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Learning and innovation in network: online communicative practices of a local enterprise partnership sector group

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In 2013 the Sheffield City Region's Creative and Digital Industries sector group initiated a method of open consultation where any individual or organization could use an online discussion forum to engage in the co-production of the region's Economic Strategy and Growth Plan. This empirical study examines how regional actors used that online discussion forum to reflect on the range of challenges and practices that directly affect the local enterprise partnership's development agenda. Participants in the forum were predominantly focused on sharing and co-creating knowledge. In particular, it was found that the postings expressed concerns surrounding three main themes: regional infrastructure for inter-organizational learning, networking events and routes for internationalization. The study provides a renewed theoretical and practical view of network learning, especially related to innovation activities in a regional context.

Keywords: local enterprise partnership; inter-organizational learning; innovation; creative and digital industries; online communicative practices; online discussion forum

Introduction

Regions that display high levels of collective learning are considered to be amongst the most competitive and innovative (Keeble, 2000). However, this process is highly dependent on the establishment of networks that facilitate regional collaboration, understood in this paper as the creation and development of shared knowledge among individuals, which enables coordinated action and the resolution of common technological and organizational problems (Keeble & Wilkinson, 1998).

Taking the Sheffield City Region (SCR) local enterprise partnership (LEP) as a case, this paper investigates how the Creative and Digital Industries Sector Group (CDIS) used an online discussion forum to invite regional actors to reflect on the range of challenges and practices that directly affect the SCR development agenda.

LEPs are 'joint local authority–business bodies brought forward by groups of local authorities to support local economic development across functional economies' (Department for Business Innovation and Skills, 2010, p. 10). They are voluntary partnerships that replaced regional development agencies (RDAs) in the roles of setting key priority investments, supporting project delivery and coordinating proposals that are sent to a centrally administered regional growth fund. However, compared with their statutory body predecessors, LEPs hold fewer powers and have access to smaller budgets

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(Bentley, Bailey, & Shutt, 2010; James & Guile, 2014; Pugalis, 2012; Pugalis & Bentley, 2013). A further distinguishing characteristic is LEPs' typical composition: they must be chaired by a business, 'alongside other business people on the LEP board, the leaders of the local authorities in the LEP area and other representatives from the public sector and civic society usually including local universities' (Meegan, Kennett, Jones, & Croft, 2014, p. 10). In macro-terms, the replacement of RDAs by LEPs coincided temporally with a review of regional policy at European level. Place-neutral interventions gave way to place-based interventions, with the consequent refocus of attention to strategies that leverage local knowledge infrastructures and deliver real impact to the communities (Peck, Connoly, Durnin, & Jackson, 2013).

Within LEPs, acknowledgement of the role played by creative industries in terms of their contribution to and active stake in the transformation of regions is growing. In the UK, discussion of the creative industries sector revolves around the definitions developed by the government's Department for Culture, Media and Sport (DCMS) (2001). These definitions are grounded on the identification of sectors (advertising, architecture, arts and antiques, crafts, design, designer fashion, film and video, television and radio, interactive leisure software, software and computer services, music, performing arts, publishing), although a consultation on the classification and measurement of the creative industries has recently resulted in a proposal to conflate some of these sectors into larger entities. Yet the porous boundaries of the field, growingly stimulated by technology-led convergence (Chapain, Cooke, De Propris, MacNeil, & Mateos-Garcia, 2010), is better conveyed in the definition of the 'creative media sector' proposed by the UK Sector Skills Council:

> TV and radio broadcasting and production, film production and distribution; animation; commercials; corporate video production, production facilities; interaction media and games; photography, processing and retail; manufacturing of photographic equipment and materials; picture libraries; cinema exhibition; and publishing. (Skillset, 2011)

There is also a growing stream of literature acknowledging that the emergence of creative clusters is associated with the revival of cities and regions (Baum, O'Connor, & Yigitcanlar, 2009; O'Connor & Gu, 2010; Scott, 2008; Scott, 2010; Stock, 2011). This acknowledgement is relatively recent and it contrasts with the feeling of invisibility in economic development agencies' strategic documents, which was common place amongst UK cities' creative businesses until the late 1990s (O'Connor & Gu, 2010).

A shift occurred when the concept of 'creativity' permeated the cultural industries policy in the UK and was identified as a critical factor in the revival of post-industrial areas (Foord, 2013; Pratt, 2009). Most recently, a knowledge-economy-based conception of 'creative industries' has emerged, asserting the strong impact of 'creativity' in the economic development of regions (e.g. Galloway & Dunlop, 2007; O'Connor, 2009; Markusen, 2010; Morgan, 2013).

The SCR is an archetypical example of an old industrial region that has sought to reorient and restructure its economic base, having 'moved from a traditional manufacturing industrial base path to become a more knowledge-intensive economy' (Williams & Vorley, 2014, p. 270). Unlike other old industrial regions that have found it difficult to modify their original industry base to different economic requirements (Benneworth & Hospers, 2007; Birch, Mackinnon, & Cumbers, 2008; 2010; Greco & Di Fabbio, 2014; Hudson, 2005; Trippl & Otto, 2009), the SCR is described as an example of successful adaptation and resilience (Williams & Vorley, 2014).

In what follows, we first consider some of the research on learning and innovation in network. We then introduce and describe the setting of our research and the methods used to analyse the online discussion forum data. Subsequently we conclude the paper by discussing our findings and examining their theoretical and practical implications.

Theoretical framework for learning and innovation in a local network

As theoretical starting points, this paper utilizes the innovation literature and knowledge management literature, in particular the concepts of absorptive capacity and exploitative/ exploratory learning.

There are several definitions of innovation, ranging from 'the development and implementation of the new ideas by people who over time engage in transactions with others' (Van de Ven, 1986, p. 581), to 'an idea, practice, or object that is perceived as new by an individual or other unit of adoption' (Rogers, 2003, p. 12), or to 'the adoption of any device, system, process, programme, product or service new to that organisation' (Huczynski & Buchanan, 2007, p. 610). In common, most of these definitions share a core preoccupation with newness: new products, new services, new production methods, new markets, new materials and new forms of organizing (Schumpeter, 1934).

In the context of regions, innovation is highly dependent on aspects such as the socio-economic environment and the institutional setting (Todtling, Skokan, Hoglinger, Rumpel, & Grillitsch, 2011). Furthermore, organizations engage in continuous forms of interaction with various actors – customers, suppliers, universities, etc. – that form a regional system of innovation (Chesbrough, 2003; Cooke, Boekholt, & Todtling, 2000; Cooke, Heidenreich, & Braczyk, 2004; Todtling, Lehner, & Trippl, 2006; Todtling & Trippl, 2005). In face of all these layers of interaction, innovation processes are increasingly open, complex (Chesbrough, 2003; Pavitt, 1984), and knowledge intensive (Smith, 2000; Todtling et al., 2006).

In order to preserve as well as to enhance innovation performance, organizations must consistently and continuously expand their knowledge base (Bort, Oehme, & Zock, 2013). This frequently develops through the establishment of strategic alliances (Ahuja, 2000; Bort et al., 2013; Phelps, 2010; Srivastava & Gnyawali, 2011) and immersion into 'regional cluster networks' (Bort et al., 2013) that facilitate the innovation.

In the specific context of creative industries, the constitution of these networked clusters and the identification of intermediary agents that promote collaboration, social interaction, association and trust is essential to affirm creative industries as a driving force for the cultural, social and economic transformation of regions. This argument is put forward by Taylor (2013) in the proposition that 'the development of adequate intermediary agents is a key process for realising the creative economy at the regional level' (p. 3).

Similarly, but in a less sector-specific perspective, previous research indicates that firms immersed in networks gained higher innovation return and growth rate of new products (Canina, Enz, & Harrison, 2005) than their non-networked counterparts. It is also proposed that 'innovation is frequently a primary purpose for knowledge management' (Newell, Robertson, Scarbrough, & Swan, 2002, p. 142), which leads us to conclude that innovation performance can be enhanced by 'knowledge flows', which in turn are leveraged by social interaction processes (Cook & Brown, 1999; Galunic & Rodan, 1998; Weick & Roberts, 1993).

Of particular significance here are the notions of 'absorptive capacity', in the sense that knowledge previously held by organizations enhances the learning when new

knowledge is related to existing knowledge (Cohen & Levinthal, 1990); and 'exploit-ative/exploratory learning', in the sense that organizational learning occurs when there is a balance between the exploitation of current knowledge and the development of new knowledge (March, 1991).

These tensions between knowledge exploration and knowledge exploitation are also addressed by the literature on knowledge and innovation at regional level, particularly by the studies that attempt to categorize and describe territorial patterns of innovation (Capello, 2013; Caragliu & Lenzi, 2013). Territorial patterns of innovation are defined by Capello (2013, p. 137) as 'a combination of territorial specificities (context condi-tions) and different modes of performing the different phases of the innovation process'. Using this definition as a starting point, Capello (2013) and Caragliu and Lenzi (2013) move on to identifying the different ways in which regions innovate. Some regions excel at both creating new knowledge and absorbing external knowledge. Other regions benefit from the ability to exploit knowledge spillovers and rely on entrepreneurs' abil-ity 'to screen the knowledge space to search for the knowledge and technologies lacking at the local level' (Caragliu & Lenzi, 2013, p. 375). Finally, some regions are more pro-ficient at adopting and replicating innovations that succeeded elsewhere.

Setting and methods

Research setting

The SCR is located in the North of England, within the Yorkshire and the Humber region. It embraces a population of 1.7 million people distributed across nine local authorities, the most populous being the urban areas of Sheffield, Doncaster, Rotherham, Chesterfield and Barnsley (Sheffield City Region, 2010). Coal, steel and manufacturing have been historically associated with the economy of the region, but the decline of these industries determined a reorientation of the economic base, with the SCR trans-forming into a knowledge-based manu-service economy (Sissons, 2011), sustained by 'high value and data-led product solutions be it in relation to creative and digital indus-tries or the aerospace and low carbon sectors' (Sheffield City Region, 2014).

The setting for this research is Sheffield's LEP Creative and Digital Industries Sector Group (CDIS). The CDIS – alongside with the sector groups of advanced manufacturing and materials, business and professional services, healthcare technologies, logistics, low carbon, property and construction, retail and construction, and sport leisure and tourism – has been identified as a priority sector and recognized as key to economic growth and job creation in the SCR (Sheffield City Region Local Enterprise Partnership, 2012).

The SCR different sector groups are a devised as a 'means of involving key local businesses in the developing of broad LEP strategies and prioritising bids for strategies' (Meegan et al., 2014, p. 10). The CDIS, in particular, was established to help develop the region's creative and digital businesses and organizations, where significant activity develops in the areas of information technology services (e.g. enterprise systems, broad-band internet service providers (ISPs)), interactive media (e.g. videogames, digital media festivals), and e-learning development and service businesses.

In 2013, following a process of internal reorganization, the CDIS initiated a method of open consultation where anyone interested could use an online discussion forum to engage in the co-production of the LEP's Economic Strategy and Growth Plan[1]. The use of this online environment aimed to give potential participants an opportunity to raise ideas, participate in discussions and help set the direction for the SCR strategy. This initiative helped materialize the CDIS's ambition to 'promote new ideas, and get

the CDI community involved in the process of learning about, suggesting, commenting on and enhancing them' (Creative & Digital Industries Sheffield City Region, 2013), as expressed in its mission statement.

This study focuses in participants' use of the online discussion forum to examine inter-organizational learning and innovation challenges and practices within the SCR. It concentrates on the period between September 2013 and January 2014.

Data collection and analysis

Following the tradition of studies that consider messages posted on open message boards as public acts intended for unrestricted consumption, this study considers the online open discussion forum used by CDIS as public domain, which precludes the need to obtain the informed consent of participants (Fleitas, 1998; Rodham & Gavin, 2006). Indeed, this is an online environment in which participants posting and/or replying to posts are aware of the possibility of external observation. Accordingly, and to avoid crossing ethical boundaries, individual contributions to the discussion forum are 'considered in the same way as naturalistic observations in the public space' (Rodham & Gavin, 2006, p. 94), with efforts made to protect the personal identification of participants.

Described in simple terms, the discussion forum used by CDIS is an online communication environment where participants write messages to one another, thus activating a process of discussion, structured by threads. As frequently occurs in these environments, threads are initiated with a message that shares information, poses questions or solicits commentary. Messages are followed up by a series of replies, requests, comments or enquiries. These contents are archived in descending order of the date of the most recently posted item. We followed the threads as they developed over time, until the point where no further contributions were made, and we could assume that the discussion had come to an end.

In line with studies where electronic data are paramount to understand processes of change and innovation (Cramton, 2001; Da Cunha & Orlikowski, 2008; Wasko & Faraj, 2005), the empirical data for this study consist of the archived messages in the online discussion forum. The online discussion forum comprised 52 participants, who contributed 36 topics. These topics generated 131 messages over 5 months (September 2013– January 2014). The participants ranged from chief executive officers (CEOs) at software companies to practitioners in related domains and consultants in the digital sector. All names of individuals and organizations will be given aliases in order to protect participants' identity and privacy.

A combination of deductive and inductive thematic analysis was used to code the messages posted to the online discussion forum (Boyatzis, 1998). Deductive thematic analysis was used to investigate what type of knowledge the messages address (e.g. provide arguments, seek agreement, establish mutual norms, etc.), as well as the performative intention of participants (e.g. co-construct knowledge, impression management). The communicative model of collaborative learning was used as a guide to code messages according to knowledge domain ('subject matter; norms and rules; and experiences, desires and feelings') and goal orientation ('knowledge sharing and orientation; achieving needs; self-promotion and representation') (Campbell & Cecez-Kecmanovic, 2011; Cecez-Kecmanovic & Webb, 2000).

We then proceeded to perform an open coding on the messages to identify themes in the content. At this stage the analytical focus was inductively shaped by the nature

and content of participants' posting to the online forum. After iterations of coding and recoding we were able to find a set of three themes that represent participants' perceptions of inter-organizational learning and innovation challenges and practices within the SCR. It is to these themes that this paper will turn to in the subsequent section.

Inter-organizational learning and innovation in the Sheffield City Region

Knowledge domain and goal orientation in messages posted to the discussion forum

As can be observed in Table 1, participants in the online discussion forum exchanged a variety of messages in order to enhance understanding and co-construct knowledge on aspects related to the LEP's Economic Strategy and Growth Plan. The different types of messages exchanged refer to different domains of knowledge and were used for different purposes.

Concerning knowledge domain, the discussion appeared to be polarized between two main types of messages. On the one hand, messages conveying personal experiences, desires and feelings (i.e. expressing perceptions about the direction of discussions) were the most frequent (47% of the messages posted to the forum). This is not surprising and testifies about the emergent and unstructured nature of the discussion, with participants frequently attempting to balance the richness of the social interaction

Table 1. Framework of communicative practices adapted from Cecez-Kecmanovic and Webb (2000) and Campbell and Cecez-Kecmanovic (2011).

Knowledge domains' goal orientation	Subject matter (1)	Norms and rules (2)	Experiences, desires and feelings (3)	Description
Knowledge sharing and co-creation (A)	A1 – Argumentation oriented towards knowledge sharing and mutual understanding 34 26%	A2 – Mutually accepted cooperative norms that guide interaction 3 2%	A3 – Expression of personal points of view aimed at generating mutual understanding 45 34%	Count Count/n × 100 ($n = 131$)
Achieving ends (B)	B1 – Raising claims or ideas in order to influence others for achieving particular goals 18 14%	B2 – Maintaining interpersonal relations to achieve personal goals 4 3%	B3 – Expressing personal experiences and feelings to exert influence 13 10%	Count Count/n × 100 ($n = 131$)
Self-promotion and representation (C)	C1 – Raising claims to attain self-promotion 5 4%	C2 – Intentional steering of the interaction 5 4%	C3 – Manipulative self-presentation to exert dominance 4 3%	Count Count/n × 100 ($n = 131$)

with content relevance. The following excerpt of a message posted by Ben is a good example of that attempt:

> Hi everyone, for some time now I've been jotting down ideas and gathering thought on this idea, so it's great to see a discussion starting to brew. I'd be really keen to talk further about all this and really get to the core of what would benefit the Sheffield/Yorkshire area, our talented groups of development companies, but also the local people and their love for games. (Message 30)

On the other hand, messages conveying substantive subject matter (i.e. raising claims, providing arguments, interpreting meaning, seeking clarification) were also frequently observed (44% of the total messages posted to the forum), as instantiated by Lara's contribution:

> 'How do we build strong bi-lateral business and investment links to London, Manchester, Berlin, New York, Vancouver and Silicon Valley? Can we fund a role/body/person in the SCR to deliver this?'. (Message 96)

Looking at the goal orientation of messages, it appears that participants in the forum were predominantly focused on sharing and co-creating knowledge, and on an honest presentation of their views (62% of the total messages posted to the forum). Participants typically sought useful information and attempted to learn by establishing mutual understanding and a respectful relationship with each other, as illustrated by the message left by Sheila:

> Hi everyone, I'm Sheila. I work for Sheffield University's new Advanced Computing Research Centre. We have government start-up funding to initialise projects such as the device library mentioned in this thread. This is something we'd be interested in doing, if people think it would be of use and could serve local businesses (and potentially beyond). (Message 34)

Instances of distortions of communication were marginal, which leads us to describe participation in the online discussion forum as being globally attuned to cooperative knowledge sharing, trust building and cooperation.

The following subsection presents the results of the inductive thematic analysis of the postings to the online discussion forum. A set of three themes was found to concentrate participants' perceptions of inter-organizational learning and innovation challenges and practices within the SCR: 'infrastructure for inter-organizational learning', 'networking events' and 'routes for internationalization'.

Infrastructure for inter-organizational learning

Across postings there was widespread agreement concerning SCR's need for a collaborative workspace that could deliver a culture of innovation, celebrate experimentation, creativity and daring ideas – characteristics that participants attribute to the CDIS. Spaces of this kind are not new. A post by Mark depicted in Figure 1 recalls the experience of 'Google Garage', a commons where workers' creativity is enhanced by a sense of play.

Similarly, it is frequently argued that the SCR would benefit from the existence of a common infrastructure, since the creation, evaluation and dissemination knowledge is a shared enterprise. As suggested by Martin in a comment referring to London's 'Game

Topic: Can we create a Google garage style collaboration space within SCR

From: Mark
Date: 14th November, 2013

Have you heard of Google Garage? It's a place where Googlers go to be creative together from across the company. Is there anything like this in Sheffield City Region, where "Sheffielders", from different creative/business etc. backgrounds, can do some creative problem solving together?

If there were a space like this, collectively, we could solve some pretty big problems, and have the skills to action the solutions within the network. Obviously this may require some funding and buy in from business/orgs.

But this kind of collaboration between different orgs within the region could bring more prosperity. Here a video about Google Garage https://vimeo.com/74329529

Figure 1. Posting to the online discussion forum reflecting concerns with 'infrastructure for inter-organizational learning'.

Space', 'this could be a place for games testing, a co-working space for indie developers and generally a place to hang out and share ideas' (Message 21).

Further messages supporting this idea claimed that a commonly accessible and flexible work environment could improve CDIS's business processes and, for instance, reduce reconfiguration costs, and contribute to a more rational use of resources.

The existence of this type of infrastructure would allow CDIS' workers to share news and information with others, develop new concepts, and engage in productive discussions. This vision reflects participants' perception that CDIS's work is multidisciplinary and multi-organizational, thus requiring enhanced collaborative spaces that allow generative work, cooperation, and negotiation.

Networking events

Participants experienced difficulties in sharing tacit knowledge between organizations and welcomed opportunities to share and use tacit and explicit knowledge such as shared ideation meetings, collaboration hubs and update meetings. The concern with how the region discovers, coordinates and exchanges knowledge is illustrated in the discussion forum by Edward's suggestion to create a structured web platform for sustained collaboration:

> 'The idea is concerned with how people, within the region and outside it, search for and discover things, and how they access resources and how they coordinate with Sheffield firms and organisations'. (Message 105)

We have interpreted this and similar reported challenges to reflect participants' concerns about barriers to inter-organizational knowledge transfer, which the creation of common

understanding and the establishment of communication and cooperation with partners could solve.

Accordingly, networking events were perceived to generate both opportunities to broaden the range of contacts, and opportunities to cultivate relationships and manage existing contacts.

Postings calling out for the deepening of existing networks invited participants to engage in the preservation of existing interpersonal ties. On the other hand, ideas suggesting network broadening initiatives translated participants' willingness to reach out to new people, establish knowledge about them, and form new interpersonal ties. This is illustrated with Ed's comment in the forum:

> 'I think this theme of a hub may also tie in to the topic about building a better-connected sector. Strong external connections need to be supported by strong internal connections'. (Message 103)

Overall networking events were considered important initiatives that could give the CDIS access to resources that may otherwise be difficult to develop or acquire. This is particularly apparent in what Mary wrote in the online forum, as depicted by Figure 2:

This encapsulates frequent references to gateways for practitioners and policy-makers to easily access and search relevant knowledge resources on different aspects of the CDIS.

Routes for internationalization

Another major theoretical theme emerging from postings to the forum refers to CDIS's opportunity seeking behaviour and how firms' internationalization and the region's foreign direct investment attractiveness are regarded as a growth strategy to improve the sector's performance. This duality is well illustrated in John's comment, depicted by Figure 3.

Topic: Provide a route for collaborative learning

From: Mary
Date: 20th September, 2013

I like the collaborative optimiser concept!

I'm currently working on a project commissioned by the two Universities to scope and develop a 'Hub' which will connect leaders and thinkers in the City Region across all sectors to innovate and work on shared challenges.

I'm drafting the business model now and then working with small Thinking Groups through October to test what a 'Hub' could offer in terms of supporting economic growth and cultural wellbeing within and for the City Region. Will post a call for action on here in the next week so that thinkers and leaders from CDI can get involved.

Figure 2.   Posting to the online discussion forum reflecting concerns with 'networking events'.

Topic: Attracting international CDI business to set-up in the SCR

From: John
Date: 6th September, 2013

How is the sector currently marketed and sold, and how are approaches made? What kind of firms are most attractive to the region? And how can the CDI community enhance the effort to attract them?

Figure 3.   Posting to the online discussion forum reflecting concerns with 'routes for internationalization'.

Concerns with internationalization also addressed how importantly the existence of a wide network of relationships is perceived. Several participants in the forum observe how CDIS's firms should make use of intermediaries in the internationalization process and acknowledge that business networks form a useful bridge to enter new markets. This is instantiated by Elaine's comment:

> '[We] must be far more proactive than the resources we already have and given budget to deliberately target companies/hubs and clusters in the other countries […]'. (Message 111)

However, the general perception is that planned networking strategies are sporadic and that the CDIS's internationalization process is currently serendipitous, not being fully articulated into a business plan.

Discussion and implications

As a result of this study, we have improved our understanding of learning and innovation in networks, in the context of an online discussion forum used to discuss challenges and practices that directly affect the development agenda of an LEP. This is particularly helpful to substantiate the theoretical understanding of LEPs as a mode of social interaction and partnership conceptually rooted in the notions of intermediation and association (Taylor, 2013). A further interpretative device to understand the emergence of LEPs through a corresponding critical lens can be found in Cooke and Morgan's (1998) concept of 'associational economy', used to describe the manifestation of networks devoted to regional economic development:

> We explore the emergence of a third way between state and market-led development, namely the associational model, based on a more social and collaborative mode of economic organization. We find that economic activity is increasingly based on notions of collective learning and that competition increasingly involves partnership and interactive innovation. (pp. 4–5)

Concerning the knowledge domain, the discussion featured in the online forum appeared to be polarized between two main types of messages: those conveying participants' personal experiences, desires and feelings; and those raising claims and advancing ideas. Looking at the goal orientation of messages, participants in the forum were predominantly focused on sharing and co-creating knowledge.

The identified challenges and practices related to the strategic development of the LEP revolved around three main themes: (1) 'infrastructure for inter-organizational learning', in which participants advocate the constitution of a collaborative workspace for the region; (2) 'networking events', in which participants reflect on the role of relationships with partners as antecedents of effective knowledge transfer; and (3) 'routes for internationalization', in which participants explore internationalization opportunities and the region's foreign direct investment attractiveness.

These findings contribute to a variety of theoretical debates on intra-regional networked innovation, notably the idea that cultivating regional communities of practice is one way to achieve innovation (Propris, 2002). Indeed the CDIS online discussion forum seems to hold important network capacities that contribute to increased regional collective learning and innovation. This is particularly relevant in the context of CDIS firms that need constant knowledge development, since they operate in a rapidly changing environment (Keeble, 2000).

On another level, the findings reported here offer themselves to a discussion of an integrative perspective with Caragliu and Lenzi's (2013) conceptualization of territorial patterns of innovation. According to the typology devised by Caragliu and Lenzi, regions display different modes of performing innovation, and this variation depends on whether they dispose of all the elements that enable superior knowledge performance, whether they simply imitate the strategies and steps taken by other successful regions, or whether they seek to augment the local knowledge base with externally sourced knowledge.

We argue that the discussion developing in the discussion forum organized by the CDIS reveals regional actors who are actively searching for knowledge that lacks inside the region, and a commitment to sourcing external knowledge that could solve local innovation needs. More specifically, the claims for investments in (1) regional infrastructure for inter-organizational learning, (2) networking events and (3) routes for internationalization indicate a collective concern over the socialization of external knowledge.

In comparison with Caragliu and Lenzi's (2013) typology of territorial patterns of innovation, this seems to match the 'creative application pattern', in which the ability to

> screen the knowledge space to search for the knowledge and technologies lacking at the local level and to adapt them to local business and innovation contexts is strengthened by the 'rapid circulation, socialization and recombination of external knowledge enabled by collective learning mechanisms. (p. 375)

The debate should also be extended to cover the range of patterns of actions and routines that the members of LEPs develop with a view to constructing knowledge-based regional advantage. Future work, in particular, should adopt a longitudinal perspective and investigate how inter-organizational communities of practice enhance intra-regional collective learning and inter-organizational innovation.

Note

1. Formally submitted to the government in March 2014.

References

Ahuja, G. (2000). Collaboration networks, structural holes, and innovation: A longitudinal study. *Administrative Science Quarterly, 45*, 4125–4455.

Baum, S., O'Connor, K., & Yigitcanlar, T. (2009). The implications of creative industries for regional outcomes. *Internal Journal of Foresight and Innovation Policy, 9*, 44–64.

Benneworth, P., & Hospers, G. J. (2007). The new economic geography of old industrial regions: Universities as global pipelines. *Environment and Planning C, 25*, 779–802.

Bentley, G., Bailey, D., & Shutt, J. (2010). From RDAs to LEPs: A new localism? Case examples of West Midlands and Yorkshire. *Local Economy, 28*, 257–274.

Birch, K., Mackinnon, D., & Cumbers, A. (2008). Old industrial regions in Europe: A comparative assessment of economic performance. *Regional Studies, 1*, 1–19.

Birch, K., MacKinnon, D., & Cumbers, A. (2010). Old industrial regions in Europe: A comparative assessment of economic performance. *Regional Studies, 44*, 35–53.

Bort, S., Oehme, M., & Zock, F. (2013). Regional networks, alliance portfolio configuration, and innovation performance. In S. Barak, S. E. Aharonson, S. Ellis, I. Drori, T. L. Amburgey, & U. Stettner (Eds.), *Technology, innovation, entrepreneurship and competitive strategy – Understanding the relationship between networks and technology, creativity and innovation* (Vol. 13 pp. 229–262). Bingley, UK: Emerald.

Boyatzis, R. (1998). *Transforming qualitative information: Thematic analysis and code development*. Thousand Oaks, CA: Sage.

Campbell, J., & Cecez-Kecmanovic, D. (2011). Communicative practices in an online financial forum during abnormal stock market behaviour. *Information & Management, 48*, 37–52.

Canina, L., Enz, A. C., & Harrison, S. J. (2005). Agglomeration effects and strategic orientations: Evidence from the US lodging industry. *The Academy of Management Journal, 48*, 565–581.

Capello, R. (2013). Territorial patterns of innovation. In R. Capello & C. Lenzi (Eds.), *Territorial patterns of innovation: An inquiry on the knowledge economy in European regions* (pp. 129–150). Oxford: Routledge.

Caragliu, A., & Lenzi, C. (2013). Structural elements and dynamics in territorial patterns of innovation: A perspective through European case studies. *Regional Science Policy and Practice, 5*, 369–383.

Cecez-Kecmanovic, D., & Webb, C. (2000). Towards a communicative model of collaborative web-mediated learning. *Australian Journal of Educational Technology, 16*, 73–85.

Chapain, C., Cooke, P., De Propris, L., MacNeil, S., & Mateos-Garcia, J. (2010). Creative clusters and innovation: Putting creativity on the map. Research Report November. Retrieved from http://www.nesta.org.uk/sites/default/files/creative_clusters_and_innovation.pdf

Chesbrough, H. (2003). *Open innovation: The new imperative for creating and profiting from technology*. Boston, MA: Harvard Business School.

Cohen, M. D., & Levinthal, D. A. (1990). Absorptive capacity. A new perspective on learning innovation. *Administrative Science Quarterly, 35*, 128–152.

Cook, N. D. S., & Brown, S. J. (1999). Bridging epistemologies: The generative dance between organisational knowledge and organisational knowing. *Organization Science, 10*, 381–400.

Cooke, P., Boekholt, P., & Todtling, F. (2000). *The governance of innovation in Europe*. London: Pinter.

Cooke, P., Heidenreich, M., & Braczyk, H.-J. (Eds.), (2004). *Regional innovation systems*. London: Routledge.

Cooke, P., & Morgan, K. (1998). *The associational economy*. Oxford: Oxford University Press.

Cramton, C. (2001). The mutual knowledge problem and its consequences for dispersed collaboration. *Organization Science, 12*, 346–371.

Creative and Digital Industries Sheffield City Region. (2013). About the CDI Sector Group. Retrieved from http://cdisectorgroup.wordpress.com/about-all-of-this/about-the-group/

Da Cunha, J. V., & Orlikowski, W. J. (2008). Performing catharsis: The use of online discussion forums in organizational change. *Information and Organization, 18*, 132–156.

Department for Business Innovation and Skills. (2010). *Local growth: Realising every place's potential*. London: HMSO.

Department for Culture, Media and Sports. (2001). *Creative industries mapping document*. London: DCMS.

Fleitas, J. (1998). Spinning tales from the world wide web: Qualitative research in an electronic environment. *Qualitative Health Research, 8*, 283–292.

Foord, J. (2013). The new boomtown? Creative city to Tech City in east London. *Cities, 33*, 51–60.

Galloway, S., & Dunlop, S. (2007). A critique of the definitions of cultural and creative industries in public policy. *International Journal of Cultural Policy, 13*, 17–31.

Galunic, C. D., & Rodan, S. (1998). Resource recombinations in the firm: Knowledge strcutures and the potential for Schumpeterian innovation. *Strategic Management Journal, 19*, 1193–1201.

Grecco, L., Di Fabbio, M. (2014). Path dependence and change in an old industrial area: The case of Taranto, Italy. *Cambridge Journal of Regions, Economy and Society Advance*, *7*(3), 413–431. doi: 10.1093/cjres/rsu012

Huczynski, A. A., & Buchanan, D. A. (2007). *Organisational behaviour: An introductory text*. Harlow: Prentice Hall/Financial Times.

Hudson, R. (2005). Rethinking change in old industrial regions: Reflecting on the experiences of the North-England. *Environment and Planning A, 37*, 581–596.

James, L., & Guile, D. (2014). Evaluating the transition from regional development agencies to local economic partnerships: The view of SMEs in the British West Midlands. *Local Economy, 29*, 181–194.

Keeble, D. (2000). Collective learning processes in European high-technology milieu. In D. Keeble & F. Wilkinson (Eds.), *High-technology clusters. Networking and Collective Learning in Europe* (pp.199–229). Ashgate: Aldershot.

Keeble, D., & Wilkinson, F. (1998). Collective learning and knowledge development in the evolution of regional clusters of high technology SMEs in Europe. *Regional Studies, 33*, 295–303.

March, J. G. (1991). Exploration and exploitation in organizational learning. *Organizational Science, 2*, 71–87.

Markusen, A. (2010). Organizational complexity in the regional cultural economy. *Regional Studies, 44*, 813–828.

Meegan, R., Kennett, P., Jones, G., & Croft, J. (2014). Global economic crisis, austerity and neoliberal urban governance in England. *Cambridge Journal of Regions, Economy and Society, 7*(1), 137–153.

Morgan, S. (2013). Development dynamics within creative media industries: The case of television and digital media in Wales. *Regional Science Policy & Practice, 5*, 385–401.

Newell, S., Robertson, M., Scarbrough, H., & Swan, J. (2002). *Managing Knowledge Wrk*. Basingstoke: Palgrave.

O'Connor, J. (2009). *The cultural and creative industries: A review of the literature*. London: Creative Partnerships, Arts Council England.

O'Connor, J., & Gu, X. (2010). Developing a creative cluster in a postindustrial city: CIDS and Manchester. *The Information Society: An International Journal, 26*, 124–136.

Pavitt, K. (1984). Sectoral patterns of technical change: Towards a taxonomy and a theory. *Research Policy, 13*, 343–373.

Peck, F., Connoly, S., Durnin, J., & Jackson, K. (2013). Prospects for 'place-based' industrial policy in England: The role of local enterprise partnerships. *Local Economy, 28*, 828–841.

Phelps, C. C. (2010). A longitudinal study of the influence of alliance network structure and composition on firm exploratory innovation. *Academy of Management Journal, 53*, 890–913.

Pratt, A. C. (2009). Policy transfer and the field of the cultural and creative industries: Learning from Europe? In L. Kong & J. O'Connor (Eds.), *Creative economies, creative cities: Asian-European perspectives* (pp. 9–23). Heidelberg: Springer.

Propris, L. D. (2002). Types of innovation and inter-firm co-operation. *Entrepreneurship and Regional Development, 14*, 1433–14253.

Pugalis, L. (2012). The governance of economic regeneration in England: Emerging practice and issues. *Journal of Urban Regeneration and Renewal, 5*, 235–252.

Pugalis, L., & Bentley, G. (2013). Economic development 2010-2013: A mid-term assessment. *Local Economy, 28*, 935–947.

Rodham, K., & Gavin, J. (2006). The ethics of using the internet to collect qualitative research data. *Research Ethics Review, 2*, 92–97.

Rogers, E. M. (2003). *Diffusion of innovations*. New York, NY: Free Press.

Schumpeter, J. A. (1934). *The theory of economic development: An inquiry into profits, capital, credit, interest and the business cycle*. Cambridge: Harvard University Press.

Scott, A. J. (2008). Resurgent metropolis: Economy, society and urbanization in an interconnected world. *International Journal of Urban and Regional Research, 32*, 548–564.

Scott, A. J. (2010). Cultural economy and the creative field of the city. *Geografiska Annaler: Series B, Human Geography, 92*, 115–130.

Sheffield City Region. (2010). *Shaping the Future of the Sheffield City Region Economy.* Retrieved from http://www.sheffieldcityregion.org.uk/general-documents

Sheffield City Region Local Enterprise Partnership. (2012). Sector groups. Retrieved from http://sheffieldcityregion.org.uk/about/sector-groups/

Sheffield City Region Local Enterprise Partnership. (2014). European Structural &Investment Funds Strategy. Retrieved from http://sheffieldcityregion.org.uk/wp-content/uploads/2013/05/SCR-ESIF-FINAL-1.pdf

Sissons, A. (2011). *More than making things: A new future for manufacturing in a service economy. A Knowledge Economy programme report*. The Work Foundation. Retrieved from http://www.theworkfoundation.com/assets/docs/publications/284_more%20than%20making%20things.pdf

Skillset. (2011). Sector skills assessment for the creative media industries in Wales. Retrieved from http://www.skillset.org/uploads/pdf/asset_16300.pdf?3

Smith, K. (2000). Innovation as a systemic phenomenon: Rethinking the role of policy. *Enterprise & Innovation Management Studies, 1*, 73–102.

Srivastava, K. M., & Gnyawali, R. D. (2011). When do relational resources matter? Leveraging portfolio technological resources for breakthrough innovation. *Academy of Management Journal, 54*, 797–810.

Stock, W. G. (2011). Informational cities: Analysis and construction of cities in the knowledge society. *Journal of the American Society for Information Science and Technology, 62*, 963–986.

Taylor, C. (2013). Between culture, policy and industry: Modalities of intermediation in the creative economy. *Regional Studies, 49*(3), 362–373.

Todtling, F., Lehner, P., & Trippl, M. (2006). Innovation in knowledge intensive industries: The nature and geography of knowledge links. *European Planning Studies, 14*, 1035–1058.

Todtling, F., Skokan, K., Hoglinger, C., Rumpel, P., & Grillitsch, M. (2011). Inovation and knowledge sourcing of modern sectors in old industrial regions: Comparing software firms in Moravia-Silesia and Upper Austria. *European Urban and Regional Studies, 20*, 188–205.

Todtling, F., & Trippl, M. (2005). One size fits all? Towards a differentiated regional innovation policy approach. *Research Policy, 34*, 1203–1219.

Trippl, M., & Otto, A. (2009). How to turn the fate of old industrial areas: A comparison of cluster-based renewal processes in Styria and the Saarland. *Environment and Planning A, 41*, 1217–1233.

Van de Ven, A. H. (1986). Central problems in the management of innovation. *Management Science, 32*, 590–607.

Wasko, M. M., & Faraj, S. (2005). Why should I share? Examining social capital and knowledge contribution in electronic networks of practice. *MIS Quarterly, 29*, 35–57.

Weick, K. E., & Roberts, K. H. (1993). Collective mind in organizations: Heedful interrelating on flight decks. *Administrative Science Quarterly, 38*, 347–381.

Williams, N., & Vorley, T. (2014). Economic resilience and entrepreneurship: Lessons from the Sheffield City Region. *Entrepreneurship & Regional Development: An International Journal, 26*, 257–281.