<td>50</td>
<td>17</td>
</tr>
<tr>
<td>Other voluntary sector</td>
<td>30</td>
<td>33</td>
</tr>
<tr>
<td>Other private sector</td>
<td>25</td>
<td>22</td>
</tr>
<tr>
<td>Charities</td>
<td>18</td>
<td>22</td>
</tr>
<tr>
<td>Freelance workers</td>
<td>13</td>
<td>50</td>
</tr>
</tbody>
</table>


Table 4.3: Rationale for engagement

<table>
<thead>
<tr>
<th>Rationale for engagement</th>
<th>Average (n=365)</th>
<th>CAD (n= NA*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>University economic development focus</td>
<td>(n=130)</td>
<td>(n=19)</td>
</tr>
<tr>
<td>Meeting national skills needs</td>
<td>28</td>
<td>63</td>
</tr>
<tr>
<td>Supporting SMEs</td>
<td>38</td>
<td>47</td>
</tr>
<tr>
<td>Access to education</td>
<td>55</td>
<td>37</td>
</tr>
<tr>
<td>Graduate retention in local region</td>
<td>20</td>
<td>32</td>
</tr>
<tr>
<td>Attracting non-local students to the region</td>
<td>14</td>
<td>32</td>
</tr>
<tr>
<td>Support for community development</td>
<td>14</td>
<td>32</td>
</tr>
<tr>
<td>Meeting regional skills needs</td>
<td>35</td>
<td>21</td>
</tr>
<tr>
<td>Research collaboration with industry</td>
<td>39</td>
<td>16</td>
</tr>
<tr>
<td>Technology transfer</td>
<td>30</td>
<td>11</td>
</tr>
<tr>
<td>Developing local partnerships</td>
<td>17</td>
<td>5</td>
</tr>
<tr>
<td>Spin-off activity</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Motivations of external organisations engaging with university (high or medium importance)</td>
<td>(n=365)</td>
<td>(n= NA*)</td>
</tr>
<tr>
<td>Enhanced branding of the organisation</td>
<td>16</td>
<td>50</td>
</tr>
<tr>
<td>Improve marketing/market information</td>
<td>16</td>
<td>50</td>
</tr>
<tr>
<td>Improve customer service</td>
<td>14</td>
<td>50</td>
</tr>
<tr>
<td>Enhance workforce skills/training</td>
<td>35</td>
<td>42</td>
</tr>
<tr>
<td>Develop new products/diversify activities</td>
<td>26</td>
<td>41</td>
</tr>
<tr>
<td>Enhance management skills/knowledge</td>
<td>22</td>
<td>41</td>
</tr>
<tr>
<td>Improve business strategy</td>
<td>13</td>
<td>33</td>
</tr>
<tr>
<td>Enhance technology capability</td>
<td>28</td>
<td>25</td>
</tr>
<tr>
<td>Improve product quality/reliability etc</td>
<td>19</td>
<td>25</td>
</tr>
<tr>
<td>Obtain access to grants</td>
<td>12</td>
<td>25</td>
</tr>
<tr>
<td>Enter new markets</td>
<td>11</td>
<td>25</td>
</tr>
<tr>
<td>Introduce new management systems</td>
<td>7</td>
<td>25</td>
</tr>
<tr>
<td>Enhance technology capacity</td>
<td>22</td>
<td>17</td>
</tr>
<tr>
<td>Increase fundraising</td>
<td>6</td>
<td>17</td>
</tr>
<tr>
<td>Increase employment/recruit personnel</td>
<td>14</td>
<td>16</td>
</tr>
<tr>
<td>Obtain access to HEI facilities</td>
<td>45</td>
<td>8</td>
</tr>
<tr>
<td>Part of graduate recruitment strategy</td>
<td>23</td>
<td>8</td>
</tr>
</tbody>
</table>
Before starting this overview, it is worth highlighting that the ‘creative industries’ are identified as a target sector for external engagement by 81% of all universities responding to the latest HEFCE HE-BCI (Higher Education and Business Community Engagement) survey – they are the most frequently mentioned sector in the survey, followed by energy (which is identified by 36% of respondents) (CBR/PACEC, 2010).

1. Engagement between Creative Arts and Design universities and external organisation:
   Tables 4.1, 4.2 and 4.3 summarise findings originally reported in the evaluation of Third stream funding by PACEC and CBR in 2010. They are based in responses to the HE-BCI Survey, a survey of academics working in institutions classified as ‘Creative Arts and Design’ (CAD) and a survey of external organisations that collaborate with universities. As mentioned, and given the specialisation of these institutions, we would expect many of their collaborative activities (although surely not all) to involve creative organisations. Reciprocally, it is clear that there will be creative organisations engaging with institutions within the wider population of universities (not least with their Arts, Design and Media departments), but there is no data to establish the magnitude of this phenomenon, or the modalities through which it occurs. What we hope to do here is capture some patterns of interaction and business/organisational goals which could be expected to reflect the distinctive nature of creative sectors’ needs and preferred modes of engagement (rather than other sectors).

<table>
<thead>
<tr>
<th>Activity</th>
<th>All</th>
<th>CAD</th>
</tr>
</thead>
<tbody>
<tr>
<td>External engagement</td>
<td>(n =1,116)</td>
<td>(n= 24)</td>
</tr>
<tr>
<td>Attending conferences with external organisation participation</td>
<td>56</td>
<td>63</td>
</tr>
<tr>
<td>Participation in networks involving external organisations</td>
<td>32</td>
<td>52</td>
</tr>
<tr>
<td>In-course student projects, placements or Knowledge Transfer Partnerships</td>
<td>20</td>
<td>41</td>
</tr>
<tr>
<td>Provision of public exhibitions</td>
<td>5</td>
<td>35</td>
</tr>
<tr>
<td>Giving lectures/talks for (non-HEI) external organisations</td>
<td>34</td>
<td>31</td>
</tr>
<tr>
<td>Providing informal advice on a non-commercial basis</td>
<td>35</td>
<td>29</td>
</tr>
<tr>
<td>Providing CPD</td>
<td>21</td>
<td>22</td>
</tr>
<tr>
<td>Post-course placements with external organisations</td>
<td>14</td>
<td>20</td>
</tr>
<tr>
<td>Enterprise education</td>
<td>4</td>
<td>19</td>
</tr>
<tr>
<td>Consultancy agreement (no original research undertaken)</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>Joint curriculum development</td>
<td>10</td>
<td>16</td>
</tr>
<tr>
<td>Provision of community-based performance arts</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td>Contract research agreement (original research work done by the HEI alone)</td>
<td>18</td>
<td>6</td>
</tr>
<tr>
<td>Joint research agreement (original research undertaken by both partners)</td>
<td>17</td>
<td>4</td>
</tr>
<tr>
<td>Commercialisation</td>
<td>(n = 791)</td>
<td>(n =13)</td>
</tr>
<tr>
<td>Applied research through knowledge transfer</td>
<td>36</td>
<td>53</td>
</tr>
<tr>
<td>Formed/run a consultancy via your research</td>
<td>18</td>
<td>40</td>
</tr>
<tr>
<td>Taken out a patent</td>
<td>13</td>
<td>7</td>
</tr>
<tr>
<td>Licensed research outputs to a British-owned company</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Licensed research outputs to a company in the region</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Formed a spin-out company in the local area to exploit research</td>
<td>5</td>
<td>7</td>
</tr>
</tbody>
</table>

Table 4.1 shows that CAD universities target similar kinds of parties as the population of universities overall, with two important exceptions – large companies (who they target much less frequently), and freelancers (where the situation is the opposite). This pattern appears to reflect the fragmented industrial structure and workforce composition of many creative sectors.

Table 4.2 presents the development focus of universities’ KE activities, and the reasons why external organisations engage with them. It suggests that CAD universities specialising on the Creative Economy area focus on the development of talent (with a national rather than regional focus), and collaborating with SMEs and communities, rather than on technology transfer or industrial research. Meanwhile, the motivations for engagement with CAD universities reported by external organisations (many of which could be expected to be creative organisations, as we said), are varied, with a stronger focus on organisational branding, marketing, training and skills, and management and new product development than access to technology or facilities (caution is nevertheless advised in the interpretation of these results given the small number of observations).

Table 4.3 focuses on the types of activities through which CAD academics report having engaged with external collaborators (and commercialised their research) over the three years prior to the survey. The results are in line with the university economic development focus described above – CAD engagement primarily takes place through skills, network and event-related activities, rather than contract or joint research. Regarding commercialisation, CAD academics are much more likely to ‘apply their research through knowledge transfer’ and, particularly, form or run consultancies than they are to take out patents (the proportion that report doing so is half that for the sample of respondents overall).

2. **Knowledge exchange activities undertaken by Arts and Humanities scholars:** In a recent report, researchers at the Business Research Centre at Cambridge University have examined KE activities by Arts and Humanities scholars using business and academic survey data (Hughes et al, 2011). Similarly to above, we assume that Arts and Humanities will tend to collaborate more frequently with creative organisations than those in other disciplines, an implication of this being that the modalities of engagement that we report reflect, at least in part, some of the distinctive motivations and channels through which the Creative Economy engages with universities.

Arts and Humanities scholars are shown to carry out research that is relevant for non-commercial organisations to a larger extent than those in other disciplines, and consequently, to engage in commercialisation activities less often – patents in particular seem to play a negligible role in the commercialisation of Arts and Humanities research.

There are, however, important differences across different Arts and Humanities sub-disciplines, with a quarter of Creative Arts and Media respondents reporting that their research is commercially relevant (by contrast to 6% in other Arts and Humanities disciplines), and engaging in commercialisation activities mostly through consultancy, as well as spin-off companies. These researchers tend to define their work as ‘applied’ or ‘user-inspired’ much more often than other Arts and Humanities scholars, in line with researchers outside Arts and Humanities (see figure 4.1).

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17 This result may be partly explained by the inclusion in the CAD category of several elite institutions with a strong focus on the development of artistic talent (such as colleges of Art and conservatories).
Interestingly, businesses with Arts and Humanities interactions are more likely to change their corporate strategies, and marketing strategies, and to introduce ‘advanced management techniques’. Business motivations to engage with Arts and Humanities universities are in line with those reported above, with marketing, sales and human resource management activities predominating.

b. **Barriers to engagement between universities and the Creative Economy**

Although the previous sub-section suggests that there is engagement between universities and the Creative Economy, other accounts (e.g. Chapain et al, 2010), support the idea that, at least in those clusters that were studied, universities tend not to be seen as a source of innovation or a potential collaborator by creative businesses. This echoes longstanding concerns about mismatches between the supply and demand for university research (addressed in HMT, 2003 and Dyson, 2010 amongst others), intensified by certain features of the Creative Economy, and of the dominant technology-centric framework for the exploitation of publicly funded research:

1. **Small and micro creative organisations lack the resources and absorptive capacity to engage with universities**: Building relationships with a university requires time and, in the case of more formal collaborations such as research contracts, money—two things that are usually in short supply for creative SMEs and micro-businesses. Recent research has shown that companies with less than 20 employees are much less likely to collaborate with universities than larger companies, and that the main barriers that they face in using external sources of innovation are insufficient financial resources and time constrains (Cosh and Zhang, 2011). Fragmentation in the Creative Economy has already been put forward as the main barrier to engagement between universities and the UK creative economy (Universities UK, 2010). This view is supported by AHRC-funded research on the interactions between business and Arts and Humanities scholars (Hughes et al, 2011), and NESTA’s assessment of the skills needs of the video games and visual effects industries (which showed that the main reason why companies in these industries do not engage with educational institutions is that ‘they are too busy’) (NESTA, 2011).
The lack of bandwidth and time to engage with universities is exacerbated for the freelancers and sole-traders that comprise a substantial proportion of the creative workforce in sectors such as the Arts, Radio and TV, Music, Designer Fashion or Film (Skillset, 2009).

2. **Pervasive change in creative technologies and markets make it difficult for universities to keep up:** Resource-constrained creative organisations will seek to build relationships with universities where the perceived benefits from such collaboration are highly visible. This means that universities need to offer knowledge, skills and services that are relevant and up-to-speed with the needs of the Creative Economy - this entails keeping pace with the rapid transformations taking place in these sectors. But this is easier (and more cheaply) said than done: the evidence does in fact suggest that the long-term orientation of universities creates barriers to industry research collaboration in other sectors (Bruneel et al, 2009). The ‘basic research’ orientation reported by many Arts and Humanities scholars (and highlighted above) may thus hinder collaboration with creative organisations.

NESTA research on high-tech creative industries such as video games or visual effects has shown that businesses opt for private training providers instead of universities as a source of CPD because the former are seen as more responsive to changing industry needs, and also able to incorporate new (often expensive) tools and practices in their courses. The main challenge for universities, beyond becoming more flexible (for instance in terms of how quickly can curricula be redesigned) is to develop effective communication channels with creative organisations through which to acquire up-to-date intelligence about industry trends and needs, and respond to these in ways which exploit the distinctive advantages of universities and complement (rather than compete with) private providers.

3. **Disciplinary research and teaching are not well aligned with the way many creative organisations work:** It is common knowledge that the complex problems faced by businesses ‘in the real world’ do not necessarily map well against the disciplinary categories that most universities use to organise their research and teaching. This means that industries and domains where there is a high degree of crossover between different areas of knowledge will find it harder to benefit from disciplinary academic outputs, or to develop fruitful relationships with universities (amongst other things because these will require the creation of new links within different parts of the university, in addition to those that need to be developed between the university and the firm in question).

The Creative Economy overall is highly interdisciplinary as they need to integrate synthetic and symbolic knowledge, technology and business practice to create value (Universities UK, 2010). In the case of high-tech sectors such as video games or visual effects, they bring together mathematicians, physicists, programmers, designers and artists under one roof (NESTA, 2011). In order to be able to work with each other, these practitioners need a keen understanding of, each other’s practices, which often requires ‘hybrid skillsets’ (bringing together creativity, technology and business) - something that universities are, in most cases, not naturally geared to provide (Skillset 2009, NESTA, 2011).

4. **Policymakers have adopted a ‘widget-centric’ approach to Knowledge Exchange which neglects what non-STEM disciplines have to offer, and what non-S&T industries need:** There is an increasing perception that the way in which the agenda for Knowledge Exchange (KE) between universities and industry has been configured, with its emphasis on the transfer of physically embodied technology (i.e. widgets)- to industry via conventional IP
instruments such as licenses and patents does not reflect the reasons why most industries interact with academia.\textsuperscript{18} This misalignment between policy assumptions and business needs is particularly visible in the case of less S&T intensive industries and non STEM disciplines such as many creative sectors, or the Arts and Humanities – as we have shown above, patents, contract research and access to facilities play a smaller role in university – industry engagement by contrast to ‘softer’ (but not necessarily less impactful) sorts of engagement.

The current funding regime for KE and internal incentives at university mean that academics in disciplines whose outputs are less amenable to commercialisation through patents or collaborative research contracts may be discouraged from building mutually beneficial relationships with industry because such relationships are not likely to be recognised or rewarded (especially given the disciplinary focus of most assessment frameworks). Recent AHRC funded studies lend support to this view with respect to the activities of Arts and Humanities scholars. Lack of time, resources and rewards, and university bureaucracy, are the main two barriers for interaction with external parties reported by Arts and Humanities scholars (Hughes et al, 2011), something that is also reflected in the outputs of the AHRC Impact Fellowships on the impact of universities in the creative economy.\textsuperscript{19}

c. Creative Knowledge Exchange in Action

In this sub-section, we put forward five aims for KE initiatives for Creative Clusters, within which we identify good practices in design and implementation. We illustrate each of the themes with case studies from Brighton’s universities and creative clusters.\textsuperscript{20} We do this taking into account the defining features and dynamics of creative clusters described in Section 2, and the opportunities and challenges for University – Creative Industry engagement overviewed in Section 3 and the previous sub-sections.

It should be noted that our main focus is on the design, implementation, communication and governance of KE between universities and creative organisations, rather than the creation of incentives within universities for more Creative KE - a longstanding challenge that we have touched on above. This is because our recommendations are primarily aimed at the KE Exchange Hubs for the Creative Economy sponsored by the AHRC. Our working assumption is that, by virtue of their selection for the programme, the institutions hosting these hubs will have the leadership and resource to ensure a strong internal commitment to KE. Here we put forward ways to ensure that that commitment is realised in ways which are beneficial and relevant for the creative organisations with which they partner.

1. Build relationships: Strong relationships are a precondition for beneficial KE between universities and creative clusters. Only by developing such relationships can universities gather intelligence about the sector’s needs, put in place initiatives to address them, deliver

\textsuperscript{18} For instance, even in the case of industrial collaborators in EPSRC research, access to prototypes and ‘close-to-market’ solutions rank very low among the perceived benefits from interaction by contrast to the creation of long term relationships, recruitment and improved understanding of knowledge ‘foundations’ (Bruneel et al, 2009).

\textsuperscript{19} http://www.ahrc.ac.uk/FundedResearch/Pages/FellowshipintheImpactofHigherEducationontheCreativeIndustries.aspx

\textsuperscript{20} While reading the case studies, the reader will notice that they are not limited to achieving a single aim, and that they comprise good practices cutting across the categories that we put forward. Although this has made it difficult for us to classify them within our framework (e.g. we examine Profitnet as a capacity-building initiative (aim 4), but it is also a network (aim 5)), it is also the reason why they produce real-life impacts.
them in ways which are fit for purpose, and communicate their value to ensure adoption. The question that emerges immediately, is how can such relationships be developed and maintained in the face challenges such as sectoral fragmentation and lack of absorptive capacity amongst creative organisations, and information about what universities can do for them?

The following strategies can help build and strengthen these relationships:

- **Identify the voice of the cluster, or build one:** Healthy creative clusters often develop membership bodies encompassing relevant creative organisations and local agents. Some examples include Wired Sussex or Game Republic. In the case of those creative sectors with high levels of geographical concentration, such as Visual Effects (which is found predominantly in Soho), national trade bodies (i.e. UK Screen) can be seen as the effective voice of the cluster. Universities should engage with these networks if they are not already, as it will help them to access information about the needs of their local creative clusters in an effective, scalable way. It is however important to ensure that this strategy does not neglect agents or sectors that are currently disconnected from existing networks. A preliminary mapping effort of the local creative players may help to establish whether this is the case, and build links with those who are missing from existing collaboration platforms.

If local creative networks do not exist, universities should seek ways to develop them. Chapain et al (2010) argued that there are places in the UK where there is a critical mass of creative organisations unaware of each other, and therefore unable to harness the potential benefits from clustering – linking up local creative organisations can help turn ‘latent’ (or ‘hidden’) clusters into actual, visible ones, generating benefits such as those we described in sections (1) and (2), as well as improving communications with universities. Music Tank (http://www.musictank.co.uk/) and Un-convention (http://www.unconventionhub.org/) are two examples of (admittedly extra-local) fora catalysed and supported by universities (Westminster and Birmingham City University respectively), where music labels come together to discuss common issues and emerging trends, and find ways to support each other, generating valuable intelligence for the universities involved.
Ensuring relevance: Working with Wired Sussex through the Sussex Internship Programme (SIP)

Businesses in Brighton’s creative and digital sector consistently identify a lack of skilled individuals as a significant barrier to growth. At the same time, there is evidence that many graduates in the Sussex area (and particularly in the city of Brighton) are working in non-graduate employment because they are unable to find a job in those same sectors that complain about skills shortages.

Creative and digital firms are usually small or even micro businesses and as such try to minimize the risk of taking on new employees by requiring experienced candidates. They lack capacity and resources to develop useful internship programmes to ‘road test’ graduates, and often end up with inappropriate recruits, to everyone’s loss. Recent graduates, on their part, face the classic ‘catch 22 situation’ where they cannot get a job without experience, but they cannot get experience without a job.

Sussex Internship Programme (SIP) was launched to address this problem. SIP - funded by BHCC, SEEDA, HEFCE and the participating companies - was developed around the needs of businesses – indeed it was delivered by Wired Sussex, the ‘voice’ of Brighton’s digital media cluster, with the active and necessary support of the University of Sussex. This set the programme apart from other schemes which tend to be delivered by universities on their own.

Businesses participating in the scheme were required to undertake a half-day diagnostic with Wired Sussex to think strategically about where could the graduate internship benefit them most. After this, a relevant project (typically running for 20-30 days) was agreed, and graduates were invited to apply for the internship, in a process mirroring a conventional job application (including telephone and face-to-face interviews and, if relevant, a portfolio or showreel). Wired Sussex managed all the candidate filtering (apart from the final decision), contractual arrangements, grant payments and Human Resources issues during the internship in order to reduce its burden for the business participants. It also organised workshops for interns in areas that participating businesses had identified as important, and provided the interns with opportunities to share their experience.

Over the last three years, SIP has helped over 250 small digital, media and technology businesses in Sussex benefit from graduate talent, and over 200 recent graduates have found graduate level employment as a direct result of the scheme – 48% of interns were employed by the participating companies at the end of their internship. In total, well over 5,000 graduates have received on and off line advice, training and support through SIP. A combination of improvements to the scheme and the participation of the University of Sussex increased that success rate for the scheme proper to 65% and tracking research showed that a further 25% gained employment within the sector, but with non-participating companies.

SIP shows the mutual benefits to be derived when universities engage with the relevant industry stakeholders in their vicinity, identify their needs, and put in place suitably designed and managed projects to address them.

- **Ensure access**: Universities should minimise barriers to entry when building relationships with time-strapped creative organisations. Reducing bureaucracy and lowering
transaction costs by signalling clearly who are the university points of contact should reduce the risk of discouraging potential creative partners from getting in touch. Universities should also try to reach out to creative organisations in their natural networking venues in addition to bringing them over to their own facilities – this is particularly important for universities based in out-of-town campuses far away from existing creative and cultural hubs. Two examples of universities participating in spaces that are already frequented by local creative communities is Sheffield Hallam, an important stakeholder in the city’s Cultural Quarter (Roodhouse, 2009), and the University of Dundee, which played an important role in the creation of Dundee Contemporary Arts, a pivotal hub for local creative communities.

- **Integrate creative organisations into university governance structures:** This needs to be done at all levels, from industrial advisory boards featuring senior personnel – as Bournemouth’s celebrated National Centre for Computer Animation (NCCA) does with leading visual effects, video games and animation companies - to steering groups for specific KE projects. Great attention needs to be paid to ensuring that different local stakeholders (and not only those who have the time or the resource to participate) are represented, as well as optimising the potential ‘returns to time invested’ by creative organisations and professionals participating in these groups – we discuss these issues in further detail when we address project design in delivery below.

2. **Demonstrate the potential:** If universities are to attract suitable creative partners for their KE initiatives, and increase the uptake of their outputs, they will need to not only design these initiatives with a keen awareness of their ‘partners’ needs’, but also communicate their value in a clear and compelling manner. This can be done by:

- **Talking the talk, and walking the walk:** One important barrier standing in the way of better engagement between universities and creative clusters is the perception that the former care more about processes than outcomes, and that their relevant timeframes are longer than the ones within which most creative organisations operate (Hughes et al, 2011). Universities need to dispel these perceptions by speaking the language of their potential partners, and, where relevant, putting in place institutional and organisational infrastructures that are aligned with external needs and expectations.

The University of the Arts London’s ‘Own It’ ([http://www.own-it.org/](http://www.own-it.org/)) is an example of a university-led and funded initiative operating outside traditional departmental structures that delivers valuable services to its members – in this case, training, advice and access to resources on Intellectual Property – in exchange for a nominal fee to cover administration costs.

‘Steel Minions’ ([http://www.steelminions.com/](http://www.steelminions.com/)) is a video games studio launched by Sheffield Hallam University where lecturers with industry experience, and sector professionals ‘manage’ and ‘mentor’ the development activities of talented undergraduates. This helps improve the industry-readiness of students, creates opportunities for placements and make it clear that the university is on top of what is happening in the market - because it is part of it.

Where universities engage in commercial activities, it is important to avoid the perception that they are competing with creative organisations – in the case of Steel Minions, this is accomplished by encouraging commercial video games studios to ‘poach’
promising talent, and framing the products being developed as ‘by-products’ of the industry-relevant training, rather than a source of income for the university.

Talking the talk and creating value through the Design Archives at the University of Brighton

As a research resource and research centre, housing the archives of national and international design organizations, the Design Archives are well placed to participate in knowledge exchange with a range of partners but do so in a way that focuses on Knowledge Exchange rather than Knowledge Transfer.

The design profession itself is a significant stakeholder and the Design Archives were included in a feature about the use of historic collections by the design professions in a Design Week article (10 June 2010), which listed the University of Brighton Design Archives among five key design research collections in the UK. The Design Archives also collaborate with the making of television and radio programmes; an interview with the Curatorial Director was included in the BBC2 series Genius of Design, a five-part series, later published on DVD. Partnerships with museums and galleries are numerous and locally these include the Brighton PhotoBiennial exhibition curated by Martin Parr for Fabrica in October ‘10, in which Design Archives material played a central part: the exhibition attracted 14,500 visitors. In June 2011, as part of the Brighton Japan Festival, a selection of posters from the archive of the International Council of Graphic Design Associations was displayed in Brighton Library. Another local event included a screening of a film about designers Robin & Lucienne Day at the University, hosted by the British Institute of Interior Architects, and introduced by the Design Archives Curatorial Director.

The Design Archives sees Knowledge Exchange not as an add-on, but as an essential part of its everyday business. Responding to over a thousand enquiries each year, the Design Archives support the Creative Economy in a range of ways, not least in advising on the archiving of their own records for example, hosting the seminar ‘Archiving Design Organisations’ funded by the Design History Society in June 2011 and attended by more than 40 delegates. Speakers included archivists and curators from the V&A, the RSA, D&AD, and the Design Museum. A similar event on digitization and archives for the Brighton Swimming Club HLF project, and open to others from the local community, is planned for December.

http://arts.brighton.ac.uk/collections/design-archives

The archive team includes individuals who have worked in the museum and wider heritage sector, those who have been involved in cultural organisations outside HE. This diverse experience has proven essential in working effectively with colleagues in different sectors. The success of this relationship is built upon a reputation for good project management, which gives partners the confidence that they are able to work effectively beyond the confines of the university. It is essential that such external relations are founded upon a principle of generous professionalism that assumes an exchange from both directions. The University of Brighton Design Archives operates in the manner of a small creative unit, rather than a hierarchical academic department, and this model ensures a sympathy with working practices and expectations outside the HE sector.

• **Highlight the distinctiveness of the University proposition:** Saying that universities need to ‘speak the language of business’ does not mean that they have to ‘become a business’ or ‘do what businesses do’. It is precisely by doing (and thinking) things differently that they add unique value (CIHE, 2011). One example of this is the Centre for Fine Print Research (CFPR) at the University of the West of England (http://www.uwe.ac.uk/sca/research/cfpr/), which in combining visual arts and
industrial design expertise has developed unique capabilities (and facilities) in the areas of 2D and 3D printing, with potential applications both inside and beyond the Creative Economy. While this expertise has attracted many potential collaborators, the CFPR is keen to keep its sources of funding diversified so as to stay within the arts faculty, and able to continue doing the kind of cutting edge, boundary-spanning research that is has become renowned for (Hughes et al, 2011).

- **Deploy ambassadors and boundary spanners:** Individuals with one foot in academia and another one on industry (or practice) can help to build trust and relationships between both worlds, and also gather the sort of intelligence about the ‘state of the cluster’ and its needs that we referred to above. Academic practitioners (for instance, in arts faculties) are an apparently untapped resource in this respect, and one that universities may want to harness to develop closer ties with the cultural and creative communities that surround them. The same could be said about local entrepreneurial alumni. Where potential boundary spanners and ‘ambassadors’ cannot be found, universities may want to create new roles, following the example of initiatives such as the Professors of Practice pilot taking place at the University of Newcastle (Kitson et al, 2009).

3. **Deliver on projects:** Most KE initiatives bring together partners with very different skill sets, cultures and goals (this includes creative organisations as well as staff from different academic initiatives). Although this diversity can act as a driver of creativity generating mutual benefits, it can also produce tensions and disruption. Maximising the former and minimising the latter requires access to the right skill sets, and the adoption of good practices for the management of projects and the dissemination of outputs. These include:

- **Build up academic team-working skills:** The interdisciplinary, problem (rather than research question) oriented nature of KE initiatives may create difficulties for academics accustomed to basic and disciplinary research resulting on published findings rather than practical outputs. In this respect, it may be advisable for universities to assess whether the skill sets of their personnel are fit for purpose, and if not, provide training in the relevant areas (CIHE, 2011). During their research on ways to improving creative partnering between universities and local businesses, Salford university identified four ‘human characteristics’ that need to be developed in academics – they are foresight-enabling skill, focused individual performance, social network intelligence and academic business acumen (Powell, 2007).

- **Co-production and agile delivery:** Creative organisations need to be at the heart of KE initiatives from the beginning, rather than brought in at the end with the hope that the outputs that have been generated are useful for them – ‘co-creation’ and ‘virtuous knowledge sharing’ go hand in hand with iteration and sustained contact. Setting up formal governance structures such as advisory or steering boards with practitioner participation can be useful in this respect. It is however important to minime the risk that these meetings end up with presentations of research results to creative organisations who are more concerned with solutions, a situation that brings to the fore the cultural differences between university and industry and may be detrimental to building trust and effective communication. Rather, interim outputs that are going to be discussed with creative partners should be framed in terms (and embodied in artefacts) that are useful for them – prototypes rather than working papers, action points rather than literature reviews, and events rather than academic workshops. Of course, there will be exception to this where the creative partners have the expertise to engage and
contribute to academic discussions— but it is important not to assume that this will always be the case.

Delivering on Projects at the University of Brighton: ‘Creating_games’

The Centre for Research in Innovation Management (CENTRIM) has long-standing links with the video games development industry. These links were hard-earned, involving trips to the North to industry events, research visits to studios and long evenings in numerous pubs.

The games industry is notorious for being somewhat picky in whom it allows access to. The CENTRIM approach has been to work in ways that have benefited industry partners while they co-produce the research with the academics. A 2-year project funded by the EPSRC known as ‘Creating_games’ involved three stages of engagement with the industry, aimed at understanding and upgrading the process of video game production.

First, the CENTRIM team collected data on an innovative project in each of sixteen industry partners, five of whom had been nominated for Develop Industry Excellence awards, the annual prizes for the sector. The researchers interviewed lead individuals for the disciplines of design, production, art, programming and others where relevant, such as animation or audio. They also made observations of the work process and collected relevant documentation on the firms and projects. They also attended social events such as wrap parties, exhibitions and pub nights to become immersed in the developers’ world.

Second, this research data was analysed by coding into categories of good practice and areas of difficulty. The team prepared a report and initial presentation for a workshop exclusively for each of the studios. Senior management and team leads participated in the workshop, working through the process issues, debating causes and proposing solutions. In some cases this led to further engagements with the research team. For example, Relentless Software followed up on a discussion on initiating new products with a 2-day idea generation session for the entire company—Operation Bottom Drawer. This involved structured brainstorming, vote-filtering and idea development facilitated by the research team at the University and resulted in an innovative episodic online product, Blue Toad Murder Files, now in its second year of sales on the Sony Playstation Network.

Third, once the research team had identified key process issues in all the individual companies it was able to observe generalities across the industry. For example, a common challenge was the need to demonstrate to a client a working game with a finished look and feel, one solution to this is a ‘vertical slice’, where a small, yet playable, fully rendered portion of the game is produced for discussion. These common problems and practices were presented with a series of interactive processes at industry expert panels, cross-studio workshops and sessions with Tiga, the video games developer trade association, at the Develop annual industry conference, which is conveniently held in Brighton.

In this ‘research co-production’ the companies have the opportunity to reflect and learn on their own work processes, mediated by a knowledgeable independent agent. The university team gains deep access and insight into the reality of the business and data with which to publish for both the academic, the sector and policy-maker audiences. It takes major effort to have a degree of trust and credibility with the industry, however, and the engagements need to be well-designed to be low cost in time and resource for the companies, whom are often stretched and need to see real benefits in participating.
• **Think through the dissemination strategy:** Universities should think innovatively about the products of their KE initiatives. Glossies, brochures and articles in the trade press will in general reach wider audiences than papers in academic journals and conferences, but they may not be enough. Creative partners will in many cases be able to contribute ideas and expertise about the right approach to produce an impact from the standpoint of language, messages and format. Although online distribution, digital repositories and blogs have attractions in terms of access, and the possibility of validating and building new knowledge interactively, universities should not be naïve about the resources that have to be invested in making them work, both before (in terms of design) and after (in terms of community management) launch. Where possible, universities should avoid setting up their own social networking platforms, and instead try to reach their creative partners and audiences through those digital networks that they already use, including Facebook, Twitter, Linkedin or Google+.

Other formats, such as mobile phone Apps, and diagnostic and benchmarking tools also have potential - see, for instance, the ‘Creative Industries Benchmark’ designed by the Centre of Excellence for the Creative Industries at Innovation at Queensland – ([http://www.benchmarker.org.au/](http://www.benchmarker.org.au/))

4. **Build absorptive capacity in the Creative Economy:** Small, medium and micro creative organisations often lack the expertise and know-how required to fully absorb the outputs of KE initiatives. Although in some cases this can be addressed by adopting the right dissemination formats and languages, building absorptive capacity in the Creative Economy is crucial to generate longer-term benefits (see [CIHE](#) (2010) for a detailed discussion). The literature has shown that absorptive capacity – the ability to identify, interpret, apply and augment relevant knowledge – is usually embodied in the individuals working within an organisation, and the networks and communities where they participate. This means that it can be best built up through investments on human capital and talent mobility, such as those we now describe:

• **Integrate absorptive capacity development into the design of CPD programmes** – The most straightforward way in which universities can help develop the absorptive capacity of creative organisations is by training their staff up in the relevant tools, languages, methodologies and theoretical frameworks. When designing CPD programmes for the Creative Economy, universities should take into account existing gaps in absorptive capacity, something that can only be done effectively if fluid communication channels are already in place (see (1)).

As it is the case with other university-Creative Economy interaction modalities, it is also important to bear in mind, during their design, the time and resource constraints faced by the small businesses and creative entrepreneurs that are often their target. An example of good practice in this respect is Bournemouth University’s 7-weeks course on Creative Strategy and Analysis ([http://courses.bournemouth.ac.uk/courses/training-course/creative-strategy-analysis/none/1442/](http://courses.bournemouth.ac.uk/courses/training-course/creative-strategy-analysis/none/1442/)), which aims to get creative professionals up to speed with the latest thinking and techniques in the area of advertising and marketing. Its attendance requirements are just two intensive days at the onset, with the rest of the material being delivered digitally through an ‘online learning environment’ and discussion forums. It should also be highlighted that the course bears academic credit towards a postgraduate degree, an important consideration for practitioners seeking to build up their curriculum (as well as their capacity).
Building business capacity through business peer networks: Profitnet at the University of Brighton

The Profitnet programme has harnessed CENTRIM’s research in learning networks and innovation, and its expertise in business and management intervention to improve SME profitability and sustainability. It has accomplished this by organising structured learning networks, and helping firms to develop innovation processes and strategies – in doing so, it illustrates the potential of a ‘third generation’ networked model of university-SME engagement, which goes beyond ‘linear’ knowledge-push or demand-pull approaches to instead position universities as co-ordinators of learning and innovation taking place between firms, drawing on educational and research expertise. Profitnet organises its activities by sector, and it includes a creative and digital businesses network.

This dynamic, non-linear model of engagement helps bridge ‘cultures’ and gradually break down any existing negative perceptions by SMEs of universities and vice versa, replacing this with a positive collaborative culture.

Programme details can be found at [www.brighton.ac.uk/Profitnet](http://www.brighton.ac.uk/Profitnet)

The initial HEFCE-funded Profitnet Programme ran from October 2006 to October 2008 in three adjacent areas the South East: Brighton and Hove, Coastal West Sussex and Gatwick Diamond. The subsequent Profitnet Plus programme, born out of the original research and project, ran from October 2008 until January 2010.

Between 2008 and 2011, Profitnet has enhanced the profit and turnover of over a thousand companies, mostly regionally-based small and medium sized enterprises (SMEs) – a survey of participants shows that those that took part in the two phases of the programme increased their turnover by 12% and their gross profits by 25%. Senior government ministers have recognised the programme’s impact on economic regeneration of towns and cities in the face of the downturn in Standing Together – Universities helping business through the downturn.

Profitnet has had to overcome significant challenges during its history. It took several programme iterations to ‘get it right, emphasising business peer-to-peer support, with expert university advice only being deployed after a strong element of trust was built up. Profitnet users expect a high degree of professionalism and flexibility in activities, outputs, planning and delivery. With the ending of public sector support for the programme, Profitnet has had to develop a commercial business model funded through subscriptions from participants – in order to overcome their reluctance, the programme has waived its subscription fees over the first year.

- **Absorptive capacity on legs** – Another way in which universities can build up the absorptive capacity of the creative organisations around them is by providing new talent that embodies such capacity. Much has been written recently about the pedagogies and models of engagement that are more conducive to the production of graduates with the skills that creative organisations require (e.g. NESTA, 2011, Universities UK, 2010), CIHE, 2010). Suffice to say that, as these studies point out, universities should provide talent that is both industry-ready (is up to speed with the state of play) and able to take its employers to the next level (i.e. can bring something new to the table in terms of techniques and skill-sets).
Achieving this may require universities to integrate their research and teaching functions, assessing existing skills gaps in the Creative Economy, or bodies of knowledge within existing disciplines that would benefit from formal development at the undergraduate and postgraduate level. Video games design is an example where this could be done – modern video games designers are increasingly having to participate in the development of products and services for connected audiences which are commercialised using innovative business models such as virtual markets and in-game trading. There is a perception in the sector that video games designers would benefit from stronger expertise in academic disciplines such as sociology, network theory, psychology or economics - a gap that universities are in a good position to fulfil.

- **Implement peer-based learning models** – Current understandings of learning (a key element of absorptive capacity) have emphasised the importance of peer groups, not only as providers of support but also, very often, local and contextual knowledge (Seely Brown and Duguid, 2000, Lave and Wenger, 1991). There are many areas where universities may not be optimally positioned to provide the relevant knowledge (e.g. in practical, production or near-to-market domains), but they can still fulfil an important role in supporting such learning by convening networks of practitioners and entrepreneurs and encouraging them to share their expertise and experiences – including the provision of facilitation services and facilities, and acting as a gatekeeper and ‘honest broker’ (an important function to build up trust between participants which in some cases may in fact be competitors). One example of such scheme is the Profitnet programme currently being run by the University of Brighton (see the case study for more information).

5. **Connect Networks:** Almost by definition, creative KE entails the development of networks between academia and the Creative Economy. But these networks can be configured in different ways, some of which may be more beneficial than others. In one extreme, the academic teams engaged in KE may act as hubs tied to ‘atomised’ creative organisations in their vicinity, and disconnected from the rest of the university. In the other, the networks that emerge are denser, spanning different academic departments and functions (including some that may not be directly involved in KE initiatives, but whose activities are nevertheless relevant for the Creative Economy), and linking up across creative sectors and organisations, as well as places. The latter option is clearly more beneficial insofar its connected structure speeds up the dissemination of information, the identification of opportunities and the mobilisation of resources, and helps build up social capital in the cluster. When they design their KE activities, universities should think strategically about how these can support the emergence of such strong networks:

- **Provide spaces for serendipity:** Universities UK (2010) identified a plethora of university centres and facilities where researchers, lecturers and students share space with the Creative Economy. Face to face contact is key to building trust and developing relationships, particularly between people from different disciplines or sectors. Universities should try to harness those spaces to catalyse new and unexpected relationships, both between disconnected creative organisations in their vicinity, as well as creative and experts in academic disciplines with potentially valuable knowledge and insights that have, so far, not engaged with these sectors. The ‘White Space’ at Abertay University at Dundee (http://www.abertay.ac.uk/about/facilities/whitespace/) is one of the best examples of an open access multi-disciplinary, entrepreneurial and creative space bringing together academia and the Creative Economy.
• **Facilitate cross-sector networking:** It is easy to forget that networking not only happens at dedicated ‘networking’ sessions and events – in some cases, it may be more effective where it emerges as a by-product of other, perhaps more practical activities, such as workshops or training sessions that bring together diverse groups. In some instances, this ‘hidden’ networking can connect creative organisations and professionals who may otherwise be reluctant to engage (e.g. because they are concerned about disclosing valuable information to competitors), or think that they have little to say to each other. Universities should be very aware of this potential as they design their KE initiatives. For instance, convergent technologies and cross-platform tools may attract diverse user constituencies in the room, and get them to talk to each other about their (often surprisingly similar) needs and challenges. Something similar can be said about training sessions and learning networks aimed at creative professionals who, regardless of their sector, face similar challenges at different stages of growth. Design London [http://www.designlondon.net/](http://www.designlondon.net/) is a good illustration of a ‘hidden networking’ activity bringing together students and researchers from different disciplines (Engineering and Management at Imperial College, and Design from the Royal College of Arts) to provide integrated post-graduate programmes, and entrepreneurship support through a business incubator.

• **Establish connections outside the cluster:** Local networking is not enough – if creative clusters are to access new ideas generated elsewhere, attract collaborators (and potentially, inward investment) and feed their outputs into global creative and cultural pipelines, they need to get connected to wider national and international networks. Universities can play a pivotal here, given their high levels of ‘extra-local’ connectivity, but only if they adopt a proactive stance towards the mobilisation of their international connections, and in some cases, draw on intelligence from within the cluster to develop new ones – this can be accomplished via academic (e.g. conferences, workshops and seminars) and cultural (such as exhibitions and festivals) events. When developing these networks universities should consider not only ‘who they know internationally’, but also, ‘who do the people they know know’, as it is likely that their academic contacts elsewhere will be connected to their own local cultural and creative networks and scenes with which beneficial relationships could be developed.

The case study of Professor Paul Heritage, a drama academic at Queen Mary, University of London presented in Hughes et al (2011) is apposite here – Heritage has leveraged his connections with AfroReggae, a Brazilian cultural group, for the benefit of partners in the UK (including the Barbican Arts Centre, Contract Theatre and Sage Gateshead).

5. **Conclusions**

This report has shown the importance of clustering in the cultural and creative industries, and described its dynamics. Universities can play an important role in strengthening those dynamics, by creating resources that are attractive for the Creative Economy (e.g. talent and knowledge), services that make them better able to compete and innovate, and network connections that augment the benefits from creative clustering, and provide access to valuable ideas, resources and partners from outside.

But these benefits will only be realised if universities overcome existing barriers to engaging with the creative organisations around them. Having put forward specific practices to do this, we conclude
with a call for a more strategic approach to the design of Creative Economy-relevant (i.e. beyond KE) university activities, and a stronger focus on learning from success (and failure).

Universities need to acknowledge that traditional divisions between ‘teaching’, ‘research’, ‘third stream’ and other important activities such as the procurement of creative goods and services, or the provision of office space, are not meaningful for potential creative partners outside – in fact, the awareness of such divisions may put them off collaborating. When articulating the rationale for creative KE to them, universities need to specify clearly what other benefits may accrue (ranging from input into research and teaching programmes, talent-spotting and access to facilities). This is not only a matter of communication, but also of programme design – interdependencies and complementarities across the portfolio of Creative Economy relevant activities need to be recognised and harnessed. This includes identifying departments, research domains and talent pools that are important for the Creative Economy but may not have engaged with them previously. Only by maximising the perceived benefits from engagement will universities be able to bring to the table, with full commitment and internal buy-in, time-strapped creative organisations. One positive side effect from this strategy is that it may help develop tighter links and better coordination between different parts of the university, and lower the barriers to interdisciplinary collaboration.

Going forward, universities also need to put in place rigorous procedures to evaluate their creative KE, and publicise the results of these exercises. As we mentioned above, hard data on the performance of different initiatives, and ‘soft data’ on the challenges that had to be overcome to achieve impact are very hard to come by. Yet, in their absence, sector-wide learning and adoption of good practice is almost impossible. Not only will a rigorous evidence base on the impact of KE for the Creative Economy help to address this challenge. It may also contribute to a better, and more nuanced understanding of the importance of these activities in sectors that have not traditionally been seen as adopters of academic research, and of the potential contribution of non-STEM disciplines such as Arts and Humanities, to welfare, economic growth and innovation – something that would be beneficial to both universities and the wider creative economy of the UK.
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