Intermediaries and the knowledge exchange process: the case of the creative industries and Higher Education

Tarek E. Virani* and Andy C. Pratt+

* Queen Mary, University of London, Mile End Rd, London

+ Department of Culture, and Creative Industries, City University London, Northampton Square, London EC1V 0HB
Email: andy.pratt.1@city.ac.uk

For Beyond the Campus: Higher Education & the Creative Economy" (eds.) Communia, R and Gilmore, A

The authors acknowledge the support of AHRC /Creative Works London which funded this research (Grant No:xxxx)

Abstract:

Research that has been conducted on university-industry collaborations predominantly examines knowledge exchange in the field of high technology where the output is a material product, or income stream. The material product is assumed to act as a proxy for knowledge exchange and/or knowledge transfer; the exchange is propagated by diffusion and achieved by fiat. This chapter indicates how, at least in the case of the creative industries, the normative model is stymied by organisational asymmetries and differing scales. Moreover, these approaches assume a lack of institutional embedding; on the contrary, our research suggests need for careful attention to these issues. The economic field of the cultural economy contrasts markedly with that of high-technology in terms of the form of products/outputs as well as organisationally. Accordingly, we argue that an appreciation of collaboration and knowledge exchange benefits from a more subtle methodology that is sensitive to these differences of product and process. The chapter explores collaboration between higher education institutions (HEIs) and small, medium and micro-sized enterprises (SMMEs) in the creative and cultural industries (CCI) within London; it draws upon research carried out as part of Creativeworks London's (CWL) Creative Voucher Scheme. The findings indicate that collaborations benefit significantly from active intermediaries who facilitate, as well as embed themselves within, these collaborations by doing three things: brokerage, translation and network builder. Critically, a proportion of this work is done informally and based on maintaining trust and reputation.

Keywords:

1.0 Introduction:

Research on university-industry collaborations examines knowledge exchange in the field of high technology is dominated by attention to one sector: hi-tech (Bramwell and Wolfe, 2008; Kodama et al, 2008; Youtie and Shapira, 2008; Yusuf, 2008). Its main focus has been to measure the outcome of these collaborations in terms of patents developed, or products developed from patents (Acworth, 2008; Jong, 2008). Put simply, the output is a material product, or income stream. The material product is assumed to act as a proxy for knowledge exchange and/or knowledge transfer. The economic field of the cultural economy has some differences from high-technology in terms of the form of products/outputs , their materiality, as well as organisational forms. We argue that this should alert us a different perspective of knowledge transfer that challenges the normative closed 'black box' of knowledge transfer that allows an active process of transfer, a relational concept of knowledge where value is embedded in, and produced by, contexts. Consequently, we argue that an appreciation of collaboration and knowledge exchange in the creative economy needs a methodology that is sensitive to these differences of product, process and context.

This chapter explores the process of collaboration between higher education institutions (HEIs) and small, medium and micro-sized enterprises (SMMEs) in the creative and cultural industries (CCI) within London carried out as part of Creativeworks London's (CWL) creative voucher scheme. In this chapter we highlight the role of 'intermediaries' in the collaboration process. We call them 'intermediaries' here however other studies use different terminology in order to describe them and their role in different sectors. They play an important part in these collaborations because it is they who facilitate, as well as embed themselves within, these projects. Regarding CWL's creative voucher scheme, they enable the process of collaboration between universities and SMMEs in the creative sector by doing three things: they act as brokers in order to facilitate partnerships that can lead to collaborations between SMMEs and HEIs; they act as translators between academics and SMMEs within the funded project in order to make sure that all expectations are met.

Moreover, we found them to be engaged in network building as well as offering up their own networks in order to gain the trust of the collaborating parties and to include them within it. Critically, much of this work is done informally, and sometimes as an on-cost. Clearly, the mediators have an interest in being useful in the immediate term, and as part of a future network. However, the trust relationship and reputational capital exceeds that of simply 'network supply'. The mediator relationship is commonly a learning relationship for all participants; mediators gain skill and market advantage through successful brokerage and mediation; these benefits are sold forward, or given forward, as part of participation. In this sense we hypothesise that the mediators are the key conduits and nourishment of a creative ecosystem. Such eco-systems are characterised by a multiplicity of micro and project based enterprises that suffer from a 'missing middle' organisationally, and long term sustainability. Strong mediators contribute resilience to a creative ecosystem.

This chapter will: first, look at the work that has been conducted on university – industry collaborations; then examine the literature on intermediaries in this context; third, discuss the methods used including a description of CWL's voucher scheme; fourth, outline our key findings regarding the collaborations that have taken place to date and fifth, conclude with a discussion of the implications of these findings on future work in this area.

2.0 University – industry collaborations:

Existing scholarship on university-industry collaborations (Bishop et al., 2009; Bruneel et al, 2010; Cohen et al, 2002) has pinpointed that which promotes, or hinders, the collaborative process[1]. Much has been learned about the factors smoothing industry- universities collaboration (Arundel and Geuna, 2004; Bruneel et al, 2010; Laursen and Salter, 2004; Meyer-Krahmer and Schmoch, 1998; Tether, 2002). The first, is perhaps proximity. The lohgic of science park development was to facilitate 'spin-off' companies that would share in the senior common room like atmosphere. Co-location was seen as necessary, but not always sufficient. The majority of this work is very much based on sector-specific collaborations and focuses primarily on technology-transfer and science-based collaborations with enterprises of all sizes (although, as SMMEs are uncommon in this sector they are ignored) ; this is important since they (SMEs) represent the largest net contributor to the economy in a number of sectors and in a number of countries (Charles, 2006, 2007; Charles et al, 2014; Gertner et al, 2011; Hoffman et al, 1998; Quayle, 2003); especially in the creative sector SMMEs are a dominant force. With this caveat , normative findings have garnered significant insights into the ways that university-industry collaborations can work. Research thus far indicates that collaborative success depends on: first, a long-standing culture of co-operation and economic success through collaborations[2] (Meyer-Krahmer and Schmoch, 1998); second, the types of firms being considered and how this relates to innovation practices (Tether, 2002); and third, an acknowledgement that collaborative opportunities are actively looked for by specific types of firms, namely those who advocate for open search strategies and invest in research and development (Laursen and Salter, 2004).

On the other hand, barriers exist that seem to hinder these types of collaborations. Bruneel et al (2010) have identified two general obstacles to university-industry collaborations, and we add a third in this paper. The first involves major differences in incentives structures within higher education versus within industry. For instance, where researchers would like to disseminate interesting ideas quickly in order to gain academic respect in their field, firms may want to stay quiet so as to not reveal pertinent information to their competition (Ibid). Added to this the large variance between industries themselves where, for instance, pharmaceutical industries have to disseminate information quickly in order to apply for standardised approval (such as Federal Drug Administration approval in the United States); whereas the music industry times products to coincide with important calendar dates such as Christmas or Mother's Day (for example the large sales in Christmas albums).

The third barrier / obstacle concerns immaterial exchanges and is exemplified, but not exhausted by ,conflicts over intellectual property (IP) and other types of commercially sensitive information (Ibid). It has been found that in some instances, universities have attempted to cash in on the potential commercial success emanating from research which has led to profound distributional conflicts between universities and their industrial partners (Florida, 1999; Shane and Somaya, 2007). Clarysse et al (2007) point out that in some cases this is made worse by the often unrealistic expectations

[1] This includes the huge literature on science parks (Link and Scott, 2003, 2006, 2007), technology transfer (See Sazali and Raduan, 2011 for a comprehensive review) and knowledge transfer (see Ankrah 2007 for a comprehensive review regarding university-technology collaborations).

[2] Importantly, long standing relationships can sometimes have limiting effects regarding important collaborative aspects like innovation as has been pointed out by Meyer-Krahmer and Schmoch (1998) due to a lock-in effect of knowledge based on an entrusted organisational network.

held by universities about the commercial potential of university research resulting in the overvaluation of IP.

The fourth barrier is in regards to the time allotted to specific collaborations by the different parties. There is a cost of time that needs to be acknowledged, which seems to be valued by enterprise/industry - whereas university time appears to be free but is in fact not. Staff have full-time jobs so collaborations with businesses are additional, an increased workload that can actually be a significant barrier to these types of collaborations. For instance it may be more cost-effective for the academic to sit in the library writing a paper which will earn a good Research Assessment Exercise (RAE)score in the United Kingdom and bring in funding for their department - rather than talking to an entrepreneur about their idea for free. The latter will implicitly damage their bottom line which is the sustainability of their particular 'business' - the university.

As a way to mitigate against these types of barriers, Bruneel et al (2010) and Santoro and Saparito (2003) suggest that the development of trust between university and industry actors is essential. In order for trust to be established, aspects like the aforementioned barriers to collaboration must be understood and negotiated as well as compensated[3]. Higher trust between partners stimulates rich social and information exchanges and encourages partners to exchange more valuable knowledge and information (Ring and Van de ven, 1992) but must also take into consideration the constraints and management of sensitive elements that contribute to a healthy working relationship such as the difference between 'free' time and 'paid' time. Once this is established, trust-based relationships can facilitate the exchange of difficult to codify knowledge (or tacit knowledge) and information as well, which is by definition difficult to communicate (Kogut and Zander, 1992) and endemic in these types of collaborative endeavours involving these specific types of organisations. This chapter extends this notion and extends it. Trust (or reputation) cannot exist in an a-social or non-embedded condition. We show the value of exploring this institutional embedding and the accompanyingconstituted, and constituting, processes.

3.0 The role of intermediaries:

According to Yusuf (2008, pp. 1167) achieving effective knowledge exchange between universities and businesses 'requires the midwifery of different kinds of intermediaries'. This being said the literature on intermediaries, and cultural intermediaries within the CCI in particular, is somewhat disjointed. The work on intermediaries in university – industry collaborations focuses mainly on technology transfer (Ibid), whereas the work on cultural intermediaries is embedded within a discourse that is dictated primarily through the lens of Pierre Bourdieu (1984). Both of these streams of work will be briefly examined in order to carve a path for a third way of understanding intermediaries. This third way envisages them as actors embedded within university – industry collaborative projects in specifically the CCI, where their primary role is the facilitation of these collaborations. In this way they might be better understood as 'creative' intermediaries. This will be discussed in more detail later.

[3] Another related challenge here is that trust may exist between an SMME and a researcher; but then the contract is with the SMME and the university – where no trust has been established.

According to Yusuf (2008) the transition from the 'lab' to the commercial sphere is a tricky one, and developing a new technology can be fraught with risk. At the heart of the process is the diffusion of tacit forms of knowledge and information as well as the ways in which university technology transfer offices (TTOs) work and having the experience and knowledge in how to deal with these entities. This being said, due to a lack of knowledge in this arena many ideas and findings (including patents) remain undeveloped in the university where many researchers lack the know-how to access the business world (Ibid). In 2008 a special issue in the journal *Research Policy* on the role of intermediaries in university – industry collaborations argues that this is the reason that a role for intermediaries of 'many different stripes' exists (Yusuf, 2008 pp. 1170). These intermediaries are described as 'knowledge' intermediaries whose primary role is the facilitation of knowledge exchange in order to bring universities and industry closer, 'by diagnosing needs and articulating the demand for certain kinds of innovation, by instituting a dynamic framework for change and working to achieve the change through financing and other means' (Ibid). According to the special issue there are four types of these intermediaries which are listed below:

- The general purpose intermediary of which the university is the leading example, producing and disseminating the different forms of knowledge (Yusuf, 2008 pp. 1170).
- The specialized intermediary, such as the university Technology Licensing / Transfer office (TLO or TTO) which seeks out, helps codify via patenting, and also helps to transfer knowledge to commercial users (Yusuf, 2008 pp. 1170).
- The financial intermediary, such as, a venture capitalist or an angel investor supplies risk capital. Frequently such a provider brings additional tacit knowledge in the form of managerial know-how, contacts, troubleshooting skills or risk assessment skills which can assist start-ups (Yusuf, 2008 pp. 1170).
- The institutional intermediary is often a public agency that offers incentives to encourage knowledge transfer, and a variety of services to facilitate interaction among researchers and firms (Yusuf, 2008 pp. 1170).

This way of viewing intermediaries is very much embedded in the language of technology transfer as is quite obvious. Missing from the discourse are the links that tie notions of trust (which are inherently important to university – industry links) with that of successful collaborative projects in this sphere and perhaps outside of purely technology driven agendas. The human element seems to have been dispensed with in order to frame an understanding of intermediaries assisting with knowledge exchange in terms of, for instance, how to get the most patents from 'filed' to 'pending'. Moreover, this way of articulating the intermediating role of knowledge exchange agents and actors misses crucial elements of collaborative behaviour and process within university – industry collaborations in the cultural economy.

Another strand of work examines what are termed 'cultural intermediaries'. Normative notions of intermediaries in the innovation literature are the passive means of diffusion. In the sociological literature the term includes an active process of transformation and translation. Bourdieu's (1984) work does not specify the role of cultural intermediaries in collaborations between organisations, he does speak to their role as important in an 'economy of qualities' (Callon et al, 2002). In this way these agents are tastemakers and 'needs merchants' but are also positioned in between the production and consumption of culture (Negus, 2002). This is important because it acknowledges the role of the agent and/or actor (which is missing in the technology oriented discourse about

intermediaries) and it also situates it within the cultural economy. According to Negus (2002), and relevant here, positioning cultural intermediaries in-between production and consumption is an important aspect to come to terms with because it acknowledges that the cultural economy does not have an assembly line model of cultural production and consumption. Instead, in what Scott (1999) identifies as an economy of 'symbols', the intermediary can occupy three roles at once, the producer, the intermediary and the consumer. Newer articulations of this notion use the term 'curation' as a way to speak to an increasingly fragmented economic landscape, and giving value to cultural products within this landscape (Balzer, 2014).

When it comes to the collaboration between university and industry specifically, the work on cultural intermediaries has very little to say. Although theoretically, the notion of the cultural intermediary in its Bourdieu-sian articulation can identify those that are able to make decisions about how best to maintain and facilitate a collaboration between actors and agents who are not used to working with each other. Thus, cultural intermediaries in this light might need to occupy a space in-between producer and producer (or prosumer and prosumer) as opposed to producer and consumer.

It is here that a newer articulation of the intermediary concept might need to be endorsed. In this particular case one that speaks to the issues that arise here such as: the cultural economy, the collaboration between organisations that do not traditionally have access to each other, the notion that agents as opposed to organisations are the primary facilitators, the notion that tacit knowledge is not only industrial knowledge but personal knowledge as well (Polanyi, 1962), and the role of agency in activities such as brokering relationships and enhancing trust in order to ensure industrial outcomes.

4.0 Methodology:

The CWL creative voucher scheme was an initiative that enabled SMMEs in London's creative sector to develop unique and innovative short-term, collaborative research and development projects with CWL's academic partners and independent research organisations (IROs). It is primarily designed to foster university-industry collaborations albeit on a smaller scale then those seen in more tech-oriented schemes. The design of the scheme was based on 'innovation vouchers' that have been used widely in Europe since 1997 (Bakshi et al, 2012). The CWL scheme started in mid-2012 ending in mid-2016. As of the time of writing this chapter, CWL awarded 48 vouchers aimed at fostering collaborations between creative SMMEs and HEIs. This involved matching academics with creative SMMEs to deliver a collaborative project. The scheme was designed to provide a flexible, easy mechanism for small businesses in the CCI to access the knowledge, expertise and skills of partner knowledge providers like HEIs and IROs. The maximum sum offered was £15,000 of which a maximum of £5,000 was used for SMME costs.

Application data, ex-post final reports, and interviews were used to gather data about the collaborations funded by the voucher scheme. Application data was used to gather baseline data about the actors engaging in the scheme. This included standard information about the SMMEs that were applying to the scheme as well as academics who were involved.

Voucher winner final reports were used to gather information about the nature of the collaborations that took place in the first three rounds (of which there were six) of the scheme. These reports were

ex-post in design, meaning that they were conducted after the project had been completed. The report template was put together based on specific key performance indicators that were outlined in the larger project bid. Importantly, with regards to the theoretical approach of the final reports, they aimed at examining two general questions: first, how the collaboration fared between the academic and the SMME and second, whether the two would collaborate again. It was important to allow these final reports to be open-ended in design in order to capture any other pertinent information about the scheme.

Interviews were used to gather data about the collaborations - 28 were conducted - they were recorded and then subsequently transcribed for analysis. The interviews were conducted separately between the academic and the SMME. Each interview lasted from 30 minutes to one hour and conducted with consent. The purpose of using interviews was to build a picture of the nature of these collaborations. These interviews were open-ended in nature with a few probing questions. Interviews were also conducted with two members of CWL's knowledge exchange team who helped facilitate some of these collaborations. The knowledge exchange team are five individuals who have experience in network creating / building, strategy development, curation of spaces and places that bring together researchers with cultural/creative sector practitioners, arts policy development, creative collaborations, organisational development and a detailed knowledge of the CCI in London.

5.0 Findings:

A strong finding that came to the fore from the final reports and the interviews was the importance of intermediaries in the process of collaboration between SMMEs and academics in the creative sector. There were two types of intermediaries in regards to these collaborations: the first were part of CWL's knowledge exchange team, and the second was either an academic or an SMME within the collaboration who had prior experience with and / or knowledge of these types of projects. Moreover, intermediation was needed most with collaborations where the actors involved had not worked with each other in the past and where no experience existed in these types of partnerships. Intermediaries played an important part with respect to these collaborative projects where they acted as four things: broker, translator, problem solver, and network builder.

5.1 Intermediary as broker:

Our research identified that there were a number of brokering activities that took place before and during these collaborations. We observed that this was conducted primarily by CWL's knowledge exchange team. criticall Knowledge brokerage in this instance meant more than simply the allocation of funds or match-making at events. In required a specific and sensitive interaction, which might be conceptually similar to curation.Two out of the 12 collaborations examined here had approximately four levels of brokerage: the first was at an introduction event sponsored by CWL where the academic and the SMME meet and networking is brokered by the knowledge exchange team. Brokerage here meant that there is a managing of expectations and compatibilities that takes place before a project is embarked upon. Potential partners are : introduced and put in a setting with each other based on the KE team's intimate knowledge of their wider network, a provision of linkages is hence offered up.

The second phase (or moment – as in mechanical analogy of a moment, the resolution of forces at a place and time) is after a partnership, or willingness to work with each other, between SME and academic has been struck. This is the stage in the process when the application is put together and the potential voucher recipients attend an all day workshop which is also run by the KE team. Interestingly, this stage is important according to one of the KE team members who termed it the 'demystifying stage'. According to the KE team member:

> Surprisingly a lot of SMEs are actually intimidated by the word 'research'. It sounds like someone is going to watch you and then try and figure you out. But then they'd ask why would someone be interested in what they do, I call this the demystifying stage. One of my most challenging activities was actually telling SMEs that they have intrinsic value and that of course academics are interested in what they do…and in a good way.

At the application stage there seemed to be quite a bit of hand holding which was particularly necessary for those who had not entered into these types of contractual agreements in the past.

The third level of brokerage happens within the actual collaboration where expectations have to be configured and outputs discussed and managed. For instance it is at this stage where the partners will iron out the specifics of what it is that they can contribute – hence a need to make sure that the project is actually deliverable and not too ambitious.

The fourth level in this particular case has to do with matching or recognising difference in the levels of experience between the academic and the SME. In one case the academic had far more experience in these types of collaborations then the SMME. In another case it was a director of the SMME who in fact had more experience and thus brokered their collaboration through a management of expectations and what was in fact deliverable. In most collaborations there is a significant amount of learning that takes place, the less experienced party gains new knowledge from the collaboration generally.

Importantly, as trust and familiarity increase the level of brokering is reduced. Importantly those that had more than three levels of brokerage also had previous experience in university-industry collaborations and had also secured a positive outcome – which in this case was defined as the desire to continue to work with each other. However, those recipients that had worked together before are not guaranteed a positive outcome, which may mean that brokering may need to increase even if levels of trust and familiarity increase. This notion needs more research.

5.2 Intermediary as translator:

To illustrate this point we can refer to one particular case the managing director of an SME was in charge of representing a number of artists, who in effect made-up the small business. He is not an artist but had the knowledge and the experience to understand what the collaboration entailed in terms of working with both academics and artists. He (consciously) 'translated' the rules of participation between them; in essence he managed the exchange of knowledge by speaking both 'languages' whilst at the same time being one of the stakeholders. This example of translation (or a lack thereof) appeared in a number of collaborations. What came strongly to the fore here were three notions related to translation: the first had to do with the activities themselves; and the

second had to do with managing incentivisation structures, and the third was the importance of being able to speak multiple languages.

Regarding the former, one project involved an SMME that had a wider network of businesses that it worked with. This business is a design consultancy that aims to build teams (usually in the design or tech area) to work on commissioned projects. They build teams in the areas of visual communication, system design, music tech and Open Product concepts which means that the director / founder (of which there are two) must speak different languages within the field of design and translate these concepts into a language that is understood by those who become collaborative partners as well as internal partners. In this particular project, the academic was a professor of Fine Art who wanted to capture the historical narrative of locals who live in a quickly gentrifying urban neighbourhood in South London. The combination of these two 'disciplines' , one based on design and the other based on narrative analysis and history, required a certain level of translation in order to work. The academic had to be made aware of what was feasible as well as what was affordable, and the SMME was made aware of the need for academic outputs as well as material ones. It turns out that one of the directors spoke both of these 'languages' because of her extensive experience working with academics. What was produced was a mobile digital platform for the dissemination of community generated narratives but also a challenging introduction to methodologies that took Fine Art researchers out of their comfort zones:

> As a result of [said university's] involvement in this project, our Fine Art researchers have been privy to a number of new research practices. Interviewing the public about their own memories and connections to the sites at which particular memories are routed was deemed an exciting an inspiring process. The researchers have produced a range of audio-visual materials that reflect the idiosyncratic nature of the many 'community generated narratives' documented.

Of course there were also examples where translation was not as clear as it could have been. One particular case saw real tensions arise with regards to a prototype that was being developed and researched through the project. The main point of contention was that the SMME would have liked to get their ideas and their prototype out to market quickly using the university's resources, the researcher involved was more concerned with research outputs but also maintained that the university's role was primarily for knowledge generating and not commercial interests. In an interview the academic stated:

> I think there should be some promotion to the SMEs on what a university is....they don't understand why they've got to work with these dusty old teachers....they need to adjust their expectations of what these universities do.....I mean they're not the root to cheap labour...students and interns are not cheap labour...I think there should be a collaboration manifesto.

In this case the SMME thought that they would be able to use students and expertise in the design department to make their prototype more commercially viable. The lead academic, on the other hand, did not see her role as one that was conjoined with the SMME's prototype's commercial viability. Clearly, this collaboration could have probably benefited from more translation in order to manage the expectations that existed for both organisations.

When asked about the space that they believe they occupied with regards to the work that they do, one member of the knowledge exchange team stated that:

> When I think of my career path and development, I mean I've worked in the arts, at the Arts Council, I understand cultural policy development, funding , I've done placements at the House of Commons so understand the legislative process, and policy development for the creative and cultural industries. So I bring all of these skills to bear in this role. I think of myself as a generalist, and usually one might think this as a disadvantage, but in this particular role I speak the language of many constituencies and this I find is very advantageous. We are the antidote to a silo mentality and work in a very cross cutting way.

The notion of the generalist is an important one to conceptualise when thinking about the intermediary role, since the translation process requires working knowledge of a number of these 'constituencies'. Strategically, a generalist approach to these types of collaborations allows for a nuanced understanding of where to place policy and hence elevates the intermediary's position through their experience. Of course, this needs more research but it also begs the question of who intermediates between the intermediaries, a generalist approach might be perfectly placed to do just that.

5.3 Intermediary as network builder:

At the heart of the knowledge exchange programme is the issue of network provision and building. It was and still is seen that in order for businesses in the creative sector to do well they need to be connected to or within networks that will be able to facilitate transactional opportunities. In this regard, network building (and maintenance) was an important aspect of the intermediation process. According to a KE team member there are certain logistics that need to be in place for the successful building of networks one of which is the building of a space for networking. According to the KE team member:

> My job was 90% making the space and 10% making the connections. Unless the space is there the collaboration won't happen.

This was especially true during the conceiving of the introduction events where the academic and the SMMEs would initially meet. The space needed to be accessible, open, friendly and welcoming. In order for networks to be built it was felt that a thematic component was important so as to tie those that attended these events with others who had similar interests. Hence a network could be created around themes of interest as opposed to just funding.

This was especially effective when it came to brining academics into the fold. They are defined by their disciplinary boundaries and hence working up a potential collaboration with an SMME in their area of interest was seen as beneficial. Although there was still much hand holding that had to be done in order to maintain these networks. As one KE team member said:

> Some academics and some SMEs needed more handholding than others. More often then not it was the partners that did not know each other that needed the most hand holding. Some were very hands off because you know their work and you know that they know each other.

Another important aspect with regards to network building was incorporating partners that already had extensive networks into the scheme so as to increase the network provision for SMMEs in the creative sector. For instance one academic commented on the voucher scheme and his SMME partner:

> These opportunities are fantastic because of the breadth of what we're talking about. I've met the people at -------, the people that work with ------- are excellent. -------- is a special person, her breadth of knowledge is staggering.

This is because this particular person has multiple networks in different sectors. She has a working knowledge of the project's intended research subject as well as how to conduct research into this area. She is the intermediary between the academic and the SMME. Importantly, many of these actors know that they are working in the interstices between art, industry and higher education.

6.0 Conclusion / Discussion:

Most of the work that has been conducted on university-industry collaborations examines knowledge exchange in the field of high technology. As has been shown, its main focus has been to conceptualise the process of knowledge transfer as a black box, and to measure the outcome of these collaborations in terms of material outputs such as patents developed, or products developed from patents.

By examining the case of the creative voucher we were not seeking to evaluate the scheme; we sought to develop an understanding of process such that a future evaluation would be adequate; we argued that the current conceptual framework is not fit for this purpose. The extant conceptions of knowledge transfer were developed in relation to high technology collaborations with universities and relied upon variants of diffusion to 'account for' the transfer of knowledge. Seeking to apply this to our case study of creative industries we were forced to ask critical questions of the nature of the assumed relationship of knowledge transfer, substituting the existing passive model with a more active one. In normative approaches knowledge transfer is conceived as linear and sequential the greatest threat to transfer to 'distance decay' of knowledge, and lack of incentives (money). The latter factor is addressed in voucher schemes, a premium is added to both parties to engage in knowledge transfer. We found this (maybe necessary) but certainly not sufficient. Additional parties were needed to achieve transfer, notably intermediaries. In normative literature intermediaries are akin to bridges that ford a transfer gap; we found intermediaries to play a far more active and transformative role as translators. Normative studies assumed that organisational forms had symmetry, or were irrelevant to exchange (again a market model). We found that a divergence in organisational form and scale between micro enterprises and universities was a barrier to engagement on both sides; intermediaries had to more than bridge a gap, they had to construct a term of engagement (institution building, and trust building). Finally, we noted the non-normative forms of creative businesses where the balance between economic value and cultural value was different to (say) hi-technology, where the scale and form of businesses (from freelance, project based companies, to an handful of employees) led to different working conditions and critical

dependence on a wider eco-system of skill and expertise. In summary, in the case of the creative industries at least, a more active and transformative model of knowledge transfer was discovered, one that is overlooked, or underestimated, by linear, black box, models of innovation.

References:

Acworth, E.B. (2008). University–industry engagement: The formation of the Knowledge Integration Community (KIC) model at the Cambridge-MIT Institute, Research Policy, Volume 37, Issue 8, September 2008, Pages 1241-1254

Ankrah, S. N. (2007). University-Industry Interorganisational Relationships for Technology/Knowledge Transfer: A Systematic Literature Review. Leeds University Business School working paper series. Available at: http://business.leeds.ac.uk/fileadmin/webfiles/research/WPS/ANKRAH1.pdf

Arundel, A., Geuna, A., (2004). Proximity and the use of public science by innovative European firms. *Economics of Innovation and New Technologies* 13, 559–580.

Bakhshi, H., Edwards, J. S., Roper, S., Scully, J., Shaw, D., Morley, L., Rathbone, N. (2012). An experimental approach to industrial policy evaluation: The case of Creative Credits. In Institute of Small Business and Entrepreneurship Conference.

Balconi, M., Breschi, S., Lissoni, F. (2004). Networks of inventors and the role of academia: an exploration of Italian patent data. *Research Policy*, 33(1), 127-145.

Balconi, M.; Laboranti, A. (2006). University–industry interactions in applied research: The case of microelectronics. *Research Policy*, 35(10), 1616-1630.

Bishop, K., D'Este, P., Neely, A., (2009). Gaining from interactions with universities: multiple methods for nurturing absorptive capacity. *Research Policy*, Forthcoming.

Blumenthal, D., Gluck, M., Louis, K. S., Stoto, M. A., Wise, D. (1986). University-industry research relationships in biotechnology: implications for the university. *Science*, 232(4756), 1361-1366.
Bourdieu, Pierre (1984). Distinction: a social critique of the judgement of taste. London: Routledge.

Bramwell, A.; Wolfe, D.A. (2008). Universities and regional economic development: The entrepreneurial University of Waterloo, Research Policy, Volume 37, Issue 8, September 2008,

Brown, J. S.; Duguid, P. (2001). Knowledge and organization: A social-practice perspective. Organization science, 12(2), 198-213.

Brown, J.S., Duguid, P., (2000). *The Social Life of Information*. Harvard Business School Press, Boston, Massachusetts.

Bruneel, J., D'Este, P., Salter, A. (2010). Investigating the factors that diminish the barriers to university–industry collaboration. *Research Policy*, 39(7), 858-868.

Charles D. (2006). Universities as key knowledge infrastructures in regional innovation systems. *Innovation*, 19(1), 117-130.

Charles, D. (2007). Regional development, universities and strategies for cluster promotion. In: Harding, A; Scott, A; Laske, S; Burtscher, C, ed. Bright Satanic Mills: *Universities, Regional Development and the Knowledge Economy*. Burlington, Vermont and Aldershot, Hants: Ashgate, , pp.53-68.

Charles, D., Kitagawa, F., Uyarra, E. (2014). University engagement: from regionalisation to localisation, , Cambridge Journal of Regions Economy and Society, 7

Clarysse, B., Wright, M., Lockett, A., Mustar, P., Knockaert, M., (2007). Academic spinoffs, formal technology transfer and capital raising. Industrial and Corporate Change 16, 609–640.

D'Este, P., Patel, P., (2007). University–industry linkages in the UK: what are the factors underlying the variety of interactions with industry? Research Policy 36, 1295–1313.

Etzkowitz, H., Leydesdorff, L., (2000). The dynamics of innovation: from national systems and “Mode 2” to triple Helix of university-industry-government relation. Research Policy 29, 109–123.

Florida, R., (1999). The role of the University: leveraging talent, not technology. Issues on Science and Technology XV, 67–73.

Gertner, D., Roberts, J., Charles, D. (2011). University-industry collaboration: a CoPs approach to KTPs, in Journal of Knowledge Management, 15(4) .

Heckman, J. J. (2000). Causal Parameters and Policy Analysis in Economics: A Twentieth Century Retrospective, in Quarterly Journal of Economics, Vol. 115(1), p.45-97.

Hoffman, K., Parejo, M., Bessant, J., & Perren, L. (1998). Small firms, R&D, technology and innovation in the UK: a literature review. Technovation, 18(1), 39-55.

Jong, S. (2008). Academic organizations and new industrial fields: Berkeley and Stanford after the rise of biotechnology, Research Policy, Volume 37, Issue 8, September 2008, Pages 1267-1282,

Kodama, F.; Yusuf, S.; Nabeshima, K. (2008). Introduction to special section on university–industry linkages: The significance of tacit knowledge and the role of intermediaries, Research Policy, Volume 37, Issue 8, September 2008, Pages 1165-1166,

Kodama, T. (2008). The role of intermediation and absorptive capacity in facilitating university–industry linkages—An empirical study of TAMA in Japan, Research Policy, Volume 37, Issue 8, September 2008, Pages 1224-1240,

Kogut, B., Zander, U., (1992). Knowledge of the firm, combinative capabilities, and the replication of technology. Organization Science 3, 383–397.

Laursen, K., Salter, A., (2004). Searching low and high: what types of firms use universities as a source of innovation. Research Policy 33, 1201–1215.

Link, A.N., Scott, J.T. (2003), US science parks: the diffusion of an innovation and its effects on the academic missions of universities, International Journal of Industrial Organization, Vol. 21 No.9, pp.1323-1356.

Link, A.N., Scott, J.T. (2006), US university research parks, Journal of Productivity Analysis, Vol. 25 No.1-2, pp.43-55.

Link, A.N., Scott, J.T. (2007), The economics of university research parks, Oxford Review of Economic Policy, Vol. 23 No.4, pp.661-674.

Meyer-Krahmer, F., Schmoch, U., (1998). Science-based technologies: university–industry interactions in four fields. Research Policy 27, 835–851.

Negus, Keith (2002). The work of cultural intermediaries and the enduring distance between production and consumption’, Cultural Studies, 16 (4), 501−515.

Quayle, M. (2002). E-commerce: the challenge for UK SMEs in the twenty-first Century. International Journal of Operations & Production Management, 22(10), 1148-1161.

Ring, P.S., Van de ven, A.H., (1992). Structuring cooperative relationships between organizations. Strategic Management Journal 13, 483–498.

Santoro, M., Gopalakrishnan, S.(2001). Relationship dynamics between university research centers and industrial firms: their impact on technology transfer activities. Journal of Technology Transfer 26, 163–171.

Santoro, M., Saparito, P., (2003). The firm's trust in its university partner as a key mediator in advancing knowledge and new technologies. IEEE Transactions in Engineering Management 50, 362–373.

Sazali A. W.; Raduan C. R. (2011). The Handbook of Inter Firm Technology Transfer – An Integrated Knowledge-Based View and Organizational Learning Perspective. Germany: LAP LAMBERT Academic Publishing. Page 17 of 25

Scott, A.J. (1999). The cultural economy: geography and the creative field. Media, Culture and Society 21, 807-17.

Shane, S., Somaya, D., (2007). The effects of patent litigation on university licensing efforts. Journal of Economic Behavior & Organization 63, 739–755.

Tether, B.S., (2002). Who co-operates for innovation, and why: an empirical analysis. Research Policy 31, 947–967.

Wright, M.; Clarysse, B.; Lockett, A.; Knockaert, M. (2008) Mid-range universities' linkages with industry: Knowledge types and the role of intermediaries, Research Policy, Volume 37, Issue 8, September 2008,

Youtie, J.; Shapira,P. (2008). Building an innovation hub: A case study of the transformation of university roles in regional technological and economic development, Research Policy, Volume 37, Issue 8, September 2008, Pages 1188-1204,

Yusuf, S. (2008). Intermediating knowledge exchange between universities and businesses, Research Policy, Volume 37, Issue 8, September 2008, Pages 1167-1174,