

Comunian, Roberta

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# **Networks of knowledge and support. Mapping relations between public, private and not for profit sector in the creative economy**

**Dr Roberta Comunian, School of Geography, University of Southampton**

**Corresponding address:**

Dr Roberta Comunian, School of Geography

University of Southampton

Highfield - Southampton

SO17 1BJ

Tel +44 023 8059 6711

R.Comunian@soton.ac.uk

## **Abstract**

Large attention has been recently drawn towards the relational aspect of economic geography. Within this framework, the paper outlines the opportunities and challenges that social network analysis (SNA) offers to researchers. Although this method is not new in the field, it has only marginally been adopted by economic geographers. Using the example of a research undertaken in the North East of England, investigating the networks and relations between creative industries, the paper addresses a series of methodological issues.

In particular, the research addresses the relevance of knowledge and support networks in the field of creative industries, mainly comprising small and medium size enterprises. It suggests the need to adopt an ego-centric networks approach in order to gain a full understanding of who are the key actors in a local system and the way they interact. Furthermore, not limiting the knowledge interaction to the business level, it enables to demonstrate the importance of interconnections with the public and the not for profit sector.

The aim of the paper is twofold. The first goal, reflecting on the empirical results presented, is to question the current understanding of the 'creative economy', reconsidering the importance of social and economic networks existing between creative industries practitioners, the publicly supported cultural sector and the cultural infrastructure of a region. The second objective is to stimulate the debate around the use of SNA in economic geography, addressing both difficulties and potentials of this method.

**Keywords:** creative economy, creative industries, social network analysis, relational turn, knowledge networks, ego-centric networks.

## Introduction

The contemporary debate of economic geography seems lately to be centered on the potentials and limits of a 'relational turn' (Sunley 2008; Yeung 2005; Bathelt and Gluckler 2003), which addresses the role of relations among actors and organizations as paradigm for their development.

These arguments have been developing within a long-term debate which from the attention to clusters and networks (Gordon and McCann 2000), with place based-connections and supply-chain relations, have been slowly shifting towards the importance of developing a larger framework for knowledge exchange, traded and untraded relations and social dynamics within the globalized contemporary economy (Bathelt, Malmberg, and Maskell 2004; Dickens et al. 2001). However, a further development of the field seems constrained by methodological and analytical developments. Sunley (2008:3) argues that the over-emphasis given to the relational perspective has brought a "high level of abstraction and lost much of its content and analytical grip". Similarly Yeung critically suggests that large part of the recent literature within the framework of relational economic geography "is relational only in the thematic sense" (Yeung 2003: 38).

As for previous criticisms moved to the cluster approach (Martin and Sunley 2003; Markusen 2003), the tendency emerging in the adoption of the relational approach is that of considering relations as *a priori* in our understanding of regional economic development and as a fix category that can more or less fit into any context and discourse. In this respect, it is argued that the role of networks, their importance and dynamics, should be better understood as an emergent behavior within a broader complexity thinking (Martin and Sunley 2007) rather than as an exercise in measuring or highlighting the importance of specific set of connections, between a specific set of actors that have been previously identified.

As Sunley (2008) suggests part of these limits are related to methodological approaches and the role of networks and relational understanding need to remain set into a boarder understanding of the context. Reporting Somers (1994) he argues that it should be "problem driven", if it does not want to fall into a circular and tautological kind of argument. Therefore, investigating and understanding the role of networks still remains a key issue for economic geographer and although there has been interesting attempts recently to address the role of networks and the use social network analysis (SNA)(Giuliani 2007; Boschma and

Ter Wal 2007), the methodological potential of this method and its relations which other traditional geographical approaches, in particular participatory observation and qualitative methods, have not been fully explored.

The paper aims to contribute to this debate in presenting the methodology and findings from a research on the role of network in the creative economy of the North-East of England. The 'problem driven' approach starts with questioning concepts like creative clusters and creative industries as being meaningful categories to identify the eco-system behind the production of cultural and creative products. From this point of view, the relational approach can provide a useful framework: placing the analytical focus on the complex web of relations among actors, institutions and structures that effect dynamic changes and development in the organization of socio-economic activities. Nevertheless, it also implies the necessity to consider the dualism between 'emergence' and 'forcing' (Kelle, 2005) within the relational approach as prior understanding and definitions of an economic sector and its structure would shape the way we go about understanding their organization from a relational perspective.

The paper presents an account of the way SNA was not simply used as a method but tested and applied in light of the 'relation turn' debate and of the other methodological approaches which contributes to the field of economic geography.

The paper is structured in three parts. The first part explores the literature behind the relational turn; it introduces SNA and some key dilemmas and challenges to be faced when applying SNA in economic geography. The second part sets the background of research undertaken into the creative economy of the North-East of England and the methodology adopted and presents the data collected. The third part explores the outcomes of the research under two perspectives: the importance of the results for a better understanding of the creative economy and the importance of SNA and its potential and limits in supporting these specific findings.

## Part 1 - The 'relational turn' agenda and social network analysis

**The 'relational turn': understanding and mapping relations.** The 'relation turn' can be read as embedded in the development of studies and approaches to mapping and understanding clusters and co-location in economic geography (Boggs and Rantisi 2003; Glückler 2007). It is true that networks and relations have always been central in the investigation and definition of local districts and clusters, from the 'industrial atmosphere' (Marshall, 1920) to the role of the embeddedness (Granovetter 1985) and social capital (Putnam 1993). Nevertheless, in the recent research on clusters methodologically the focus has been on traded relations using a variety of quantitative methods to identify supply-chain exchanges at different scale (Feser and Bergman 2000). The internationalization of clusters and the emergence of global production networks (Humphrey and Schmitz 2002; Coe et al. 2004) has underlined further the importance of relation and connections of the system within specific scales (for example regional vs. national) and across scales (Coe 2000).

Sunley (2008) suggests that one of the limits of this relational framework is that most of the attention is drawn towards the relations rather than the nodes or entities. Although the interest of the relational approach lies on the interconnections between nodes, the nature of the nodes included (and excluded) in the research remains a key determinants in the possibility to understand relations and validate the relational perspectives. The kind of nodes includes will also change the kind of relations the researcher will be able to map. This is a specifically important in a context where the assumption of a correspondence between co-location or supply-chain interactions and knowledge and collaboration exchanges is still strongly present in the literature and evidence is often selective (Markusen 2003). Although the research agenda has moved from the idea of cluster analysis to the importance of networks, as Markusen (2003: 710) suggests this has not provided a sounder framework in terms of analysis "in most regional accounts, networks are presented generically and extolled without examining the motivations of participants, mapping who might be included and excluded, analyzing unequal power relationships among members or gauging the durability or fragility of relationships". This further supported by Martin and Sunley (2003: 17) "there is little explicit empirical investigation of these social and knowledge networks, which more often than not are simply inferred from the presence of particular formal and information institutions within a cluster" .

A strong dichotomy in relation to what kind of relations can be mapped using which methodological framework has remained since the famous academic debate between Markusen (2003) and Peck (2003): supply-chain relations, co-location and market interactions, remain a focus of quantitative research; untraded relationship, support and informal interactions have been mapped mainly through qualitative methods. Mackinnon et al (2000) consider how the new centrality of informal social and institutional dynamics has caused a shift towards more qualitative methods (such as case studies and interviews) and points out that researcher investigating these dimension “face considerable difficulties of operationalisation and ‘measurement’ (Mackinnon, Chapman, and Cumbers 2000: 4). As Martin and Sunley (2001) underline, the debate seems to be centred on false dualisms, like the one of economics versus sociology, and the one of quantitative methods versus qualitative ones. Nevertheless, as Bathelt and Gluckler (2003) point out “ the economic and the social are fundamentally intertwined. They are dimensions of the same empirical reality which should be studied in a dialogue of perspectives” (Bathelt and Gluckler 2003: 118). The present paper argues that some of the recent attention of the economic geography literature towards SNA as a tool to explore the relational dimension of the economy needs to be understood within this debate. Nevertheless, in approaching this new methodology it seems clear that a quantitative interpretation – common to many network studies – or qualitative approach – more used with sociological frameworks, can easily make the old dichotomy reemerge. The paper argues that the use of SNA in economic geography should be integrated with other methods and grounded within our theoretical understanding of relations, rather than used as a mechanism to quantify relations and the position of individuals or firms in a specific context.

Bathelt and Gluckler (2003:125), presenting the approach of relational economic geography, suggest that “economic action is viewed as being embedded in structures of social (and economic) relations”, therefore it seems important to consider SNA within this framework. The present paper tries to address the relational problem adopting a grounded approach to what kind of relation and what kind of nodes makes into the maps and systems that researchers explores with this relational view. This priority given to socio-spatial relations is obtained applying a grounded approach to the use of SNA where nodes, categories and centrality are not determined by the researcher but by the sample and fieldwork itself. It is argued that only a ego-centric network perspective can allow the research to put “the

strategies and objectives of economic agents and their relations with other agents and institutions are the core of the analysis” (Bathelt and Gluckler 2003: 129)



### **Social network analysis: dilemmas & challenges for an economic geographer**

Grabher (2006) presents a critical overview of the notion of networks with economic sociology and economic geography research. The account he presents sets the scene for the recent attention of economic geography towards SNA. As Emirbayer and Goodwin (1994: 1414) point out “network analysis is not a formal or unitary “theory” that specifies distinctive laws, propositions, or correlations, but rather a broad strategy for investigating social structure”. As many authors suggests a social network is one of many possible sets of relationships of a specific nature that connects actors (or nodes) within a larger network (or social structure). This means that the time and space dimensions are specifically relevant and that whatever network one might be willing to study it needs to be understood as embedded in a specific circumstances and geographical or social determinants.

Knox et al (2006) explore the use of SNA as methodology widely adopted in a variety of different disciplines. They underline how the SNA approach and field has a long history in terms of theoretical and methodological development and also a high level of institutionalization in respect to the presence of specialized journals, conferences and institutes. This institutionalization and also the strong mathematical / statistical developments in some ways have made it harder for the methods and approaches to be recognized more widely and interdisciplinary. It seems that a broad understanding of how different disciplines use SNA methodologies is important to understand its relevance to economic geography. In particular, the use of SNA in organizational studies and communication sciences share some common perspectives as the system is defined by the research itself and issues such as centrality, brokerage or density are considered central (Cross, Borgatti, and Parker 2002). In social sciences, where SNA is an established methodology, the focus has usually been on the individual and its networks or its role within specific network (Burt 2004; Granovetter 1973).

As Borgatti and Molina (2003) suggests SNA is rapidly becoming very popular between researchers “ because it provides a way to make the invisible visible and the intangible tangible” (Cross, Borgatti, and Parker 2002: 41), It can be used “to quantify and map such ‘soft’ phenomena as knowledge flows and communication” (Borgatti and Molina 2003: 338). The advantages of SNA lie not only the representation capacity and in the possibility to handle a large set of data through specific matrix but also in turning qualitative information in quantitative information and vice-versa. (Cross et al. 2001: 103)

Boschma and Ter Wal (2007) successfully present some of key understanding and uses of SNA in economic geography, nevertheless some critical dimension in reference to how SNA overcomes or not some of the limits and criticisms moved to the relational approach need to be addressed further.

In particular, critically related to the methodology adopted for the present research looking at networks of knowledge and support within the creative economy of the North-East, these key issues are discussed: the problems of defining nodes and agents; the relevance of multiple-relations; the difference complete networks and ego-centric networks; the issue of integration with other methods in economic geography and the ethical problems associated with the method.

**Defining nodes and agents.** In organizational studies, nodes or agents do not represent a difficulty and can easily be categorized in relation to their location in the organizational structure (i.e. an office, department, division). In the studies that use SNA in economic geography there is a strong bias towards considering firms the only key node involved in knowledge and innovation networks (Giuliani 2007; Boschma and Ter Wal 2007).

Nevertheless, it seems that in an economic geography landscape where firms are only one key aspect (alongside institutions, research organizations, support network etc.) deciding what constitute a node or agent should be already a challenging exercise. In particular, the scale of the analysis can affect in many ways the results and the way we interpreted them. Often the distinction between the individual level and the organization / firm level can question some of our understanding of knowledge networks. The overlapping between individuals' networks and companies' networks can often be a questionable practice (specifically in large companies) and the issue of how the position of the person interviewed influence the company or institution position in a network, seems a relevant issue to address. In particular when other research in economic geography suggests that labor market interconnections, personal contacts and friendship networks are person specific and the movement/employment of a person might considerably change the knowledge network of a company (Henry and Pinch 2000; Agrawal, Cockburn, and McHale 2006 ).

A SNA questionnaire is usually filled in by an individual; in many cases this individual is a logical representation of the company / organization, for example the managing director or owner. In the case of creative industries this person is often a sole trader or freelance, so

she/he is the company itself. Nevertheless, in many occasions, individuals can be more central to a specific knowledge network that the organization they work for is. Personal and knowledge sharing interconnections are also often unrelated to specific business interconnections. In this case, making a link between individuals and organizations, simply because the individual has a relation with another individual inside an institution can become an overstatement.

The issue of geographical scale and boundaries of the nodes that are selected is also crucial. In a context where even the definition and scale of clusters is put into questions (Martin and Sunley 2003), deciding which nodes should be in the network and which can be left out is another very little discussed issue. This reflection on the nodes aims not only to bring more clarity into the framework of relations that are presented but also in considering in which way the kind of nodes that are selected will change the set of relations that the research will be able to map. It also can have impact in reference to representation and who is in and who is out of a specific network. In relation to the objective and specific research focus, the individual or the organization (companies, research centers etc) might become the nodes of the network but it is important that the research take into consideration what are the implications of taking one or the other into account on the claims that can be made from a relational perspective.

**Multi-layered relations.** Once the nodes are identified and often within them also the scale of the analysis, the next challenge comes from understanding the kind of relations that can be mapped and how they can be framed.

Crang (1997) provides a broad but strong description of what is the field of investigation of economic geography “content is being rethought in terms of what social and spatial proportions of life count as economic, what proportions (if any) are therefore non-economic, and how these designated spheres of the economic and non-economic interrelate” (Crang 1997: 3). There is in the use of SNA in economic geography a strong preference towards mapping the economic connections, as if in some ways they result as being easier to define and therefore capture. In particular, this overlaps with the problematic dichotomy which is present in many studies between: social and profession, trade and untraded relationships, formal and informal. Two recent studies (Giuliani 2007; Boschma and Ter Wal 2007) have specifically focused on the role of knowledge networks.

Knowledge connections here are treated like an economic transaction and there is no attention towards the key of social dynamics or personal interconnections which might explain why knowledge travels in certain directions but not in others. One dimension which is often emerges from the use of SNA in organizational studies is in fact this lack of correspondence between knowledge as it should travel within the organizational structure (often describe by a simple organizational chart) and knowledge, trust and social capital as it is shared informally with in the organizations based on social dynamics, friendship, personal history. In economic geography there has been limited attention towards trying to identify how economic and non-economic networks differ or overlap and in what way they interrelated (O'Neill and Whatmore 2000).

In fact, the problem relates to the possibility of mapping different forms of relations between nodes. There is often the assumption that because the researcher is interested in one or two forms of interconnections than all the others can be excluded from the research. In particular, the difficulty is also determined by the fact that each research usually tries to capture a specific form of relation. For example if a research is concerned with knowledge exchanges, it might not be investigating friendship among the nodes. A network which highlights knowledge exchange relations and a network which highlights their connection with personal friendship might provide very different pictures of the same landscape. Often there are methodological difficulties in mapping multiple relations but ultimately it is in this multi-layered nature of connections which much of the explanatory power of networks remains. Although SNA can be a powerful tool to address the simple economic connection of a system, the importance of the social dynamics taking place in that specific context should not be ignored.

**Complete networks versus ego-centric networks.** Another key issue on how SNA can be used and applied in economic geography relates to debate between 'whole networks' and 'ego- networks' (Wellman 1993).

The study of 'whole networks' is embedded in organizational studies literature, but has also been used in cluster studies (Giuliani, 2007). The use of complete networks is also supported by Ter Val and Boschma (2009) suggesting the centrality of roster-recall methods. When studying 'whole networks' the major difficulty related to the definition of the boundaries. Even when the boundaries are a well-defined cluster of companies, the use of whole

network approaches means that it will only be able to address the relations within the cluster of individuals identified<sup>1</sup>. This can be the focus of a well-defined research. However, it is important to consider that if the research investigates how knowledge flows and is circulated, it is possible that with a whole network approach important interconnections are left behind simply because those nodes were not part of the cluster geographical base or of the specific sector boundaries established by the researcher.

Although complete networks represent a sound methodology and present very interesting advantages in reference to the possibility to undertake a statistically robust analysis (Ter Wal and Boschma 2009), other approaches adopting 'ego-networks' (Newman 2003; Wellman 1993) present other interesting perspectives. This model is followed also by Greve (1995) which suggests how ego-centred networks are "a description of the closest environments of our respondents, or the cluster to which they belong" (Greve 1995: 5). It can be argued that 'ego-centric' network represent a SNA perspective which is more grounded within the network itself. The use of ego-networks is in fact more established within sociological studies where a qualitative representation of the network is considered valuable. Knox et al. (2005) suggest "this kind of analysis uses networks to unpack the context in which individual live and is reconcilable with more individualistic perspectives within the social science" (Knox, Savage, and Harvey 2006: 5). They highlight the dubious role of the 'whole' network mapping exercises. "Imposing this kind of boundary to define a whole population is in fact logically inconsistent with networks ideas themselves. Given that networks are seen as spanning groups, then any attempt to define a bounded group will ultimately contradict the network idea itself." (Knox, Savage, and Harvey 2006: 7). Emirbayer and Goodwin (1994) criticise the aspect of structuralist determinism which often forget the importance of agencies, culture and local structure in the understanding of networks and this can be overcome by the use of ego-centric networks. As Huber (2008) suggests economic geography as so far partially ignored the actor-centered understanding of social capital, which widely investigated in sociology, and this paper argue that an ego-networks approach might bridge this gap.

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<sup>1</sup> Although this cut-off point of the 'whole-network' boundary is often attenuated by rooster-recall methods where the network boundaries are defined by the researcher who enquires about a specific rooster of nodes but space is left for the respondents to name people or organisations which are not in the rooster list.

**Is mapping enough? Understanding networks.** There is a question of whether SNA provides enough depth in understanding motivations and dynamics behind certain kind of relations rather than simply portrait a map and a possible quantification of these dynamics. Although in SNA the quantitative dimension seems not only relevant but predominant, in economic geography, where local observations, participatory work and qualitative methods are widely used, a sociogram and its numerical attribute might not be enough. For SNA analysts “the pattern of connections among these lines in a sociogram represents a relational structure of a society or a social group” (Lopez and Scott (2000:59) but it can be argued that for economic geographers they simply represent a starting point and a set of questions. Although network analysis can provide a sound base to describe relations and eco-systems, it is still important to consider its embedded limitation, which makes it hard to argue which consequences the network has on the individual or a firm.

A similar approach is suggested by White (1992) who suggests the role and importance of ‘narratives’ and ‘stories’ alongside network analysis. “Social network are phenomenological realities, as well as measurement constructs. Stories describe the ties in networks [...] a social network is a network of meaning.” (White 1992: 65 - 67)

Another limit of the SNA approach is in its static dimension<sup>2</sup>. It rests very much as snapshot of the context investigated and can hardly provide explanation for the dynamics which are behind the networks and also the way the network can evolve in time. Longitudinal studies are possible - yet very demanding – but often the development of networks needs to be understood within a series of social, personal and geographical dimensions which are linked to qualitative studies.

The approach adopted in the present research tries to bridge the gap between qualitative and quantitative approaches using a mix-method approach. The research undertaken has been adopting two different methods: qualitative methods (interviews) and social network analysis (through a SNA questionnaire). SNA is used as a quantitative tool which aims to map what happens in the sector in terms of interconnections and exchanges. Qualitative interviews are used as a method to understand the nature of these interconnections and their motivation and rationale.

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<sup>2</sup> This is partially being overcome by new methodological sophistications and programmes, such as SIENA (<http://stat.gamma.rug.nl/siena.html>) and new approaches are being used to consider the evolution of networks overtime but the difficulties in accessing or collecting longitudinal data cannot be ignored.

Moreover, the fieldwork can enable the data to be set within the cultural and political discourses which are embedded in the context and in its historical development and could hardly be understood if we were to look simply at networks analysis: “[its tools] fail ultimately to make sense of the mechanism through which these relationships are reproduced and reconfigured over time (Emirbayer and Goodwin 1994: 1447).

As Jack (2005) suggests for her investigation “qualitative studies have argued to be preferable when addressing the process, content and dynamics of networks, rather than purely structural matters” (Jack 2005: 1239). In our research we have tried to provide a quantitative infrastructure to our arguments through the SNA questionnaire and then investigate the dynamics of the networks through qualitative interviews.

**Ethical issues & confidentiality.** Within the areas of discussion which has been overlooked by economic geographer are also the ethical and confidentiality issues rising from the use of SNA. An entire volume of the journal *Social Network* in 2005 was dedicated to the theme. Although the perspectives and field of research might be different in different disciplines, it is important for economic geographers to consider their understanding of ethical issues in the use of SNA. As a quote reported by Breiger in his introduction suggests “knowledge is powerful, and particularly so with information that we amass from conducting SNA. So, where are the ethical considerations in our academic papers?” (Breiger 2005:89). The considerations put forward in relation to organizational studies research by Borgatti and Molina (2003) highlight how the social network studies requires more care and attention, from the ethical point of view, than conventional studies. One of the most immediate issue remains with the fact that at the data collection stage anonymity is not applicable. In fact, due to the nature of the data and for the researcher to be able handle and analyze them, it is often necessary to include in the research names and personal details of the respondents and the people they have relationships with. Another problematic characteristic of the social network studies relates to in the fact that the non-participation by a respondent does not necessarily mean that the respondent is not included in the study.

Borgatti and Molina (2003) make the case for ethical questions in relationship to the use of SNA within organizations and its possible consequences on the management of the specific organization. In the case of economic geography research, the focus is not on an organization structure but on a regional structure and networks linking different organizations and individuals. It would be interesting to consider if this kind of research and

data could be used at the macro-regional level to study the issue of support and collaboration and consider needs of investments or development in specific areas. In fact, it can be argued that policy makers could take an interest in this kind of knowledge maps at the regional level – as they previously have been fascinated by the cluster concept – and use such framework to judge on the role of specific institutions or funding schemes.

The idea that key firms or organizations might be identifiable – although a common practice of anonymising data – could cause problem in building trust with respondents and their local context. Kadushin ( 2005) questions who benefits from network analysis and whether we are dealing with a commissioned research or an academic investigation it is important to keep this question in mind in reference to how our research might get used and how our sociograms might be interpreted outside our academic field.



## **Part 2: Mapping and understanding network in the creative economy of the North-East of England**

**Creative industries, creative clusters and economic development in the North East of England** . Within the larger framework of the 'relational turn' the paper looks at a specific sector of the economy: the cultural and creative industries. The definition of the creative industries (DCMS, 1998) has been often criticized for being fuzzy and too broad (Oakley 2006; Garnham 2005), nevertheless, since much of the policy implication for the sector derives from this definition, it cannot be ignored. Nevertheless, we take a broader perspective in studying the networks within the creative economy of the North-East and include in our study also organization, public, private and not for profit which are part of the support infrastructure around the creative economy at the regional level. The movement towards a social network markets approach recently proposed by Potts and Cunningham (2008) is here supported as creative and cultural industries are considered embedded in a production eco-system (Jeffcutt 2004) which is not sector or industry bound; nevertheless pushing the argument of Potts and Cunningham (2008) we include in this social network markets also organizations and frameworks which support and provide seed-funding for the creative economy at the local level.

Most authors looking at creative industries at local and regional levels have used some kind of cluster approach, on the basis that clustering plays an important role in these industries. For example, Scott (2000, 2002, 2005) and Storper (Storper 1989; Storper and Christopherson 1987) have specifically developed their studies in the context of cultural clusters, i.e. the development of the film industry in Hollywood. Many other authors have focused on the analysis of clustering in different sectors: film and media (Coe 2000; Turok 2003); design; advertising (Grabher 2001); software and new media (Pratt 2000; Christopherson 2004); music (Brown, O'Connor, and Cohen 2000; Gibson 2005).

In the context of creative industries, there has been a growing interest in the way the social and cultural dimensions are intertwined with the sites of exchange and consumptions but also the value of productions systems and supply-chains. This is not a new theme for researcher in the field, but it can be argued that very little attention has been directed towards understanding the nature and dynamics of these networks.

Using the classification of models of clusters developed by Gordon and McCann (2000) it can be argued that much of the research around the creative industries production clusters has been concentrating on the first two models, 'pure agglomeration economies' placing emphasis on the importance of external economies and agglomeration, and the 'industrial complex' model, instead focuses on the role of input-output connections between firms in the cluster (Grabher 2001; Scott 2002, 2005; 2001; Coe 2000; Lazzarotti 2003; Pollard 2004). Although many studies have touched on the 'social network model' only few have explicitly focus on it (Julier 2005; Kong 2005; Banks et al. 2000). While the use of industrial data and exchanges has between the main methodologies for the industrial mapping, the social network aspect has been mainly investigated through qualitative interviews with people in the creative sector.

Although not much research has been conducted on the actual structure and organization of these networks, large part of the literature related to clusters and regional economic development within the creative economy make claims about their importance within particular sectors case studies and investigations (Christopherson 2002; Coe 2000; Crewe 1996; Ettlinger 2003; Grabher 2002; Johns 2006; Mossig 2004; Neff 2004). These arguments have been, in various occasions, interconnected with the urban cultural infrastructure through terms such as cultural quarters or cultural milieu. Brown et al (2000) suggests, specifically focusing on the role of the 'cultural quarter', how physical linkages are often depending of social linkage. Nevertheless, arguments in favor of prioritizing a network approach over a co-location understanding of the creative industries have emerged recently (Chapain and Comunian forthcoming) and a new understanding of the importance of scale also within the creative economy have expanded this framework (Coe 2000).

The shift from the neoclassical approach to economic geography based on competitive advantage and transactional factors (Porter 1998) to institutionalism and relational assets: 'institutional thickness' (Amin and Thrift 1993), 'untraded interdependencies' (Storper 1997) towards the relational thinking (Yeung 2003) which have emerged more recently can also be seen in the literature related to the creative industries. From data and economic impact studies to relational approaches: "creative ecosystem" (Jeffcutt 2004) 'sociality of cultural industries' (Kong 2005).

Emerging from a fuzzy literature which has not been able to pin-point motivation and dynamics behind the interactions across the creative industries, the concept of the creative

cluster (Pratt 2004; Wu 2005; Turok 2003) has been used by policy makers and researchers without a clear understanding of the sort of interactions which take place at local level in the creative economy. In fact a gap in the literature in reference to the way the creative industries work and interact at the local level - to which this research aims to contribute - is still present "there is a lack of strategic knowledge about the relationships and networks that enable and sustain the creative process in a knowledge economy". (Jeffcutt and Pratt 2002: 228) .

Concepts like 'creative cluster' or 'cultural quarter' have been used also within the geographical context of our research, the North-East region of England. In Newcastle-Gateshead and the North East the new emphasis and attention towards the creative economy can be linked to a long process of cultural regeneration in the region. This process started in the late nineties when the region was able to attract large public investments in order to revitalise the local economy and to develop local participation in arts activities are widely acknowledged (Bailey, Miles, and Stark 2004; Matarasso 2000). These investments enabled the creation of large publicly funded cultural infrastructures, not only in contemporary art (The Baltic) and music (The Sage Gateshead) but also in theatres (refurbishments of the Northern Stage, Theatre Royal and Live Theatre), crafts (National Glass Centre, expansion of the Shipley Gallery), literature (Seven Stories), dance (Dance City) and other important events. The question of whether and to what extent public sector infrastructure benefits the local creative economy is not a simple one to address (Comunian 2008). Nevertheless, the region and specifically Newcastle-Gateshead are considered to have benefited from a 'brain gain' (Minton 2003) and have been labelled by the press as new raising 'creative city'<sup>3</sup>.

Alongside the cultural regeneration of the region, The Regional Development Agency, ONE North East and local authorities and support agencies have been particularly interested at the potential economic impact of the creative economy locally and regionally (CURDS 2001; ONE North East 2007). One of the emerging patterns of this development is the establishment of more or less sectorial networks and organization supporting people in the creative sector. The development of these networks - sometimes formal and institutional,

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<sup>3</sup> Newsweek Atlantic Edition on 2<sup>nd</sup> September 2002 wrote "Newcastle-Gateshead listed as one of the world's eight most creative cities"

other times artist-led and more informal - represents an interesting emerging phenomenon.

**Methodology: insights from an applied research.** As suggested by the dilemmas and challenges offered by SNA as a method, the researcher trying to map and explore networks has quite a few key issues to face in respect to research design. In this paragraph, some of these issues are addressed in reference to how SNA was used to map network across the creative economy of the North-East. While SNA was used for its potential in mapping connections and getting an overall quantitative picture of the dynamics emerging, overall the research adopted a mixed-method approach. SNA was used to draw a map of relations; interviews were undertaken in order to provide further depth in the dynamics and motivations behind those interactions. While the readings and the statistical models presented in organizational studies and other sources suggested the importance of a large and structured sample, other insights from studies using ego-centric networks in the sociological field presented a stronger appeal. Individuals therefore, rather than institutions and firms became the core of the research. This made sense also in the framework of the creative economy, characterized mainly by micro and small companies, alongside freelancer and sole traders. The sample was going to be limited mainly by the availability of people as SNA and interviews combined represent a high level of commitment for the respondents / participants. Using an ego-centric approach, the research focused on the importance of networks for individuals rather than mapping knowledge within a specific predetermined structure. The sample included a selection of individuals belonging to the creative economy of the North-East and willing to take part in the research. The name of the individuals was selected from the yellow pages, other business directories and listing magazines, as well as individuals involved in public policy activities and initiatives in the sector. Overall, around 400 individuals were contacted via e-mail or telephone and invited to take part in the research. The positive responses allowed a sample of 136 individuals to be interviewed between September 2005 and April 2006, covering different sub-sectors of the creative and cultural industries and spacing from directors of private companies, to sole traders, from policy makers to not for profit cultural sector managers<sup>4</sup>.

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<sup>4</sup> The qualitative interviews covered six main areas: the present role and position of the person and his / her career development; the involvement with public funding and public sectors projects and organization; relations with cultural and arts institutions; relations with place and its importance in

In line with other methodological approaches, such as participatory observation and multi-sited ethnography (Marcus 1995), SNA was considered not simply as a theme of the research but also a *modus operandi*, since they are themselves the objects of analysis and the way in which the researcher moves through space in order to understand its object of analysis.

In fact, the element of participatory observation becomes essential in considering the importance of network in space and time for the creative practitioner as they express their 'network sociality' (Wittel 2001). Moreover, it could be argued that 'relational geometries' (Yeung 2003: 38) are central when studying networks which connects actors and structures between public and private because the qualitative value of the relations (which can always be read as both horizontal and vertical) always shows the importance of power. In particular, within the present research, the notion of power is linked to possibility to build a representation discourse about the place (Chapain and Comunian forthcoming) and lead its regional development through the global competition and investments in cultural economy. The interviewee would be asked at the end of the interview to fill in the SNA questionnaire and return it by post. 90 questionnaires were completed and returned. The response rate was overall high (66%) as the researcher, aware of the demanding task of compiling a SNA questionnaire, which included many personal data as well as the issue of naming personal contacts, made sure that the interviewee was aware of the importance of the data for the overall project. The interview allowed the research to create a personal bond, which enabled to solicit the SNA questionnaire return at a later stage<sup>5</sup>.

The SNA questionnaire asked respondents to identify up to 12 people who were more important for their work and career. The questionnaire left to the respondents the task to identify these individuals providing no restrictions: they could have been based anywhere in the world, they could have been personal as well as professional contacts as long as they were representing the most relevant people for the creative practice of the respondents.

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their practice; relations with other creative/cultural industries or creative people and role of networks; opinions and interactions with the support & public sector infrastructure.

<sup>5</sup> Nevertheless, individuals who did not completed the questionnaire mentioned among the difficulties and motivations the length of the questionnaires, the difficulty in providing personal data an contacts and in general the fact that it was a questionnaire type that they had not seen before and struggled to understand.

The key contacts were identified by names (and specific data protection and anonymity was made clear from the interview) and were also identified by the geographical base and sector/organization. The relationship with these meaningful contacts were further addressed and investigated. Specifically, in terms of: general nature of the relationship; means of interactions; interactions across sectors; strength of the relationship based on number of interactions; multi-layered nature of the relationship; strength of the relationship based through time; strength of the relationship based on acquaintance; strength of the relationship based on knowledge exchange; strength of the relationship based on support; nature of the relationship based on the person strengths; how the relationship started. The SNA questionnaires were analyzed using Pajek as social network analysis software developed by the University of Ljubljana<sup>6</sup>. The data are entered through a matrix which summarizes the number of nodes and the relationships they share. Through the analysis different relations and dimensions (such as strength and frequency) a variety of sociograms and networks were developed. For the purpose of this paper, only a limited amount of results will be presented. This relates to another of the difficulties of using SNA. The richness of data and information that can be collected is often not so easy to visualize or present (especially when dealing with large data sets). For this reason, although a multi-layered approach was used and each connection was investigated in relation to its nature, on the sociogram presented in the following pages, when not specified, the graph presents connections which are an aggregation of different sets of relations mapped.

In the present paper some specific findings are presented which highlights some key potentials of SNA and aim to contribute to a better understanding of the creative economy.

**Mapping creative networks in the North-East.** As suggested in the methodology the research is based on ego-centered networks. People (nodes) included in the network are the ones that the respondents have considered important to include; in this respect, the network closely represents the everyday practice of people working in the creative sector.

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<sup>6</sup> Pajek (Slovene word for Spider) is a program, for analysis and visualization of large networks. It is freely available, for noncommercial use. Pajek is developed by Vladimir Batagelj and Andrej Mrvar at the University of Ljubljana. The most comprehensive manual of the programme is (De Nooy, Mrvar, and Batagelj 2005) Information about the programme available online at <http://pajek.imfm.si/doku.php> (last accessed January 2009)

Ultimately the nature and characteristics of the network in our case is determined by the specific networks of people who returned the questionnaire, but can be anyhow useful to investigate and question a set of relations and their meaning in the local creative economy of the North-East.

Table 1: Overview on the SNA questionnaire sample.

Creative and cultural fields	Sectors					Total	
	Public Sector	Private Sector	Education	Not for Profit / Voluntary	Freelance		
Music	2	1	1	0	1	5	6%
Visual Arts / Design	2	5	2	9	11	29	32%
Craft- Makers	0	2	0	0	2	4	4%
Architecture	1	1	0	0	0	2	2%
Creative industries support	7	0	1	3	0	11	12%
Photography	0	1	0	1	3	5	6%
Media, Film, TV	1	3	1	0	0	5	6%
Performing Arts	1	1	0	3	1	6	7%
Glass Artist	0	1	0	0	6	7	8%
Writing / Publishing	0	4	3	2	2	11	12%
New Media / Web	0	2	1	0	1	4	4%
Festival	0	0	0	0	1	1	1%
<b>Total</b>	14	21	9	18	28	90	
	16%	23%	10%	20%	31%		

Table 1 show the composition of the sample of people interviewed who completed the SNA questionnaire (90 people in total). The sample covers a variety of creative fields and sub-sectors (such as music, visual art, design etc ) and it is spread between public sector (including education) 26%, private sector (including freelancers) 54%) and not for profit

sector (20%).. The total number of relationship included by the whole 90 respondents where 909 involving 800 nodes.

Table 2: Output Degree Partition of initial nodes (90) – (the lowest value: 3 / the highest value: 12)

<b>Number of contacts included in the questionnaires (out degree partition of sample)</b>	<b>Frequency</b>
3 contacts	3
5 contacts	2
6 contacts	5
7 contacts	2
8 contacts	5
9 contacts	5
10 contacts	22
11 contacts	11
12 contacts	35
<b>TOTAL</b>	<b>90</b>

An average of 10.1 connections per person. In reality, the completion of the questionnaire was very diverse. While some people put down 3 or 4 contacts, some others completed the whole 12 spaces (table 2). This can be explained in different ways. Some people felt that the number of people really important for their work was less than 12, some others, potentially could have included a larger list. This highlight the different approach that each person as towards his / her business connections and how different people approach business networks in different ways<sup>7</sup>.

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<sup>7</sup> One person returned the questionnaire with this comment “as I have only named 3 people in the form you might feel I have not given it ample thought. However I don’t network or socialize (I don’t even go to the pub) and the information on the form is correct. I would be interested to hear the results of your survey as I have theory that many craft people and sole traders keep themselves to themselves, which actually helps the creative process by limiting negative remarks and criticism from others at the stages when their ideas are vulnerable” (Craft / Maker)





partition to this triad, we would discover that this is a regional-based connection as both the artist and the sculptor are based in Northumberland and the commercial gallery is located in Durham. In fact, the geographical partition of our network shows some interesting dimensions. When asked to complete the SNA people were asked to think about the most important individual for their work and career. They were free to list individuals located in the same building, in the same region but also everywhere else in the world.

Table 3: Geographical origin and sector of the nodes / contact mentioned by the sample

		Geographical origin				
		NE	UK	EU	WW	Total
Sector	Private	250 67.9%	92 25.0%	16 4.3%	10 2.7%	368
	Public	158 76.3%	43 20.8%	4 1.9%	2 1.0%	207
	Not for Profit	108 80.0%	22 16.3%	2 1.5%	3 2.2%	135
	Total	516 72.7%	157 22.1%	22 3.1%	15 2.1%	710

In the data (table 3) it is possible to see a strong presence of regional networks as 72.7% of the individuals that have been named by our 80 nodes sample are based in the North-East. The national level is also present with 22.1% of the nodes named being based in the rest of UK. The international level is very weak only 5.2% and more important for the private sector than the public and not for profit. The importance of local network seems to support much of the literature in the field of regional studies. The weakness of the international connections does not contradict the global dimension of the creative economy as the North-East region is probably not as well connected internationally as other creative hubs in UK like London (Chapain and Comunian forthcoming).



Table 4: Input Degree partition of the network (dimension 800 nodes - The lowest value: 0 -

The highest value: 7)

		In degree								Total
		0	1	2	3	4	5	6	7	
Sector	Private	37	349	26	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	416
	Public	11	171	29	<b>8</b>	<b>5</b>	<b>4</b>	<b>2</b>	<b>1</b>	231
	Not for profit	11	113	18	<b>9</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	153
	Total	59	633	73	21	7	4	2	1	800

Figure 2 shows the input degree partition of the network. For clarity of image, the nodes with input degree equal or superior to 3 (the nodes that have been named 3 or more times) have been pulled out. This highlights which are the nodes which have been referred to by the majority of the initial nodes.

Table 5: Sector / role of the nodes which have input degree equal or higher than 3 (in bold

in table 4 and represented in fig. 2).

In degree	Sector / role	In degree	Sector / role
7	University lecturer	3	Skills support manager
6	Officer writing public support agency	3	Voluntary sector support officer
6	Public business support manager	3	Not for profit arts organization manager
5	Officer arts public support agency	3	University lecturer
5	University support manager	3	Region public support manager
5	Officer arts public support agency	3	Network manager
5	Arts public support agency manager	3	Artist – community art
4	Arts public support agency	3	Artist
4	Not for profit foundation officer	3	Artist
4	Public regional support officer	3	Not for profit arts organization manager
4	Film and media public support agency officer	3	Artist – curator
4	Local authority support officer	3	Network manager
4	Editor not for profit publisher	3	Network manager
4	Arts public support agency officer	3	Voluntary arts organization officer
3	Skills support manager	3	Network manager

3	Glass artist	3	Trust support officer
3	Local authority art director	3	Public business support manager
3	Local authority regeneration officer		

It could be argued that the selection of nodes with higher input degree depends on who has been asked to fill in the questionnaires. Nevertheless, what seems interesting is the fact that the majority of the people in this central position either belong to a public support infrastructure agency / organization or they are the individuals which are in charge of building and managing networks in the creative economy of the North East.

Although our network sampling could be not representative in absolute terms, it is still significant to highlight the important role which the public sector (in terms of regional, local authority, and support agencies) and the university (the most named person is a lecturer at the University) and other not for profit organizations or networks play in shaping and supporting the cultural economy of the North-East. In fact, the role of the public sector as infrastructure or framework to the local creative economy emerges also in the qualitative interviews, as a filmmaker suggests that the public sector *“they can provide opportunities for people to meet, both formally and informally and they can provide some sort of marriage, a kind of marriage bureau”*

Another interesting point, which overlaps with some of the findings from the qualitative side of the research, is the role of networks organization (both formal and informal). Six of the nodes belonging to this selection (see table 5) of high input degree nodes are corresponding to people which promotes or administrate both formal and institutional and informal networks between specific creative and cultural sub-sectors. Again, these findings suggests that there is a strong infrastructure of knowledge, support and general exchange in the creative economy, which is external to the core business to business interaction and related to local infrastructure, funding, formal and informal networks.

As a photographer suggests, often individuals would take on coordinating role to take advantage of this opportunity to be a key node of the network *“we have very strong relationships with lots of other artists. I developed, partly through the gallery and partly through another role which I have [as director of a local artist network] so I developed a lot of contacts with around fifty and sixty artists and I am quite regularly in contact with them”*.

### Networks between private, public and not for profit sector

One emergency aspect addressed by the present investigation is the need to demonstrate the on-going interconnection between public, private and not for profit sector in the creative economy. As figure 3 suggests there is a wide interconnection between the three sectors.

Figure 3: Number of interconnections between and within sectors

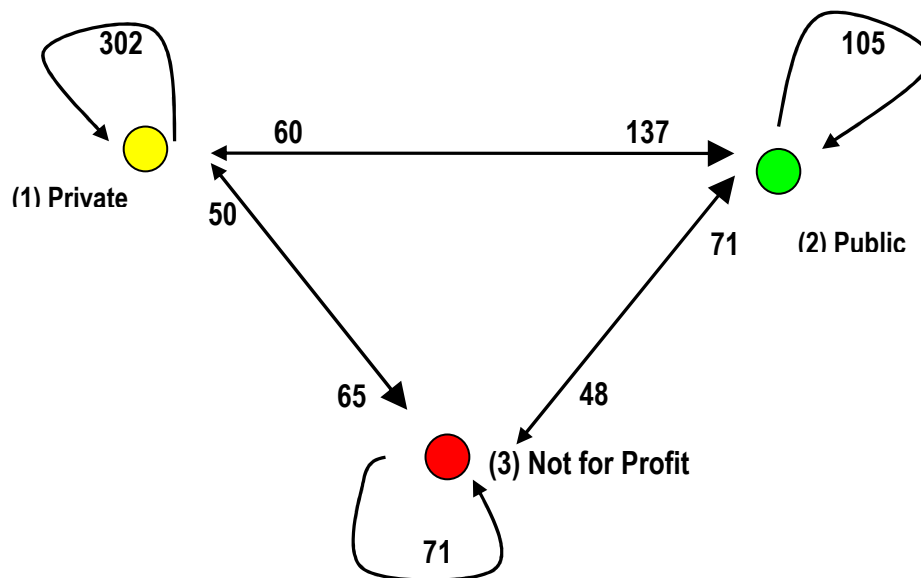


Table 6: Number of overall interconnections between the sectors and related percentage and number of funding only relation

Sector	Value (absolute= n. of connections) (see also figure 3)	Percentage of connection per sector sub-sample	Number of connections linked to funding only (and as percentage of connections in the same direction)
<b>Private (415 nodes = 51.88%)</b>			
Private to Private	302	59.92%	28 (9.27%)
Private to Public	137	27.18%	46 (33.58%)
Private to Not for Profit	65	12.90%	20 (30.77%)
<b>Public (232 nodes</b>			

<b>= 29%)</b>			
Public to Public	105	49.30%	41 (39.05%)
Public to Private	60	29.56%	10 (20.83%)
Public to Not for Profit	48	23.65%	9 (15.00%)
<b>Not for Profit (153 nodes = 19.12% )</b>			
Not for Profit to not for profit	71	36.98%	16(22.54%)
Not for Profit to Public	71	36.98%	33(46.48%)
Not for Profit to Private	50	26.04%	28(56.00%)
Total number of connection	909		213(23.43%)

Although one could expect the interconnection between the public and not for profit sector, the interconnection of both these two sectors with the private is perhaps a surprising result. Together with stating the presence of these interconnections it is also important to consider their directions and dynamics to understand better how the three sectors interact. As table 6 suggests there is a significant number of connections which move from the private sector to the public and also the not for profit sector. This seems to suggest that the public sector plays a significant role in the creative economy. Although in terms of percentage the highest results are in relation to exchanges within each sector (private to private for example), the percentage of interconnections across sectors are also very meaningful.

From the qualitative interviews the role of the public sector emerged clearly and the importance of this sector in relation to funding opportunities was often mentioned, as a freelance writer suggests *“think the advantages are that we have the only literature development agency in the country, New Writing North, and what it is doing is generating little pots of money for writers all the time so there’s probably more opportunities in this region than there are anywhere else in the country so that’s a very positive aspect of it”*. Nevertheless, if we isolate (using a multi-layer approach) the number of connections which are linked to funding (third column of table 6), it is clear that funding does not explain all of

the connections which go from the private and not for profit sector to the public sector and issue of knowledge exchange and social capital need to be considered.

Part of these increased connections across sectors, public, private and not for profit might reflect the existence of 'creative knowledge pool' (CURDS, 2001) which moves across sector as described by one of the interviewee working within a voluntary sector art organization *"the same people are doing everything and moving around, for example as people move in their career some people might move from University, than they start their own theatre company then they move to Live then move to Northern Stage, people move in and out from the Arts Council, because you can have a big overview and you want to move on, then they want to get back to more basics, [...] you see the same people but they are not doing the same job they were doing last time"*.



### **Part 3 - Conclusions and lesson learnt**

The paper aimed to contribute to the debate about the role of networks in the creative economy, suggesting that authors focusing on the business to business dynamics of this sector have forgot to analyze the role and importance of the public and not-for-profit. In presenting this argument, the paper highlights the potentials of SNA, and specifically the use of ego-centric networks as an approach which might enable researcher to adopt a more grounded approach to the relational perspective.

**What do we really know about the creative economy?** The use of SNA questionnaires, integrated by qualitative interviews presents us with a very challenging picture of the creative economy. A picture that does not completely resemble what research and policy makers have been describing simply as a business sector leading the economy of UK (DCMS 2009).

The data collected present a very different story: a story of relations, symbiosis and may be sometimes dependency from a larger infrastructure built around the public and not for profit sector. From the data it seems that any future research addressing the creative industries should take into account also the public and not-for-profit sector as measuring or study the sector without including these areas would mean to present a very partial picture. This might be a reality which is stronger in certain specific contexts – and the findings of North-East region of England cannot be generalized, but still remain important in the overall understanding of the creative economy.

In particular, it is important that against initiatives which try to label and frame the creative economy as a pure industrial sector a more honest perspective about the contribution of the public and not for profit sector is considered. The latest research commissioned by One North East, the regional development agency also focused specifically on the commercial creative sector (ONE North East 2007). Our findings suggest that a clear cut between private, public and not for profit in the region might not be possible and therefore a network approach to the creative economy should be adopted.

Huber (2008:19) shows that a better understanding of social capital can be derived by defining it as “resources embedded in social networks which can be potentially accessed or are actually used”. The present paper argues that this is even truer when we try to understand the role of networks in the creative economy: only an ego-centric approach

based on the use of resources and connections by creative practitioner can shade a light on the way the creative economy works. The results presented suggest that ignoring the role of the public and not for profit sector would provide a very partial view on our understanding of how creative practitioners access resources and share knowledge within and outside their local system.

**Opportunities and limits of SNA.** The paper presented the use of SNA drawing on the experience of a fieldwork exploring knowledge network in the creative economy. The use of SNA is not unproblematic and difficulties in visualizing results and multi-layered networks still need to be addressed. The study presented still bares many limitations in reference to how the sample is made representative of the sector and what are the generalizations that can be made from the findings.

The paper argues in favor of integrating SNA among the other methodologies adopted within economic geography and in particular it presents supporting arguments for integrating SNA with qualitative methodologies in order to map networks relations but also investigate motivation and dynamics behind these relations.

Moreover, the SNA ego-centric approach presents us with a very crude reality about the way our research methods shape our results and our understanding of the economy and its dynamics. If the same research had been undertook using a complete network framework and a rooster and recall technique based on companies and individuals working in the creative economy, the results collected would have given a complete different set of relations and would have hardly included the public and not for profit sector.

The use of ego-centric networks, although more problematic in reference to the statistical analysis of findings, represent a valuable technique for the research interested in mapping relation without forcing the notion of a cluster or predetermined supply-chain on the sample. This is particularly valuable within the aims of the economic geography to explore soft-infrastructures and knowledge relations.

Another element of discontinuity is in placing the value judgment in terms of what relations are presented and portrait in the network on the interviewee. When we narrow our research objective towards understanding the role of specific factors and interconnection which we have already pre-selected for the interviewee, like asking them about knowledge exchange with a specific selection of companies or individuals, we are assuming that those

are the most meaningful channels and contacts for knowledge exchange, while there might be other sources of collaborations which not only are external to the preselected list but also the business sphere overall. The opportunities to map what are the relations that are considered more meaningful by the interviewees allow also a better understanding of the importance of scale. In our research, national and international contacts are included by many interviewees although the regional dimension is more strongly represented. The last critical point raised in the first part of the paper was related to the ethical dimension of the research, although the results are presented in anonymous form, it is easy to question how public policy could make use of these findings to support (or not support) specific type of networks which are more (or less) influential and this might have repercussion on the creative practitioners who took part in the research.

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