The role of the city-region in constructing credibility and respect

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I - Introduction

Innovation theorists, industrial sociologists and economic geographers are all interested in the processes through which knowledge is created and shared. Innovation is concerned with 'new' products and processes that have value, use or worth. A lot of research on the 'innovation process' in economic geography focuses on (the geography of) sources of this newness, and how local conditions facilitate the combination of these sources into new and useful products. Some places are better at this than others, and reasons for this uneven distribution that have been put forward include economic diversity, a culture that is open to new ideas, and excellent research institutions, just to name a few. However, implicit in this work is the tacit –and problematic– assumption that the simple exposure to new knowledge is sufficient to ensure that it is readily accepted, absorbed and adopted. Clearly, there are forces at play that influence how easily this new knowledge is accepted and used. In order to enrich our understanding of this dimension of the innovation process, there is a need to develop an integrated approach to understanding the transfer of knowledge and how characteristics of individuals, communities and places determine the success with which new knowledge inside systems of innovation is assimilated.

Research in social psychology on learning is extended into the innovation literature in the form of the firm or individual's capacity to absorb new knowledge that is not too different from what they already know. However, this body of literature argues that the ease of accepting new knowledge depends only on the degree of difference between new and old bodies of knowledge and does not incorporate social and institutional factors that sustain or bridge these differences.

The sociology literature (social network analysis in particular) focuses on the dynamics of social structure, where new knowledge is more likely to be accepted as 'true' or 'valuable' by a group when it comes from a trusted or respected source. Similarly, the communities of practice literature that emerged out of organizational and learning theory puts group dynamics and practice at the center of research. However, this approach has not yet articulated a convincing analysis of the importance of geographic and institutional proximity between community members. Much of the work on the geography of innovation however, emphasizes the benefits derived from geographic proximity for the creation and transfer of knowledge, ignoring the process by which new knowledge gets circulated, evaluated and used. While more recent work considers how different types of knowledge– analytic, synthetic and symbolic –influence its transferability (Asheim 2007, Gertler 2007), it too fails to acknowledge the influence of people, groups and places in this process

In this paper, I explore the impact of group dynamics on the circulation and adoption of new knowledge. This approach, rooted in sociology, then forms a basis from which to explore the geographic manifestation of these dynamics. Groups as *systems of relationships* play an important role in 'introducing novelty' in terms of their structure as well as their practice. This approach draws on three bodies of literature, including social network analysis (SNA), which offers tools and concepts to examine the social structure of groups; communities of practice (CoP), which focuses more on the practice and identity of groups in the innovation process; and the sociology of scientific knowledge (SSK), which offers insights into how these approaches can be combined in useful and insightful ways. I argue that the (geographic and social) circulation of knowledge is not only dependent on the (tacit) characteristics of the knowledge

itself, but also on the characteristics, relations and social position of the actors, groups and places in which it circulates. Through further research I seek to explore the relationships between the nature of knowledge inputs, the geography of innovation and the sociology of innovation. This enriched understanding of knowledge transfer will yield insights into the ways in which the city-region impacts the evaluation and adoption of innovation.

The next section outlines the argument for a sociological perspective on innovation and the implications this has for the geography of innovation. Furthermore, this project requires an extension and stretch of what is currently described under the 'relational turn' in economic geography, by focusing on structural dimensions of networks in addition to relational themes. Section four briefly reviews literature on communities of practice, social networks and the sociology of knowledge, and suggests how this 'further turn' could be operationalized. In the last two sections I introduce two case studies from my doctoral research that I will use to test these ideas in very different knowledge systems. Future empirical work will contribute to the literature on knowledge systems by concentrating on questions around credibility, legitimacy and respect and how these concepts are accrued and constructed through individual, institutional and place characteristics.

II - Sociology of Innovation

The Oxford English Dictionary defines 'innovation' as "the introduction of novelties", which implies the output should not only be 'new' but also 'worth' introducing. The more traditional focus on the innovation process by economic geography, is on (local) knowledge inputs and (local) conditions that bring these inputs together in new and useful ways. In very general terms,

geographic proximity sustains geographic concentration due to both the characteristics of knowledge (especially the importance of 'tacit' knowledge) as well as the characteristics of the circulation process (face-to-face interaction and learning). Findings from this body of research suggest a range of factors that make some places better than others in combining sources into something new. These relate to both, the presence of 'raw materials' such as a diverse knowledge profile, and the presence of an innovative 'milieux' where interaction, learning and exchange between different actors is celebrated and promoted. These findings have informed a number of economic development strategies at the level of the city-region, ranging from industrial clusters to regional innovation systems to the more recent creative city strategy. They suggest ways in which to promote the generation and attraction of important 'raw materials', as well as ways to facilitate their circulation and combination into new products and processes.

In contrast to this traditional focus on the production of novelty in the innovation process, its definition suggests the processes by which new products and process are evaluated as 'new and useful' are important to innovative potential and success. Furthermore, it would be important to understand the structures and mechanisms that evaluate 'meaning', 'usefulness', 'worth' or 'value', and what role place, geography and proximity play in this evaluation and assimilation process. How are credibility and legitimacy constructed through individual, but also institutional and place characteristics? How is 'novelty' negotiated through space, and how is the risk that is associated with introducing 'novelty' managed? These are important questions to begin to reflect on if we are looking to support innovative and creative economic activity that gives us that 'competitive advantage' in today's KBE.

This paper raises some of the issues, questions and bodies of literature that address this process, which informs empirical research I will report on in future papers. Furthermore, this research integrates perspectives on knowledge and learning from psychology (where someone is more likely to accept new knowledge when it fits easily with what they already know) and sociology (where new knowledge is more likely to be accepted as 'true' or 'valuable' by a community when it comes from a known, trusted or respected source) with the geographic perspective that focuses predominantly on the role of geographic proximity, or distance, in the transfer of new knowledge. Using the process and sociology of knowledge circulation and assimilation as a starting point explicitly and exploring their geographic manifestation, raises a different set of questions than starting with 'place'.

My research questions concerning the evaluation and assimilation of new knowledge include:

- What are the group structures and mechanisms that make up the systems that not only create, but also evaluate and use knowledge?
- How does geography affect the actors' role in a group, the relationships between actors, and the group as a whole?
- What forms of 'proximity' are important between actors, but also within the group, and at which stage of the innovation process?
- What is the role of city-regions in accruing credibility and managing risk? How is knowledge negotiated through space?

This emphasis on the *sociology* of innovation and a broader geographic *perspective*, rather than geographic subject, investigates the geographic manifestation of the networks and circulation of

ideas. Places are not studied in terms of their particular resources and practices, but they are rather approached as an outcome of their relationship to one another. Places, in this way, become co-constituted and the 'geography of innovation' is also a manifestation of the 'sociology of innovation'. This paper outlines a suggested way to operationalize such a perspective, which requires a 'stretch' of the relational turn as discussed in economic geography today. This further turn, as I outline below, is informed by literature on communities of practice, social networks and the sociology of scientific knowledge.

III - Relational Turn: turning further

Relationships

The 'relational turn' concentrates on the relations among actors and structures that affect the spatial organization of economic activity (Yeung 2005), particularly in today's knowledge-based economy. In very brief and general terms, this focus centers on three broad ideas. (a) The first concerns the characteristics of knowledge itself, where the tacit, know-how and difficult to express dimension in particular has specific relational requirements for successful transfer. These include frequent, face-to-face interactions based on trust and common understanding (Winter 1987). (b) The second idea is related to the process of learning, which emphasizes interactions between actors in networks of formal and informal relationships, with strong and weak ties. (c) The third idea surrounding a focus on the existence of relationships is that of benefits derived from the presence of relationships and the network at large (which Yeung calls relational assets) which include local buzz, spillovers and untraded interdependencies. In sum, under the relational turn, the relationships between actors and what is being shared through them form the focus.

'Networks' are used to explain why economic activity is still concentrated in particular places, and the geographical dimension of this line of research is its subject – it is about geography and how geography has an impact on economic activity. Knowledge intensive economic activity works 'better' (where 'better' could mean cheaper, better quality or more innovative) in some places than others because some places are better at producing, sharing and using knowledge. What is it about these places that make them better? Cluster theory (Porter, 2000) argues that, amongst other factors, sophisticated demand and supporting businesses are important; the more recent 'creative city(-region)' (Florida 2002) literature argues that places that are tolerant, diverse, and offer a high quality of life (and/or place) enhance the city region's innovative and creative economic potential. It is these characteristics of 'place' that facilitate the processes of knowledge production that form the focus of research, rather than the processes themselves. In other words, a spatial approach takes space or the locality first, and then explores the relationships sustaining this locality (or the lack of relationships straining this locality).

Systems of Relationships

In sociology, social networks have a much longer history and surrounding body of literature, concerned specifically with social structure. Social structure refers to the patterns of social relationships (such as friendships, war, trade relationships) linking social actors (such as people, but also organizations, cities, positions) (Erickson 1997). In contrast to a *relational* model, where the direct contacts between individuals are central in exploring for example the adoption and diffusion of an innovation, a *structural* approach examines how the structure of the social system influences the rate and character of diffusion of innovation (Valente 1995). In other words, relationships are not only significant in terms of the characteristics of individual actors, or

characteristics of their relationship (whether it's face-to-face or based on trust). The content of the relation is impacted greatly by the actors' relative positions in the network, and as Ron Burt points out, that what lies between the two actors – the 'hole' that is 'bridged' – is an important dimension of what knowledge is transferred, and this determines the role and value of the relationship (Burt 2004).

Relations among actors are proving to play an increasingly important role in the creativity and innovation literature, but the value of these relations must be explored in the context of the network in which they are situated. The *system* of relationships then begins to play an important role in the process of 'introducing novelty', and lifts the scale of theorizing from the micro-level of individual interactions to the meso-level of group dynamics.

In order to enhance our understanding of the acceptance-side of knowledge transfer and the assimilation-side of innovation, I propose to 'turn further' than the relational turn as it is currently described, and explore the role of *systems of relationships* in creative and innovative activities. These 'systems' are interesting for two reasons: first is the *structure* of the network and the pattern, position, relations and characteristics of the actors that are involved; and second is the *practice* of such networks, their 'culture', and ways in which networks form the machinery of knowledge construction and circulation.

In the context of this research, these systems of relationships are used to explore the construction of credibility, legitimacy and respect. The working hypothesis for this research is that credibility and legitimacy are transferred from institutions to individuals, but also from places to individuals. If credibility is accrued through individuals, institutions and places, then is the

relative importance of each of these different for different types of knowledge? In contrast to the 'relational' concept of trust between two actors, 'respect' must be gained and is accrued through more 'structural' dimensions of systems of relationships.

IV - Communities and Networks

I argued in the previous section that 'turning further' and looking at the systems of relationships in creative and innovative industries, would generate useful insights in the process of knowledge circulation and assimilation. This group-approach draws on literature on communities of practice (which positions 'groups' and their identity as important building blocks in the innovation process), social network analysis (which offers concepts and tools to examine the social structure of groups), and sociology of scientific knowledge.

Communities of Practice (CoP)

The communities of practice literature emerged out of learning theory (Lave and Wenger 1991) and is further articulated by Brown and Duguid within the context of management and organization theory. In Lave and Wenger's (1991) study of situated learning in apprenticeships, the community of practice is "a system of relationships between people, activities and the world; developing with time and in relation to other tangential and overlapping communities of practice" (98) – a level of social structure that reflects shared learning. In this process, meaning is negotiated through a process of participation and practice: group members are in mutual engagement, joint enterprise and have a shared way of doing things, based for example, on professional codes of practice (Wenger 1998). Wenger's definition of communities of practice is not strict in scale but rather emphasizes the perspective that underlies the concept of practice that

focuses on groups and their practices as places of learning and identity. Brown and Duguid's (2001, 2000) application of Wenger's ideas on practice in an organization setting provides a working context within which members construct shared identities and a shared perspective. These distinct *practices* and the resulting community, knowledge and identity form the basis of effective learning and a repository of knowledge.

Communities of practice have prompted much discussion in (relational) economic geography as sites or organizational forms of knowledge generation and learning. They are also interesting units through which to explore various notions of 'proximity' and their role in transferring tacit knowledge and generating new knowledge. However, this approach has not yet articulated a convincing analysis of the importance of geographic and institutional proximity between community members. Whereas communities of practice are organized around a common task, so-called networks of practice are defined by their common identity (the law profession for example), where one member may or may not know the other members on a personal basis. In epistemic cultures (Knorr-Cetina 1999) on the other hand, members are in mutual engagement and joint enterprise, and have a shared way of doing things based on professional codes of practice and common background knowledge.

Although there is no consensus on the importance of 'proximity' in these processes, or their social structure, communities of practice provide a useful lens through which to focus on the practice of networks and the construction of shared identities and perspectives.

Social Network Analysis (SNA)

The body of literature on social network analysis, stemming from Simmel's classic work (1955) on the "web of affiliations", focuses on social structure, which is a distinctly different focus from

standard analyses using social attributes. A 'social structure' approach begins with the idea that society does not consist of random connections among persons, but tends to be fragmented into social classes and cliques: social structure. The structure of social systems determines the position of individual actors, which determines their access to other actors and their (knowledge) resources within the network. Sources of knowledge are therefore not only dependent on the type of relationship two actors have, as in Granovetter's thesis regarding strong and weak ties (where more different knowledge from one's own is more likely to be found in a 'weak' tie than a 'strong' tie). Ron Burt points out that what lies between the two actors, the 'hole' that is 'bridged', is an important dimension of what is transferred (knowledge) and determines the role and value of the relationship (Burt 2004). It is not just about the characteristics of the individual actors, but their position within the network at large that determines the content of their relation. In this sense, a position that has ties to other networks thereby can act as a source of innovative ideas and entrepreneurial insight.

This social network approach gave rise to a variety of methods and conceptual tools with which to measure different network attributes, including density, diversity and centrality. The concept of centrality for example, is important to the circulation of information and central positions in a network are considered major channels of information. A central actor is able to influence and control groups by withholding or distorting information in transmission, avoid dependency on others in the network to relay information, and increase the speed of diffusion of new knowledge by passing it on to many others. However, although centrality is relevant to the way groups get organized, there is little agreement on measurement and conceptual foundation. There are, for example, three different measures of centrality (based on degree, between-ness and closeness), which suggest three different theories on how centrality affects group processes

(Freeman 1979). This illustrates that despite strength in methods for analyzing network, the abstract conceptions of points and lines (primarily derived from graph theory) poses problems when it comes to the interpretation of network data (Cook et al 1983).

Although social network analysis is criticized for its 'theoretical gap', its mostly static rather than dynamic view of networks, and descriptions of what is inside the network alone, SNA provides useful tools to examine the structure of groups and networks, and suggests an approach through which to conceptualize *systems* of relationships.

Sociology of Scientific Knowledge (SSK)

The body of literature that falls under the Sociology of Scientific Knowledge (SSK) offers insights into the application, use and value of a network approach. The scientific 'field' using Bourdieu's terminology, is a social field like any other, with its distribution of power and its monopolies, its struggles and strategies, interests and profits (Bourdieu 1975). The study of scientific knowledge is therefore concerned with the relations between knowledge and other existential factors in society and culture (Merton 1945). Science in this work is a 'deceptively inclusive word', referring to a methodology, a body of accumulated knowledge and a set of cultural values (Merton 1945).

One of the fundamental bases of SSK, despite numerous paradigm shifts in its perspective on 'society' since it emerged out of the sociology of science in the 1970s[1], remains that there is a social structure, not an individualistic approach to the workings of the scientific community. Merton worked from the 1930s through the 1960s to constitute the study of science

[1] SSK is a distinct field of research from actor-network theory (ANT), which also finds roots in science and technology studies, and whose main theorists are Bruno Latour and associates. The ANT-school criticizes SSK for sociological reductionism and that they rely too heavily on human actors and social rules and conventions settling scientific controversies. ANT argues that the traditional vocabulary of SSK needs to be replaced with studies of how nature and science were 'co-produced', where non-human actors (actants, such as laboratories and instruments) play an integral role.

as a legitimate branch of structural-functionalist sociology, and at the same time he attempted to constitute sociology as 'scientific' (Shapin 1995, 294). SSK in particular, took as its primary task to create a legitimate space for sociology in the interpretation or explanation of scientific knowledge. SSK set out to develop an anti-individualistic framework in which 'social factors' counted not as contaminants, but as constitutive of the very idea of scientific knowledge.

Of great insight is the approach and perspective of SSK, where scientific knowledge is not socially constructed, but the process by which new science is negotiated is highly social. This perspective makes the *process* by which consensus is reached the subject of investigation, rather than the knowledge *product* and whether the knowledge is 'true' or 'false'. This process is perhaps more easily disentangled from the product in the case of science, where the product itself is not rooted in values or culture. However, the SSK approach can be applied to other, less scientific cases. It is important to explore whether these social processes such as knowledge evaluation are similar or different between fields and knowledge bases, why this is the case and how these activities can be supported at the level of the city region.

There are alternative strategies guiding empirical research that Henry Collins reviews in his 1983 review article of SSK, of which 'core-set studies' are especially relevant to methodological discussions in a relational economic geography. 'Core-set studies' (where 'core-set' refers to the actors that are directly involved in the 'case' selected for the study) concentrate on 'controversy', and demonstrate that the formal methods of science do not fully explain the outcomes of passages of research. "These formal methods do not have the potential to resolve differences of opinion over what is a proper addition to scientific knowledge and cannot 'close down' scientific controversies" (Collins 1983, 273). In 'controversial science' (as opposed to 'normal science'),

the range of correct outcomes of an experiment is not known in advance and there is no straightforward way of determining if an experiment has been carried out competently. This type of study includes Collins' work on the detection of high fluxes of gravitational radiation, where some believed only experiments that registered the fluxes were competently performed, and others believed the reverse. In addition to such 'controversies', core-set studies concentrates on the way scientific debates are actually closed in practice. Pickering's (1982) study on the theoretical dispute between 'charm' and 'color' interpretations of a new subatomic particle is an example of this, where he explains the eventual triumph of 'charm' as the result of alliances forged between 'charm' theorists and a group of mathematicians whose techniques could be used got charm but not for the color interpretation. These are studies of controversies, as this is when such formal control 'mechanisms' break down and become most visible. The fieldwork consists primarily of in-depth interviews with 'core-set' members of the scientific community. These interviews require that researchers become familiar with the technical details of the area of science under investigation. Although in previous approaches researchers had formal scientific training, sociologists in more recent studies have acted as participants in scientific activity under analysis (Collins 1983, 276).

Communities of practice, social network analysis and work under the sociology of knowledge, all focus on groups as a unit of analysis. By combining an understanding of the practice and identity of groups (as in CoP's) with an analysis of the structure of groups (as in SNA), we can begin to think of an enriched 'relational' economic geography. Core-set studies under SSK provide a useful illustration of potential ways to integrate the structures and practices of networks. Additionally, SSK studies that concentrate on 'controversy' as a site for case-study

research, suggest interesting and useful ways to operationalize this 'further turn' in relational economic geography.

V - Case Studies in (relational) Economic Geography

In this section I describe the framework and design of my doctoral research, in which I use two contrasting case studies to explore the ways in which knowledge circulation is not only impacted by the characteristics of the knowledge itself, but also by the dynamics of the group in which it circulates. This research is an illustration of how a 'further' turn in relational economic geography, which focuses on the structure and practice of systems of relationships, raises interesting questions, and how it could be operationalized.

The working hypothesis for this research is that credibility and legitimacy are transferred from institutions to individuals, but also from places to individuals. If credibility is accrued through individuals, institutions and places, then is the relative importance of each of these different for different types of knowledge?

Comparative Case Studies

I will conduct two case studies from very different systems of innovation, where features of one domain are brought into focus through their difference from the other. The creative team behind the stage production of the Lord of the Rings (LOTR) and the medical optics research group within the University Health Network (UHN) at the University of Toronto, are comparable communities in terms of size and team diversity, but they come from different industrial sectors and knowledge bases. These communities are representations of their respective classes of

innovative activities, and it is hypothesized that the mechanisms by which knowledge is circulated – and credibility constructed – operate differently. An emerging literature on the geography of knowledge (Asheim & Gertler 2004, Asheim & Coenen 2005, Asheim 2007, Gertler 2007) suggests that there are different 'types' of knowledge in terms of their tacit and cultural dimensions, and their characteristics impact the (geographic) extent to which they can be shared and circulated. Our understanding of the geography of innovation, influenced by characteristics of the knowledge inputs, would be much enhanced with an increased appreciation of the sociology of innovation. The geographic extent to which knowledge circulates is dependent not only on the characteristics of the knowledge itself, but also on the structure and practices of the group in which it circulates.

This design reflects the success of Knorr-Cetina's (1999) study to systematically compare high-energy physics and molecular biology, where she concentrates on the mechanisms of knowledge creation and highlights the differences in these 'cultures of knowing'. She argues that contrary to popular images, the natural sciences are diverse in their methods of inquiry and in their knowledge practices. By systematically comparing these two cases on particular themes, she is able to discuss the cases in more abstract terms and use them to inform a generalized argument, rather than particularistic descriptions. In this approach, case studies are interesting for their ability to inform theory, and not solely for their intrinsically interesting features. In the words of Barnes and colleagues, these case studies are conducted in "an effort to generate new explanatory insights", rather than to "enrich the catalogue of cases" (2007, 6).

The two case studies I use to test the ideas an hypotheses outlined above, are based on different knowledge 'types', where in relative terms the commercial theatre case relies on symbolic knowledge and medical optics on analytic knowledge. However, both cases are

concerned with constructing new knowledge ('novelty') and communicating this to other actors. A new theatre show, similar to many other cultural industries, derives much value from being evaluated as original and different from what came before. This disruptive nature of 'novelty' potentially impedes initial validation. Similarly, research findings in science can be contested, especially when it conflicts with previously accepted knowledge or when experiments are difficult and expensive to replicate. In other words, although these two fields are very different in terms of their knowledge type, they are similar in terms of project and purpose to communicate new knowledge. In this project, the process through which new knowledge is accepted, endorsed and aligned is very important to its success.

Case Study 1: stage-adaptation of the Lord of the Rings

The stage-adaptation of Tolkien's the Lord of the Rings (LOTR) "brought the world's attention to [Toronto] as theatre capital" when producer Kevin Wallace and local theatre giant David Mirvish announced the project in March 2005. The $28 million show would be the most expensive theatrical production to date, financed by 200 private investors and $3 million each from the province of Ontario and Tourism Toronto. When the show opened for previews in February 2006 it had a running time of over four hours, which proved to be only one of many points of criticism by reviewers of the arts in the local and international press after the world premiere on March 23rd, 2006. With 45 stage performers and 90 musicians and crew, the weekly running cost was $800,000 and unsustainable with less than full house audience numbers. When the curtain went down on LOTR on September 3rd 2006, it had played for 31 weeks to 420,000 ticket buyers grossing $30 million. The production is set to premiere in London (UK) on June 19th 2007, its "spiritual home" according to producer Kevin Wallace, with "more music, a clearer

storyline and a much higher level of emotional involvement from all the characters" (Ouzounian in the Toronto Star, 2006).

This case is interesting for a number of reasons. First of all, it is interesting because it failed. Mechanisms that are in place to facilitate the process by which new products are introduced are largely invisible when this happens smoothly, but become more easily observable when they break down. *Why did the stage adaptation of the Lord of the Rings not succeed in Toronto?* The 'true' answer to this question, if there is one, is not important. From a sociological perspective it is interesting to observe who blames who, and what factors contributed to the failure. North American critics had problems with the book, music, characters and performance of the show: "Their adaptation acquires the irritating drone of a speed-typing contest to see how many storylines can be crammed into three one-hour acts" (Kamal Al-Solaylee, The Globe and Mail (Canada)) "Everyone and everything winds up lost…that includes plot, character and the patience of most ordinary theatergoers" (Ben Brantley, New York Times). The show's (British) producer, on the other hand, cited the negative reviews of North American critics as the chief cause for theatre-goers staying away. Moreover, North Americans are "incapable of appreciating distinctive British sensibility" (Mr. Wallace in the Ottawa Citizen (Portman 2006)), although the Toronto Alliance of the Performing Arts did honor the show with seven Dora awards (similar to Broadway's Tony awards).

The range of actors involved in evaluating the quality of the show (including theatre-goers, local and international newspaper critics, industry association awards) and their lack of consensus suggests this process of evaluation is based not only on the product, but also on individual, group and place characteristics. These actors are 'arranged' around the production and the creative team in numerous 'layers', where the evaluation of some actors carries more

weight than others' (the audience versus the newspaper critics, the Hamilton Spectator versus the New York Times critic). Is this 'power' is derived from the individual actor's (central?) position, institutional affiliation, or from place characteristics?

The case of the stage adaptation of the Lord of the Rings is also interesting in the context of the global (English-language) theatre industry. *Why did the Lord of the Rings have its global premiere in Toronto, when "its spiritual home is the London theatre"?* (Broverman 2006). The story goes that the theatre that was originally planned to host that premiere in London extended the run of the unexpectedly successful Queen inspired show 'We will rock you', and there was not a large enough theatre available in London. Producer Kevin Wallace then identified Toronto, the third-largest English-language theatre center in the world, as having a strong classical acting tradition. Why did it not open on Broadway instead? Is there a hierarchy in the theatre industry and is this associated with risk? What prompted the producers to see Toronto as a 'safe' city to introduce the show and test it out before opening in London, Berlin and other cities around the world? Is a show 'proven' when it succeeds on Broadway, but 'doomed' when it fails? Are success, reputation and credibility constructed and accrued through these places? How is the risk associated with introducing novelty, managed in space?

This case study does not try to judge why the production was unsuccessful, but rather focuses on the process by which 'novelty' is evaluated by different actors and how this consensus is built. Questions include 'how is value recognized, expressed and rewarded and by whom?' and 'how is this evaluation impacted by geography and the 'local' context?', and this understanding seeks to integrate the geography of innovation with a sociology of innovation.

VI - Future avenues of (comparative) research

Case Study 2: Medical Optics at University Health Network (University of Toronto)

In addition to the stage-adaptation of the Lord of the Rings, I will conduct a case study from a very different system of innovation, medical optics.

Optical science is a branch of physics that studies the science of light and includes research on lasers, fiber optics, and lenses, which is applied in many related disciplines including psychology, medicine and electrical engineering. This cross-disciplinary context provides insight into ways in which different fields assess and accept new knowledge coming out of optical science. It is considered a technological enabler, playing an important role in telecommunications, medical practices and advances in nanotechnology. In medicine, optics is enabling a wide variety of new therapies and diagnostics, including surgery techniques, imaging systems and noninvasive diagnostic and monitoring applications. The medical and health applications of optical science are particularly interesting in terms of its formal regulations at national and international levels. There is a strong sense of identity and culture within the medical community, and there are large structures and procedures in place to facilitate the process of knowledge assimilation and consensus-building (ranging from peer review to NIH consensus hearings).

VII - Conclusion

In this paper I have set out an argument for considering the sociology of innovation to better understand what makes some places more inclined to accept and assimilate new knowledge than others. This process is of significance in terms of innovation (and creativity) where novelty needs to be introduced in order to generate value. This requires an integrated approach to understanding the transfer of knowledge and how characteristics of individuals, communities and places determine the success with which new knowledge inside systems of innovation is assimilated. In order to concentrate on the sociological dimensions of these knowledge processes and their geographic manifestations, relational economic geography needs to 'turn further', and discussions around various forms of 'proximity' could be fruitfully enhanced by considering systems of relationships and their structures as well as practices. Research on communities of practice, social networks and the sociology of scientific knowledge provide useful insights into ways to operationalize this enriched relational economic geography. Furthermore, SSK provides useful illustrations of strategies guiding empirical research, particularly with respect to selecting case studies of controversy. Future empirical work on cases from very different systems of innovation will operationalize the approach and ideas set out in this paper. Through this comparative case study design, I extend the above discussion on the sociology of knowledge to inform the emerging theory on knowledge typologies. What are the relationships between knowledge type, the sociological characteristics of the group and the geography of knowledge flows in the innovation process?

References

Al-Solaylee, K. (2006) "Set shines but Ring no jewel" in *The Globe and Mail*, March 24th, 2006, R20

Asheim, B.T. & Coenen, L. (2005) "Knowledge bases and regional innovation systems: Comparing Nordic clusters" in *Research Policy 34(8)*, 1173-1190

Asheim, B.T. & Gertler, M.S. (2004) "The geography of innovation: regional innovation systems" in *The Oxford Handbook of Innovation* edited by Fagerberg, J., Mowery, D. & Nelson R.R., Oxford: Oxford university Press, 181-209

Barnes, T.J., Peck, J., Sheppard, E. and Tickell, A. (2007) "Methods matter: transformations in economic geography" in *Politics and Practices in Economic Geography*, edited by Tickell, Sheppard, Peck and Barnes, London: Sage

Boggs, J.S. Rantisi, N.M. (2003) "The 'relational turn' in economic geography" *Journal of Economic Geography 3 (2)*: 109-116

Bourdieu, P. (1975) "The specificity of the scientific field and the social conditions for the progress of reason" in *Social Science Information 14(6),* 19-47

Brantley, B. (2006) "Into the woods: this time with hobbits who sing" in *New York Times*, March 24th, 2006, PT1

Broverman, A. (2006) "Lord of the rings closes early: $27 million show. Producers blame negative reviews, cultural sensibilities" in *National Post* June 29, 2006, A3

Brown, J.S. and Duguid, P. (2001) "Knowledge and organization: a social-practice perspective" in *Organization Science 12(2)*, 198-213

Brown, J.S. and Duguid, P. (2000) *The social life of information*, Boston MA: Harvard Business School Press

Brown J. S. and Duguid P. (1991) "Organizational learning and communities-of-practice: Toward a unified view of working, learning, and innovation", *Organization Science 2(1),* 40–57.

Burt, R.S. (2004) "Structural Holes and Good Ideas" in *American Journal of Sociology 110(2),* 349-399

Collins, H.M. (1983) "The Sociology of Scientific Knowledge: Studies in Contemporary Science" in *Annual Review of Sociology 9*, 265-285

Cook, K., Emerson, R.,Gilmore, M. & Yamaguchi, T. (1983) "The distribution of power in exchange networks" in *American Journal of Sociology 89*, 275-305

Erickson, B.H. (1997) "Social Networks and History: A review essay" in *Historical Methods 30*, 149-157

Florida, R. (2002) "The Economic Geography of Talent" in *Annals of the Association of American Geographers 92(4),* 743-755

Freeman, L. (1979) "Centrality in social networks: conceptual clarification" in *Social Networks 1*, 215-239

Granovetter, M. (1973) "Strength of weak ties" in *American Journal of Sociology 78(6),* pp. 1360-1380

Knorr-Cetina, K. (1999) *Epistemic Cultures: How the Sciences make knowledge,* Cambridge MA: Harvard University Press

Lave, J. and Wenger, E. (1991) *Situated Learning: Legitimate peripheral participation*, Cambridge: Cambridge University Press

Merton, R.K. (1945) "Sociology of Knowledge" in *Twentieth-Century Sociology*, edited by G. Gurvitch and W.E. Moore, New York: Philosophical Library, 366-405, reprinted in *The Sociology of Science* edited by R.K. Merton, Chicago and London: The University of Chicago Press, 7-40

Ouzounian, R. (2006) "Our LOTR a watercolour washout: On show's last day, Kevin Wallace tells Richard Ouzounian he next version will be an oil painting" in the *Toronto Star*, September 3rd 2006, C3

Pickering, A. (1982) "Interests and Analogies" in *Science in context* edited by Barry Barnes and David Edge, MIT Press, 125-146

Porter, M.E. (2000) "Locations, Clusters and Company Strategy" in *The Oxford Handbook of Economic Geography*, edited by Clark, G.L., Feldman, M.P. & Gertler, M.S., Oxford: Oxford University Press, pp. 253-274

Portman, J. (2006) "The Lord of the Rings on stage was doomed from the beginning: It's nonsense to say this failed stage version of Tolkien's trilogy has a British Sensibility that North Americans can't appreciate" in *Ottawa Citizen*, July 3rd, 2006, B1

Shapin, S. (1995) "Here and Everywhere: Sociology of Scientific Knowledge" in *Annual Review of Sociology 21*, 289-321

Simmel, G. (1955) *Conflict and the web of affiliations*, New York: The Free Press

Valente, T. (1995) *Network Models of the Diffusion of Innovations,* Cresskill, New Jersey: Hampton Press, Inc

Wenger, E. (1998) *Communities of Practice: Learning, Meaning and Identity*, Cambridge: Cambridge University press

Winter, S. (1987) "Knowledge and Competence as Strategic Assets" in *The Competitive Challenge: Strategies for Industrial Innovation and Renewal*, ed. D. J. Teece, Cambridge: Ballinger, pp.159-184

Yeung, Henry Wai-chung (2005) "Rethinking relational economic geography" in *Transactions of the Institution of British Geographers 30*, 30-57

Yin, R.B. (2003) *Case study research: design and methods, third edition*, London: Sage Publications