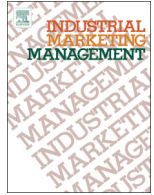




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Perspectives on regional innovation policy – From new economic geography towards the IMP approach

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ABSTRACT

The European Union has the aim of becoming the world's most competitive and knowledge-based economy, which entails investments in industry agglomeration. However, these investments have had limited impact. This conceptual paper problematizes the new economic geography terminology used in policy and, more specifically, the way that the key concepts of "industry agglomeration," "social capital," "knowledge," and "innovation" are conceptualized. By adding the perspective of the industrial network or industrial marketing and purchasing (IMP) approach, this paper contributes to a more nuanced understanding of how to facilitate innovation within regional policy. Since the IMP approach offers an organizational-level perspective, including such a perspective will help make the EU's policies more practically applicable. We propose that regional policy should pay more attention to the socio-material resource interaction between the actors involved in the cluster initiatives. This would shift the focus away from creating spillover effects of knowledge towards viewing knowledge as a performative construct that is inseparable from the specific resource interaction in which it is embedded. Also, the definition of innovation within policy could benefit from being reconceptualized as the processual use within producer–user relationships.

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1. Introduction

The starting point of the goal of creating a "Europe of regions" and stimulating innovation in these regions is often considered to be the Maastricht Treaty of 1991 and the establishment of the Committee of Regions (Andresen, 2011; Säll, 2011). These moves subsequently gave rise to the notion of a Europe of regions, which can be considered as the starting point for the rise of regional administrative structures, partnerships, and post-national planning actions (Veggeland, 2000). These policies have promoted the design of more than 1000 innovation clusters in Europe (Sölvell, 2009), making the policy of creating industry agglomerations for the purpose of achieving innovative behavior the European Union's major concern. The Committee of Regions defined cluster policies as follows: "a cluster can be broadly defined as a group of firms, related economic actors, and institutions that are located near each other and have reached a sufficient scale to develop specialized expertise, services, resources, suppliers and skills" (Commission of the European Communities, 2008:2).

However, most researchers have found that the EU development effort since the 1989 reform of the Structural Funds and its cluster policies has had almost no impact (e.g., Boldrin & Canova, 2001; Dall'Erba & Le

Gallo, 2007; de Freitas, Pereira, & Torres, 2003). Others have found the impact to be limited (e.g., Bouvet, 2010; Bussoletti & Esposti, 2004), and only a few studies have considered it a success (e.g., Cappelen, Castellacci, Fagerberg, & Verspagen, 2003). Even Lundvall (1992:6), whose work at the OECD helped to introduce the NIS concept into the Structural Funds, raised a critical voice, arguing: "the most relevant performance indicators of NSI should reflect the efficiency and effectiveness in producing, diffusing and exploiting economically useful knowledge. Such indicators are not well developed today." The OECD itself admits that "there are still concerns in the policy-making community that the NIS approach has too little operational value and is difficult to implement" (OECD, 2002:11).

The conceptual foundation of the EU's efforts is, to a large extent, derived from new economic geography, which can be summarized as the research tradition of investigating why economic activity is distributed unevenly across space (Venables, 2008). It has alternatively been defined as the research tradition that focuses on understanding the various development paths and specialization processes between regions as a consequence of their social and institutional contexts (Bathelt & Glückler, 2011). More specifically, the *industry agglomeration* model has been very influential in the formation of the EU's policy for achieving regional innovation (Henning, Moodysson, & Nilsson, 2010; Säll, 2011) and this model rests on creating an arena in which local actors can communicate. The value behind this communication is often described using the concept of *social capital*, which has been described as

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forming the base for important learning processes on which innovative performance is built (OECD, 2001). Hence, social capital is viewed as a facilitator for the dispersion of *knowledge* between regional actors (Döring & Schnellenbach, 2006; Fromhold-Eisebith, 2004). The dispersion of knowledge is seen as the most important prerequisite for creating *innovation* (Martin & Moodysson, 2013; Strambach & Klement, 2012). This highlights “industry agglomeration,” “social capital,” “knowledge,” and “innovation” as the conceptual cornerstones upon which regional policy is based.

However, some critical voices have been raised towards the domination of new economic geography perspectives in regional policy. Waluszewski (2011:146) claimed that “the research message that does not seem to have made any larger effect on contemporary policy is that technological development, innovation and industrial renewal is created in interaction among specific companies and/or organizations.” This focus on “specific companies” defines the IMP approach and offers a lower-level perspective that differs from those influenced by new economic geography, since these rest upon an aggregated systemic level of institutional contexts when encouraging technological development and innovation. Eklund and Waluszewski (2015:26) described this difference in perspective as “those that view technology as entangled in its environment and those that view technology as disentangled from its environment.” In other words, the IMP approach suggests that innovation happens within the interaction between socio-material resource combinations between the specific companies involved (Håkansson & Waluszewski, 2007) and that this logic subsequently defines the concept. Thus, it is impossible to disentangle technological renewal from the specific resource combinations in which it occurred (Eklund & Waluszewski, 2015). However, the perspectives on innovation based on new economic geography view innovation as something that can be encouraged through the dissemination of technology and knowledge, disentangled from the specific socio-material resource structures that fostered those attributes. Thus, in the cluster model it is sufficient that the actors within a cluster are situated “near each other” or share the same institutional context in order for knowledge to be disseminated and innovation to follow (Commission of the European Communities, 2008). Therefore, there is a fundamental difference in the conceptual perspectives upon which the IMP approach and new economic geography rest, and these differences will affect how the concepts of “industry agglomeration,” “social capital,” “knowledge,” and “innovation” are discussed and defined. Accordingly, the purpose of this paper is to add the perspective of the IMP approach to the definition of these four concepts and, thus, contribute to a more nuanced understanding of how to facilitate innovation within regional policy. This will enable managerial suggestions to be offered to the people in charge of implementing the EU’s development funds into concrete cluster initiatives.

The remainder of this article is structured as follows. The four concepts at hand are discussed and problematized in the *Literature review* section. The policy perspective of new economic geography is presented, before those perspectives are contrasted with perspectives from the IMP approach. The most important differences between the two perspectives will be summarized in a table and the conceptual contribution that the IMP approach offers new economic geography will be discussed. The paper concludes with an analysis of the operational advantages and managerial implications that come from the inclusion of the IMP approach into the policy arena. A table is also presented that briefly illustrates the different conceptual perspectives and summarizes the managerial consequences of the different perspectives for policy actors.

2. Literature review

2.1. Industry agglomeration

2.1.1. Industry agglomeration in new economic geography

A commonly used example to explain the basis for industry agglomeration in new economic geography is California’s Silicon Valley

(Audretsch & Feldman, 1994), where knowledge and competence was described as spilling over between individuals working to solve similar, or at least related, problems. This dynamic had earlier been coined as MAR spillovers (in reference to three classical contributions from Marshall (1890); Arrow (1962), and Romer (1986)) and denotes a spillover between researchers, entrepreneurs, and businesses within a single industry. This notion of a competence spillover effect or externalities of value transferred between actors within an industry was later adopted by Porter (1990) in his influential “cluster diamond” model. Porter defined the cluster construct as “geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions (e.g., universities, standards agencies, trade associations) in a particular field that compete but also cooperate” (Porter, 2000:16). Porter (2000:16) himself assessed that “clusters represent a new way of thinking about national, state, and local economies, and they necessitate new roles for companies, for various levels of government, and for other institutions in enhancing competitiveness,” and there is no denying that his cluster concept has had a lot of influence over how regional policy has developed. This “new way of thinking” entails seeing competitive advantage as something that lies outside the organization and that firms and other local actors must both compete and collaborate when creating such external competitiveness (Porter, 1990).

A definition of clusters in regional policy is found in the EU Commission’s “Towards world-class clusters in the European Union: Implementing the broad-based innovation strategy”. Similar to the ideas within modern economic geography, this policy report states that “a cluster can be broadly defined as a group of firms, related economic actors, and institutions that are located near each other and have reached a sufficient scale to develop specialized expertise, services, resources, suppliers and skills. Cluster policies are designed and implemented at local, regional and national level, depending on their scope and ambition” (Commission of the European Communities, 2008:2). A report written by the Swedish government provides a perfect example of the connection between new economic geography and policy when mentioning four advantages that are traditionally associated with establishing firms close to similar firms. The Swedish Government Committee adhere to these four points in Porter’s influential diamond model (Porter, 1990), which it specifies as follows: (i) cheaper production because costs can be shared by firms and things like infrastructure and educational systems can be adjusted to the needs of local business; (ii) transport and transaction costs can be lowered; (iii) a local labor market with a pool of specialized skills arises; and (iv) a better basis for exchange of information and learning between firms, primarily so that “tacit knowledge” can be transferred among actors (SOU, 2000:36). Examples of industrial agglomerations (industrial clusters) mentioned by the Swedish Government Committee include Hollywood (feature films), Detroit (automobile manufacturing), and of course Silicon Valley (computers, internet) (Säll, 2011). Thus, the connection between the cluster model and the formulation of policy directives is explicitly worded in policy documents, both on the national and EU levels.

However, the adoption of industry agglomeration through the use of the cluster model in regional policy has attracted a lot of criticism within the economic geography discourse. Smout (1998) stated that the top-down aspect of regionalization within industrialization policy only works if it is understood by actors at the bottom level, such as entrepreneurs, tradesmen, workmen, and consumers. Hence, critics of top-down, massive, and concentrated industrialization policies claim that such development requires skills rather than resources (Andresen, 2011). Similarly, Sotarauta (2010:387) claimed that “people responsible for regional development often understand fairly well the need to construct regional advantage and build clusters” and “what they have not been given much advice on, is how to do it”. Steiner (1997) even posited that the term cluster has the discrete charm of hard-to-define objects of desire. This suggests that the term has become a buzzword that policy

makers sometimes use without having to formulate further strategies around its implementation.

Taylor (2010) claimed that when the cluster concept is applied in political and policy-making arenas, its meaning and usefulness become distorted. Taylor (2010) further argued that the political application of the cluster model removes the identified processes from their place-specific and time-specific context and confuses the outcome from the general goal-setting mechanisms. Taylor (2010) also posited that making clusters into politics transforms the agents involved from economic actors into politicians and bureaucrats, and that this transformation is even more problematic since the politicians may not even be local to the region.

In this way, the limitations and inherent weakness of the theoretical elements of the cluster model become amplified as the model becomes a recipe for creating economic growth, rather than just an analytical model for explaining such success in hindsight (Taylor, 2010). Thus, the cluster model was never meant as a normative recipe for regional growth. Taylor (2010) argued that the cluster model has become a message, which was transformed into a mantra and eventually became a formulaic prescription for policy-makers: do it right, and growth and prosperity will follow.

Even Porter (2000:27), who is often seen as the forefather of the cluster concept, expressed a similar notion and wrote that “a role for government in cluster development should not be confused with the notion of industrial policy as the intellectual foundations of cluster theory and industrial policy are fundamentally different, as are their implications for government policy.” Hence, the use of the cluster concept as a policy tool for enabling of economic growth has been widely criticized. Also, the actual economic impact of the structural funds has been questioned, as few quantifiable effects of funding on target variables, such as per capita income and employment rates, have been found (Parker & Ekelund, 2011).

Also noteworthy is Martin's (1999) critique of new economic geography, where business agglomeration is often explained using mathematical models based on the notion of market equilibrium. Martin (1999) suggested that these models signify a narrow approach that neglects “messy” social, cultural, and institutional factors involved in spatial economic development. It is these social, cultural, and institutional factors that explain why spatial economic activity occurs in particular places. This makes it crucial to understand a region's “institutional thickness” in order to understand the space economy (Martin, 1999). Martin (1999:75) defined institutional thickness as “the spatial variations in range density and functions of the institutions (both formal organizations, rules and practices, and informal customs, routines, norms, networks and so on) that underpin or undermine economic activity.” A more prominent perspective is the research field of corporate geography (Walker, 1989). The institutional thickness perspective argues that places with a greater number of institutions are more likely to prosper than places where institutions are “thin” or lacking (Beer & Lester, 2015). Also, Rodríguez-Pose (2013) argued that the effectiveness of institutional arrangements is not necessarily a matter of having too many or too few institutions; rather, it is a question of having the correct mix of effective institutions. Regardless of the focus on thickness or effectiveness, the prosperity of a region is not sought in the neoclassical mathematical assumptions of trade, but in the “messy” social, cultural, and institutional factors that define the region (Amin & Thrift, 1995). Thus, the focus is placed on the systemic level of institutions when trying to understand regional growth within contemporary perspectives on new economic geography.

2.1.2. Industry agglomeration in the IMP approach

In the IMP approach, the geographical localization of a firm has largely been viewed as a hindrance to its operations (Håkansson, Tunisini, & Waluszewski, 2006). Place has mainly been a concern for researchers within the field of internationalization, where cultural and institutional differences between regions have been considered as

obstacles for the individual company (Håkansson et al., 2006). Within the IMP approach, place can be traced back to the early contributions of Håkansson (1982) and Johanson and Wiedersheim-Paul (1975), in which it is equated with distance and seen as a hindrance towards social exchange between actors. Håkansson et al. (2006) claimed that most scholars investigating industrial districts or clusters of firms undertake a “macro-perspective” and operate under the underlying assumption that the determinants and the advantages of industrial agglomeration in districts are the division of labor between companies, the role of the social dimension and, in particular, the “industrial atmosphere”. However, within the IMP approach, the focus when considering industry agglomeration is fundamentally different. Håkansson et al. (2006:231) posed that “instead of considering how the qualities of the district will enable it to develop and prosper in itself, we [IMP researchers] would then ask how single companies within the district can use the place in order to develop and how this in its turn will affect the attractiveness of the place.” This shift in focus indicates the shift from a macro perspective towards a perspective where the specific company is in focus; therefore, the term place is preferred over region. Comparing this shift in focus with Martin's (1999) critique towards geographical economics reveals some initial similarities. However, the focus is still on an aggregated level in comparison with the IMP approach. Martin's (1999) institutional thickness concept focuses on spatial variations of institutions, informal customs, routines, norms, and networks but still considers these factors at the regional level. The IMP approach, however, focuses on how the single company's relationships will affect customs, routines, norms, and networks instead of viewing such traits as qualities of the region (Håkansson et al., 2006). Hence, the IMP approach focuses on the specific companies and their relationships rather than on traits of a region or industry. Still, the IMP approach can serve as an important complement to the macro-perspective on industry agglomeration held by economic geography, even if the IMP approach in itself does not deal directly with the issue of place (Håkansson et al., 2006).

Within the IMP approach, the interplay between companies is treated as a phenomenon that may have a wide variety of expressions – ranging from more distant relationships to close interactions – where the social and technological resources are confronted and adapted (Håkansson et al., 2006). Seen through this lens, development occurs when companies encounter one another in terms of sets of resources (Waluszewski, 2002) and development can then be understood through investigating the mutual adaptations of resources between actors. This involves a different focus than merely investigating the traits of the region in which this resource interaction occurs. However, when investigating such socio-material resource interaction, it is common to “map out” the interaction in network structures where the companies become represented by “nodes” and the resources become the “strings” that connect them. A company gets assigned a position within the structure of a network since their resources often interact with a number of other actors, which come to indicate both a relative dimension and a resource dimension of interaction. Håkansson et al. (2006) argued that within a network analysis there is an obvious relative dimension that is very similar to place, even if place has rarely been touched upon in the discussion of the position of the companies when analyzing network structures. It is therefore possible to investigate how features of place are created by specific companies and their long-term resource interaction within the IMP approach.

Using the IMP approach in analyzing industry agglomeration will help to understand the concept of place as a heterogeneous phenomenon and as something that is both created and used differently by local companies (Baraldi & Strömsten, 2006). Features of an industrial region that fit some companies' resource combinations may be of less use for others; therefore, some companies might be seen as very skilled in utilizing local resources, while others might be viewed as ignorant of those possibilities. Thus, place becomes both a result of and a source of dynamics; that is, a phenomenon that is not given but created and changes over time (Håkansson et al., 2006). Håkansson et al. (2006)

claimed that the traits that adhere to industry agglomeration must be approached both from the perspective of the specific company and “in the context” of the company.

In sum, the cluster concept, and its inherent macro perspective, as a recipe for designing regional innovation, entail the belief that a top-down approach towards forming business relationships on a specific actor level is possible. In Section 2.2.1 of this paper, critique towards this assumption is raised from the economic geography perspective, but the critique posed by the IMP approach relies on a different logic. Many scholars within the IMP approach see the formation of business relationships as an emergent property of the socio-material resource interaction between the specific actors involved. Such interaction forms the context in which those relationships reside (Baraldi, Gressetvold, & Harrison, 2012; Hallén, Johanson, & Seyed-Mohamed, 1991; Johanson & Mattsson, 1987). Seeing the market as a homogenous entity (both in terms of mathematical models of business agglomeration and in terms of its institutional flora) that can be controlled and governed by external stimuli becomes problematic through such a conceptual lens, and policy that does not consider the specific socio-material resource configurations becomes toothless (Håkansson & Waluszewski, 2014). Thus, both the specific companies' perspective and the companies' context in the form of the regions' institutional complexity must be considered if the effects of industry agglomeration are to be understood and managed (Håkansson et al., 2006).

2.2. Social capital

2.2.1. Social capital in new economic geography

Fromhold-Eisebith (2004) claimed that the notion of social capital has only quite recently been transposed to questions of regional innovation-based industrial development. Still, the OECD (2001) mentioned social capital as the basis for important learning processes upon which innovative performance is built (Fromhold-Eisebith, 2004). Social capital has been introduced into policy thinking by the inclusion of the industry agglomeration model and through its association with new economic geography.

In his seminal works, Granovetter (1973, 1985) argued that economic activity is embedded in social contexts. Economic geographers have since comprehensively addressed the embedded nature of the economic context (Vorley, Mould, & Courtney, 2012). Huber (2009) held up the seminal work of Putnam (1993) as inspirational in the growing use of the concept social capital in economic geography and regional studies (Cooke, Clifton, & Oleaga, 2005; Fromhold-Eisebith, 2004). In addition, social capital has been hailed as the “missing link” (Grootaert, 1999) that goes beyond traditional forms of economic capital and ties relational aspects to value and knowledge creation (Dasgupta & Serageldin, 2000). Indeed, according to Howells and Bessant (2012), the important social and cultural dimension of networks has been an area of ongoing cross-fertilization between researchers in management and geography.

In the current era of knowledge-based economy, the role that social capital plays for regional innovation and regional knowledge externalities has been put forward as a study object of particular interest (Fromhold-Eisebith, 2004). Regional knowledge spillovers in economic agglomerations are treated as features of utmost importance in economic geography, and social capital is often viewed as an integrated part of these processes (Döring & Schnellenbach, 2006). Hence, theories of industrial clusters integrate social capital and link it to economic prosperity (Huber, 2009; Porter, 1998). Social capital is therefore critical in micro-clusters, although few studies have examined how this has affected the organizations' actual acquisition of new knowledge (Inkpen & Tsang, 2005; Lowe, Williams, Shaw, & Cudworth, 2012).

In order to understand and analyze spatially defined networks, the concept of social capital has been applied by scholars to identify the social norms and customs that “lubricate” the transfer of knowledge (Hauser, Tappeiner, & Walde, 2007; Huggins & Johnston, 2010). However, Huggins and Johnston (2010) claimed that ever since the

contribution of Dicken, Kelly, Olds, and Yeung (2001), the networking paradigm has largely considered the practice of networking as inherently positive in economic geography. Huggins and Johnston (2010) argued that economic geographers have not always critically engaged with the concept of social capital, which leaves the relational networking paradigm underdeveloped. Falconbridge (2007:929) referred to this underdevelopment as a “need for fine-grained analysis of the social practices and ongoings in relational networks.”

Huber (2009) pointed out that the role of social capital for regional innovation has been highlighted by several studies of the knowledge-based economy. However, conceptualizations of the knowledge-based economy within the literature have undergone changes in scope and focus (Rutten & Boekema, 2012). According to Rutten and Boekema (2012), the dominant definition in Knowledge Economy 1.0 of social capital with regard to learning was connected to “firms, inter-firm networks and societies” (Storper, 1993). However, Rutten and Boekema (2012) claimed that, in Knowledge Economy 2.0, social capital has evolved to incorporate networks of individuals, making the discourse more diffuse as individuals are members of multiple social and professional networks.

Thus, Knowledge Economy 1.0 defines regions as bounded territories that have a regional culture, which indicates that social capital exists and can be defined on a regional level (Hassink & Klaerding, 2012; Rutten & Boekema, 2012). When individuals in a region engage in interactions with “spatially sticky” individuals in their home regions, this gives rise to specific regional norms, values, and other forms of social capital that are space-specific and adhere to the region itself (Boshuizen, Geurts, & van der Veen, 2009; Hauser et al., 2007). However, it might be more realistic to argue along the lines of Knowledge Economy 2.0 and claim that “regions harbor multiple social contexts and that not all of them need to be equally supportive of learning” (Rutten & Boekema, 2012:988). This indicates that studies of social capital in regional development have moved from considering regional cultures towards analyzing relational networks on a micro-level basis.

This notion was embraced by Huber (2009), who proposed that a major reason for the conceptual shortcomings of social capital in the economic geography literature is the lack of understanding and inclusion of individual actors as an analytical factor. Mayntz (2004) also claimed that lower-level actors drive social mechanisms and that such mechanisms are best understood from the individual actors' point of view. Bathelt and Glucker (2003) even stated that economic actors and their actions and interaction, not space and spatial categories, should be at the core of a theoretical framework of economic geography; thus abandoning the focus on the “geographical” within economic geography.

Even if studies of regional development using the concept of social capital have started to involve more micro-level analyses of relational networks, Rutten and Boekema (2012) claimed that the change from Knowledge Economy 1.0 to Knowledge Economy 2.0 has spurred growing interest in micro-level analysis of relational networks within the economic geography literature. This applies with regard to formal networks of international suppliers, customers, and scientific institutions, and also with regard to networks of personal and informal contact in a global network (Fitjar & Huber, 2015). Still, industrial renewal is often explained as inherent and related to geographical proximity and shared cognitive culture (Coletti, 2010). Therefore, talking about “learning regions” is common in innovation research, and some regions are believed to be more conducive to innovative behavior than others (Florida, 2002; Hauser et al., 2007). Thus, the learning region's concern with relational concepts such as networks and social capital has largely considered these concepts as regional characteristics rather than studying them from a relational view (Rutten & Boekema, 2012). Similarly, Knoblen and Oerlemans (2006) claimed that geographical proximity matters less than relational proximity for learning purposes and suggested that empirical analysis concerning spatial embeddedness may benefit from more micro-level research. Hassink and Klaerding (2012) also

argued for more research into relations or networks rather than regions as places when investigating culture-based learning processes. Theoretical approaches with micro-perspectives are also necessary in future research, with a focus on how social networks within the labor market affect regional learning (Lambooy, 2005).

2.2.2. Social capital within the IMP approach

Nicholson, Tsagdis, and Brennan (2013:372) stated that “there is a coincidence of research interests between industrial marketing and economic geography in relation to spatial embeddedness in business relationships.” The fact that social capital has been studied in both economic geography and industrial marketing means that it can serve as a bridge between these two research fields (Nicholson et al., 2013). Studies within industrial marketing, of which the IMP approach is a part, have also undergone the same evolution as economic geography, in that the focus of interest has shifted from the cultural context towards networks in explaining social behavior. Partanen and Möller (2012:492) proposed that “researchers might need to go ‘back to the basics’ and adopt social network theory into their research frameworks” in order to investigate network structures; this proclamation goes hand in hand with the development in new economic geography. However, it is important to note that much of the literature addressed in relation to the shift in new economic geography towards studying networks concerns networks on an individualistic level (Fitjar & Huber, 2015; Rutten & Boekema, 2012), while the IMP approach mostly address networks on the company or organizational level (Håkansson, 1982).

The discourse relating to social capital within new economic geography concentrates largely on the regional circumstances in which social relations facilitate knowledge spillovers (Coletti, 2010; Semitel Garcia, 2006), or between whom this spillover seems to occur within global or regional networks (Daskalaki, 2010; Fitjar & Huber, 2015; Rutten & Boekema, 2012). Similarly, Johanson and Mattsson (1987) stated that the IMP research tradition brings the network to the forefront in related studies. At first glance, this ties neatly into the shift in focus that the study of social capital within new economic geography has experienced when considering relational networks instead of regional cultures and norms. Also, this shift in new economic geography can, at first glance, be understood as shifting the focus away from the systemic level of institutions when trying to understand regional growth, a focus that is criticized in Section 2.2.1 in this paper. However, there is a further difference in perspective between new economic geography and the IMP approach, and this will form the central argument of this paper.

The social capital literature within economic geography focuses on the structure of ties as a condition for the social context (Daskalaki, 2010; Rutten & Boekema, 2012). By contrast, the IMP approach focuses on the mutual adaptation of socio-material resources that occur between specific actors within the network structure (Baraldi et al., 2012; Hallén et al., 1991; Håkansson & Waluszewski, 2007). Therefore, this approach focuses on how interaction within networks creates mutual value for the involved parties rather than the circumstances under which this exchange takes place or the parties between which the exchange occurs. Therefore, the exchange that takes place within the ties matters more than the structure of such ties, making the content of interaction, rather than the networks' structural properties, the value-generating mechanism. Therefore, when the term “network” is used within the IMP approach, it signifies that the studied interaction goes beyond the dyad and includes several actors. This differs from other perspectives on network research that have tended to focus more on network structures and different actors position within that structure. Hence, within the IMP approach, the term “network” is interactional in its definition, not structural. This change in perspective also entails that knowledge and innovation be conceptualized differently within the IMP approach than it is within new economic geography; this will be elaborated on further in following sections of this paper.

2.3. Knowledge

2.3.1. Knowledge in new economic geography

According to Hauser et al. (2007:76), “the academic discourse in economic geography has been characterized over the last decade by two key concepts: knowledge as a source of competitiveness and the region as a platform for agglomeration.” This was exemplified in Lundvall's statement that “knowledge is the most important strategic resource and learning the most important process” (Lundvall cited in Hauser et al., 2007:76), which indicates the connection between innovation and knowledge dispersion in the industry agglomeration model that forms the EU's regional policies.

The new economic geography, as defined by Krugman (1998), is the research field that deals with why and how economic activity seems to cluster in space. Krugman (1998) referred to Marshall's (1890) notion of externalities as a regional concentration of economic activity that may create more or less pure external economies via information spillovers (Basile, Capello, & Caragliu, 2012). This notion is also captured in Marshall's (1890:271) famous words: “The mysteries of the trade become no mystery, but are, as it were, in the air.” The definition of what is actually “in the air” is often defined as cultures or norms that facilitate the exchange of tacit knowledge (Polanyi, 1966) and consequent knowledge spillovers (Basile et al., 2012; Currid & Connolly, 2008).

According to Gertler (2003), this focus in economic geography on enabling knowledge flows in order to facilitate learning has made it common for the current period of capitalist development to be referred to as the era of the “knowledge based economy” (OECD, 1996). Gertler (2003:76) even went as far as to claim that “no matter which label one prefers, the production, acquisition, adsorption, reproduction and dissemination of knowledge is seen by many as the fundamental characteristics of contemporary competitive dynamics.” According to Fujita (2007), the focus on knowledge spillover in the new economic geography has spurred such pioneering and influential works as those of Jacobs (1969); Anderson (1985), and Lucas (1988) in an urban context, and Porter (1998) in the context of industrial clusters. In other words, the focus on knowledge as a concept is very influential in the development of economic geography as a field.

As noted above, the new economic geography field is deeply rooted in the investigation of the concept of knowledge spillovers. However, the concept of knowledge remains central in economic geography in general and defines more contemporary studies of innovation in a geographical context. Martin and Moodysson (2013) claimed that the geography of innovation and knowledge creation is a vital research field in contemporary economic geography. According to Isaksen and Onsager (2010), a large body of literature that studies geographical patterns of innovation has emerged in recent decades, building on a research tradition that ranges from Marshall's (1890) early work on innovation in industrial districts to more recent work including innovative milieus (Camagni, 1991), learning regions (Asheim, 1996), and regional innovation systems (Cooke, Uranga, & Etxebarria, 1998). According to Martin and Moodysson (2013), all of these research interests within economic geography are geared towards improved cooperation and knowledge exchange between industry, university, and government, which highlights the ongoing focus on analyzing knowledge distribution within the research field. Strambach and Klement (2012) also claimed that the term “knowledge dynamics” is increasingly being used in the field of research with a focus on “knowledge economics,” which defines knowledge as one of the driving forces for innovation.

The connection between knowledge flows and spillovers on one hand and innovation on the other seems to be widely assumed within contemporary economic geography. However, some researchers within the field have argued for the inclusion of forms of resources other than merely knowledge in innovation studies. Geels (2004:898) acknowledged that the studies of innovation in “[t]echnological systems are defined in terms of knowledge or competence flows rather than flows of ordinary goods and services,” and went on to state that “the material

aspects of systems could be better conceptualized.” Bergek, Jacobsson, and Sandén (2008) suggested that it would be fruitful for analyses within economic geography to distinguish a number of sub-processes that are directly related to the innovation process, such as the development, diffusion, and use of new products and processes. Bergek et al. (2008) called one of these sub-processes “resource mobilization,” which they defined as the mobilization of human capital, financial capital, and other complementary assets. This represents a call for research that goes beyond knowledge diffusion when investigating regional innovation.

Consequently, several researchers have questioned the notion of knowledge as something that can easily “travel” between organizations and intra-organizational actors within a region (Giuliani, 2007; Huber, 2011). Knowledge is not merely cognitive and abstract, but is also contextual, something that MAR spillover and externalities theory seem to largely ignore. Bathelt, Malmberg, and Maskell (2004) built on that notion and furthered the concept of Marshall’s “industrial atmosphere” by claiming that knowledge travels within urban economies not just by “being in the air,” but through local buzz (Storper & Venables, 2002). According to Bathelt et al. (2004:38), buzz “refers to the information and communication ecology created by face-to-face contacts, co-presence and co-location of people and firms within the same industry and place or region. Buzz subsequently consists of specific information and continuous updates of this information, intended and unanticipated learning processes in organized and accidental meetings, the application of the same interpretative schemes and mutual understanding of new knowledge and technologies, as well as shared cultural traditions and habits within a particular technology field, which stimulate the establishment of conventions and other institutional arrangements.” Thus, Bathelt et al. (2004) claimed that actors continuously contribute to and benefit from the diffusion of information, gossip, and news by just “being there” (Gertler, 1995) or being embedded in knowledge communities that do not rely solely on a geographical delimitation (Moodysson, 2008). Bathelt and Glückler (2011) claimed that this kind of interaction is crucial in the relational economy and ties this interaction to cluster dynamics in terms of shared technological attitudes and expectations between local actors and the subsequent development of trust-based linkages.

2.3.2. Knowledge within the IMP approach

Araujo (2004) referred to Hård (1994) as a counterpoint to those who overemphasize the cognitive aspects of technological knowledge and argue that technology is, like science, a contextually limited, practical activity that only partly includes universal and cognitive elements. Hård (1994) claimed that, following the logic of practice, research should bring forth the technician as tinkerer rather than the engineer as theoretician, and technology as bricolage as informed by “practical sense” rather than engineering as knowledge production. Hence, the focus is on knowing, or the doing of knowledge, which makes it a performative construct that is inseparable from the historical, social, and technological setting in which it is embedded (Araujo, 1998; Hoholm & Olsen, 2012).

This way of viewing knowledge as tied to its context is identical to the conceptual development that knowledge has undergone in economic geography, especially with the introduction of the local buzz concept (Bathelt et al., 2004; Storper & Venables, 2002) the relational economy (Bathelt & Glückler, 2011), and knowledge communities (Moodysson, 2008). However, Potts (2001) and Loasby (2002) argued that knowledge should be understood as systems of connections that extend across different types of user–producer contexts. The notion of user–producer contexts stems from the tradition of viewing the market as a network of interacting resources (Waluszewski, 2004; Håkansson & Waluszewski, 2007). In her seminal work, Penrose (1959) considered value creation to be inherent in the combination of heterogeneous resources. Her work spurred the resource-based view of the firm, which recognizes that a firm’s resources, including their application and transferability, are critical factors in creating and sustaining competitive advantage (Barney, 1991; Huggins & Johnston, 2010). Within the

resource based view value it created when a resource or a capability possessed by a firm is correlated with its competitive advantage or performance (Newbert, 2008). Similarly, the IMP approach focuses on socio-material resource interaction and expands the focus from the single firm or dyad to consider the level of inter-organizational networks (Baraldi et al., 2012). The focus on socio-material resource interaction within the IMP approach emerges from longitudinal empirical studies of technological development and innovation (Baraldi et al., 2012), and hence from how several actors integrate resources within network structures in order to extract value through interdependent relationships. In fact, La Rocca and Snehota (2014:445) claimed that “the primary importance of business relationships with respect to innovation lies in the fact that relationships are the locus where knowledge, on which the innovation process builds, is not only accessed but also enacted and produced.” Knowledge is context-specific (Galunic & Rodan, 1998) and mostly tacit (Nonaka, 1994), which means it cannot be “accessed” through simply scanning the environment and achieving avenues of information exchange between actors from varying institutional contexts. La Rocca and Snehota (2014:445) proposed that “Business relationships are the mechanism for the actors to draw on each other’s experience-based tacit knowledge and confront their relative perspectives; the novel solutions emerge from these confrontations.”

Thus, it is through socio-material resource interactions within specific user–producer contexts that possibilities for finding new solutions are created, and old resource combinations are confronted with new alternatives, producing additional variation based on having knowledge about different combinations (Waluszewski, 2004). When resources interact within the business relationship, “friction” (Håkansson & Waluszewski, 2001) is created that will produce a need for new solutions to be enforced, in turn generating new knowledge. The created knowledge will subsequently be specific to the individual conditions that the user–producer interaction poses. Hoholm and Olsen (2012:344) described this process and proposed that “learning evolves through a combination of discoveries, positive and negative feedback, and creation of additional creative propositions about the true state of the innovation and what represents the most promising routes by which the project might advance. New framings are created, different actors and resources interact, and new arguments are being generated to pull the innovation project in alternative directions.” Thus, “The innovation management process can be seen as an interacted agency activity over time that incorporates these divergent activities. To align and realign contradictory forces is at the core of what innovation managers do” (Hoholm & Olsen, 2012:344).

In sum, research within the IMP approach goes beyond focusing solely on knowledge dispersion, shared cultural/technical traditions (Bathelt et al., 2004; Storper & Venables, 2002), or creating mutual understanding and trust within knowledge communities (Bathelt & Glückler, 2011; Moodysson, 2008). Thus, the IMP approach has a lot to offer if applied to issues that are normally attended to by economic geographers. Knowledge might not solely be “in the air” or disseminated through local “buzz”; instead, it needs to travel through the socio-material resource interactions within specific relationships in order to create value. Thus, knowledge is not only viewed within the IMP approach as a contextually limited and practical activity that relies on mutual understanding in knowledge communities; it is also inherent to specific socio-technical resource combinations and is therefore impossible to disentangle from these specific structures. Merely “being there” (Gertler, 1995) or taking part in the local buzz (Bathelt et al., 2004; Storper & Venables, 2002) is not enough to disseminate or enact knowledge that can be used in value creation.

2.4. Innovation

2.4.1. Innovation in new economic geography

According to Srholec and Verspagen (2012), the literature within economic geography has been preoccupied with using firms’

investments in R&D as an indicator for innovation within regions. In doing so, the literature has neglected the fundamental issue of how firms actually innovate, since a focus on investments in R&D only captures a simplistic, linear perspective of how innovation works (Srholec & Verspagen, 2012).

Even the OECD (1996) has recognized the weakness of measuring innovation by R&D and patent indicators (Evangelista, Iammarino, Mastrostefano, & Silvani, 2001). Nevertheless, much of the literature dealing with how industry agglomeration causes innovation has used the number of patents (Archibugi & Pianta, 1996; De Groot, Poot, & Smit, 2009; Porter, 2003) and investments in R&D (Archibugi & Pianta, 1996; Srholec & Verspagen, 2012) to measure innovation. Although the OECD (1997) has introduced some other measurements, the focus is still placed on R&D activities and patents when measuring a region's innovative ability (Brenner & Broekel, 2011).

Boschma (2013) claimed that there has been growing dissatisfaction among economic geographers regarding measuring innovation as an outcome of R&D investments and patents since such policies fail to recognize that the innovation process is not a linear process from R&D to use. This notion is the central tenet of the national and regional innovation systems approach, which views innovation as a collaborative endeavor that goes beyond the technical aspects of development; this also implies changes in organization, behavior, and the way in which different agents in a system relate to each other (Cooke, Uranga, & Etzebarria, 1997). An innovation system in abstract modeling terms includes key organizational elements and linkages between them. This will entail university research, research institutes, technology-transfer agencies, consultants, skills-development organizations, public and private funding organizations and, of course, large and small firms and nonfirm organizations to become involved in innovation (Cooke et al., 1997). Thus, from a policy perspective, innovation systems are about constructing regional advantage, both consciously and proactively, and highlighting the importance of the role of the public sector and public-private collaborations in the economy. Thus, the purpose of policy intervention in the constructing regional advantage concept is to tackle system failures (Metcalf, 2003). Boschma (2013) even claimed that a regional innovation system approach views such deficits as the core problem of innovation in the EU.

2.4.2. Innovation within the IMP approach

Van de Ven, Polley, Garud, and Venkataraman (1999) offered a different definition of innovation. They claimed that there is a difference between achieving an invention and achieving an innovation. An invention might be defined as a novel solution to a specific problem or, in its most abstract form, a new idea. However, in order for an invention to become an innovation, the invention must have reached widespread use and thereby become integrated in the organizational and physical structures needed to enable its utilization (Fagerberg, 2004). Van de Ven et al.'s (1999) definition of innovation suggests that innovation is born out of reshuffling resources inside and outside of the firm. Thus, innovation goes beyond a single firm's investment in R&D.

When innovation occurs, it takes place within producer–user relationships (Ingemansson, 2010). Hence, the interfaces between the users and the producers of new technology are recognized as important in innovation studies (Fagerberg, 1995; Waluszewski, Baraldi, Linné, & Shih, 2009). This way of defining innovation is consistent with Penrose's (1959) view of value creation as inherent in the combination of heterogeneous resources and has been widely adopted in the inter-organizational network approach (Baraldi et al., 2012; Håkansson & Waluszewski, 2007; Knorrninga & Pegler, 2006). Therefore, the IMP approach studies the reshuffling of socio-material resources and how the interfaces between these resources become integrated when investigating innovation (Baraldi & Waluszewski, 2005; Mele, Russo Spina, & Colurcio, 2010). Baraldi et al. (2012:266) claimed that “focusing on the processes of resource interaction provides one way of mapping and investigating resource development and utilization” and they

defined these processes as the “combination, re-combination, and co-development of resources that happen through the interaction among organizations.” Achieving resource interaction between the users and the producers of new technology has been recognized as an important but problematic issue in innovation studies (Fagerberg, 1995; Waluszewski et al., 2009).

Håkansson and Waluszewski (2007) argued that in order for an invention to become an innovation – that is, for it to obtain widespread commercial use – it must “survive” in three empirical settings: a developing setting, a producing setting, and a using setting. This is called the DPU model (Eklinder-Frick, 2015). In the developing setting, new solutions are searched for by combining alternative sets of material and immaterial resources (Perks & Jeffery, 2006). Within the producing setting, the invention must be transformed into some kind of product or process. Thus, it must be embedded into the existing system of production to be brought into the marketplace (Håkansson & Waluszewski, 2007). The user setting consists of a wide set of material and immaterial investments made by the actors in the established business structure. The outcome of any new solution is dependent on how it affects these actors' prior investments. If only a few can gain advantages from using the new solution it will never reach the widespread use required for making it an innovation (Håkansson & Waluszewski, 2007).

If innovation is only measured in terms of number of patents produced or investments in R&D, the embedding and use of the innovation within the producer–user contexts is not captured. If innovation is viewed as the invention in use, the measurements of innovation activity that have preoccupied researchers within new economic geography will only measure the number of inventions, not innovation. Also, the innovation systems approach (Cooke et al., 1997; Boschma, 2013) focuses on enabling linkages between institutions in the large order system of a region (or nation) and serves to eliminate market and systems failure within these regions. Hence, this approach focuses on creating the circumstances in which innovation can occur, not on how innovation is actually formed. As a result, introducing measurements influenced by new economic geography into regional policy might lead to a focus on creating inventions rather than innovation, and large-order macro systems instead of innovation journeys, thereby distorting the relation between intent and outcome.

3. Summary of the literature review

The most important differences between the two perspectives is summarized in a table (Table 1) and the conceptual contribution that the IMP approach offers to new economic geography is discussed.

Industry agglomeration as a way to foster regional innovation started in the OECD Directorate for Science, Technology and Industry and was implemented in the Structural Funds through the Maastricht Treaty of 1991 towards the Lisbon Strategy. The recipe for achieving such industry agglomeration is adhered to the cluster model, as made famous by Porter (1990). However, critical voices have been raised towards the top-down approach that this model implies when used as a recipe for regional policy. In economic geography, this critique has been met by incorporating the notion of innovation systems into policy measures. The innovation systems approach involves creating linkages between various institutions and regional actors, thereby avoiding the system and market failures that can hinder innovation. Thus, the cluster model adopts a top-down perspective, and the innovation system approach takes a “helicopter” view of the region when focusing on the holistic system of actors in encouraging regional innovation.

The benefits that accrue to the regions, described in the empirical data that formed the base for the cluster model, can be understood more fruitfully by investigating the socio-material resource interaction within the specific relationships that unite the regionally embedded actors. This understanding cannot be created by merely investigating the systemic macro level of innovation actors within a region. Thus, policy-governed interventions should be based on an analysis of the content

Table 1
A summarization of the conceptual difference between core concepts in new economic geography and the IMP approach, and the contribution that the IMP approach offers to new economic geography.

Concept	New economic geography	The IMP approach	The IMP approach contribution to new economic geography
Industry agglomeration	<ul style="list-style-type: none"> Defined as geographic concentrations of companies in related industries that compete, but also cooperate in creating spillover of knowledge and competence. Views agglomerated regional economic activity as a result of the region's institutional thickness. 	<ul style="list-style-type: none"> Defined as the relative dimension in which specific companies' social and technological resources are confronted and adapted. Views place as a heterogeneous phenomenon that is both created and used differently by local companies. 	The IMP approach views business agglomeration not as a regional trait but as a consequence of the interaction between specific companies' socio-material resources. Such interaction is therefore considered the causal mechanism behind regional agglomeration of economic activity.
Social capital	<ul style="list-style-type: none"> Defined as the social mechanism behind the regional competitive landscape, including both regional cultures and relational micro-level networks. May provide a shared cognitive culture or conducive structural traits within the relational networks. 	<ul style="list-style-type: none"> Defined as the mutual adaptation of socio-material resources that occur between specific actors within a network structure. May provide value-generating socio-material resource interaction. 	The IMP approach focuses not only on the regional culture or the structure of ties, but also on the exchange that takes place within the ties. This means that the content of interaction, rather than the networks' structural properties, is the value-generating mechanism behind regional interaction.
Knowledge	<ul style="list-style-type: none"> Defined as a cognitive and abstract construct that spills over between actors when the institutional setting allows. Exchange of knowledge is facilitated by regional cultures, or through local buzz within the regional communication ecology. 	<ul style="list-style-type: none"> Defined as a performative construct that is inseparable from the specific social and technological setting in which it is embedded. Exchange of knowledge occurs in specific relationships where knowledge is not only accessed, but also enacted and produced. 	The IMP approach not only views knowledge as contextually limited; it is also considered inherent to specific socio-technical resource combinations. Merely focusing on regional communication ecologies is not enough to understand the value-creating mechanisms behind knowledge enactment.
Innovation	<ul style="list-style-type: none"> Defined as an outcome of a local firm's investment in R&D or as the number of patents registered in a region. Achieved through constructing a regional innovation system in which functioning public-private collaboration is enabled. 	<ul style="list-style-type: none"> Defined as the process of achieving widespread utilization of an invention within specific producer-user interfaces. Achieved through interaction between specific companies' socio-material resources. 	The IMP approach focuses on inventions in use when defining innovation. Thus, instead of eliminating regional systems failures in order to create the conditions for innovation to occur, the IMP approach addresses how innovation is actually formed and generates value.

within the relationships that forms the regional marketplace at the “grass-roots level”, and not on assumptions regarding aggregated forces of the institutional landscape. Both the companies' specific relations and their institutional context must be considered if the effects of industry agglomeration are to be understood and managed.

Social capital is often held up as the “missing link” that ties relational aspects to value creation within industry agglomeration. However, social capital has often been viewed as rather rigid or even deterministic when considered at a macro level. Undertaking a lower-level analysis of the social capital concept is conducive to investigating the managerial aspects of cluster initiatives. Breaking the concept down to its relational network structure makes it easier for specific actors to trace the impact of their actions, especially if it is not only the social aspects of the relations that are being considered. Moreover, tracing the adaptations in mutual resources will go beyond the social aspect of the ties and uncover the real value behind the connections that tie regional actors together. Studying these structures of resource-based network ties in terms of density and cohesiveness will reveal the relations that form a regional marketplace. Thus, it is not enough to study structure, the circumstances under which exchange takes place, or the parties between whom the exchange occurs. Focusing on the mutual adaptation of resources that occur within the network structure will also aid the policy discourse. Searching for the answer to the question of how value is being created within the regional relationships that regional policy are supposed to facilitate will offer valuable insights into the development of such policies.

Knowledge spillovers as a valuable trait of regions with a clustered industry agglomeration are a well-established focus within new economic geography research. However, the conceptual possibility that knowledge could “spillover” has been questioned, and the “stickiness” of information and knowledge has been highlighted. Knowledge is context-specific and knowledge that travels from one context to another might not become useful for the receiver. Still, merely considering social aspects of interpretative schemes, mutual understanding, and regional culture will not facilitate the transfer or creation of context-specific knowledge. When different actors and socio-material resources interact in the scope of the specific business relationship, new framings develop

and new knowledge is created. Thus, understanding the interaction between resources and analyzing how these resources are distributed in the regional network of business relations will be important for creating and distributing knowledge.

Innovation is often measured within the new economic geography literature as the number of patents produced or investments in R&D. This creates a simplistic and linear perspective of how innovation works. Value is created when a resource or a capability possessed by a firm is correlated with its competitive advantage or performance. How socio-material resources are reconfigured into novel resource combinations, and how this affects the producer–user interfaces within the using setting, must be captured in order to claim that value generation is being measured. Thus, value is not created at the patent office or in the R&D departments, nor is it a consequence of a functioning system of regional institutions; therefore, it should not be the measure of success in regional policy either.

4. Conclusions

4.1. Implications for regional policy

As captured in Hauser et al. (2007:76) proclamation economic geography “has been characterized over the last decade by two key concepts: knowledge as a source of competitiveness and the region as a platform for agglomeration”. As a consequence, the discourse that has formed the EU's policy regarding regional innovation has focused on high-order constructs. The common theme for our critique of how industry agglomeration, social capital, knowledge, and innovation are defined with regard to regional policy can be summarized as a call for these concepts not to be conceptualized on the systemic and institutional macro level.

Current policy discourse seems to rely on one of two ideas: either that there is a general solution to be found that will create innovation regardless of contexts, or that innovation will occur once systems or market failures is removed from the institutional setting. The IMP approach, by contrast, rest its conceptual assumptions on the belief that

technology cannot be disentangled from its environment and must therefore be managed and understood in relation to those specific resource structures that gave rise to the development of that specific technology.

Recently policies have been enforced that rest upon the concept of “smart specialization” and will require new strategies for the implementation of the EU Cohesion Policy 2014–2020 and its subsequent Structural Funds at the national and regional level. Smart specialization includes the idea that future funding by the Structural Funds will favor industry agglomerations based on a thematic reasoning rather than on industry segmentation (McCann & Ortega-Argilés, 2013). People responsible for designing the regional innovation strategies are encouraged to undertake “entrepreneurial search processes” that will serve to find different themes of sectors and businesses that regionally prevalent entrepreneurs find represent the strongest areas of the regional business life (McCann & Ortega-Argilés, 2013). This will help regional innovation policies focus on their key sectorial strengths where there is a realistic opportunity to be a global player, recognizing that not all areas will have potential for growth in the same sectors (Brynildsen, 2013; European Commission, 2012). It is too early to identify the impact that this new policy shift will have on the formation of regional innovation strategies around Europe, so this question is left for future research. The intention of focusing on entrepreneurial searches could bring the focus down from the systemic macro level towards investigating regional actors' specific institutional contexts and relationships. However, if these policies still consider the market as a homogenous entity or an institutional setting that can be governed by external stimuli, and continue to ignore the specific socio-material resource configurations (Håkansson & Waluszewski, 2014), it is doubtful that they will be more successful.

Some criticism towards new economic geography has focused on homogenizing regions' institutional contexts into a large-order system. Dicken et al. (2001) proposed caution when using data from one specific context to theorize about the economy as a whole and proposed the relational view of networks as a methodology for analyzing the global economy. However, the network methodology proposed by Dicken et al. (2001) involves identifying actors in a network and then mapping out the structural outcomes of their relations. Focusing on relational structure alone will risk ignoring the resource interactions within that

structure. The IMP perspective focuses on the mutual adaptations of resources that occur in network interactions, not on the structures of that network alone (Hallén et al., 1991; Håkansson & Waluszewski, 2007); this focus is lacking from new economic geography research. Thus, even if new economic geography research has started to challenge its macro and “top-down” perspective by adding relational network analysis to its methodological repertoire, the research would also benefit from further conceptually challenging the interactions that make up such a relational structure. A similar call for a focus on the exchange in the specific relationships can be extended to policy, since a focus on relational structure is of less importance for innovation work than the exchange in the specific relationships. Innovation is created in interaction among specific companies; studying how policy interventions affect the exchange within such interaction will be a key to understanding how regional innovation can be supported. Thus, future research should pay more attention to the exchange within the regional structures of socio-material resources that forms the local competitive landscape when trying to understand the impact of regional policy.

Economic geography, as a research field, has a tradition of forming high systemic macro-level constructs that explain societal tendencies at an aggregated level. They are very successful in doing so; the question is whether this will help regional policy. The inclusion of perspectives from the IMP approach will help regional policy to form suggestions that will be more manageable for the individuals in charge of implementing the strategies set by the Structural Funds. Also, focusing merely on the regional structure of social relations will overlook the purpose of such networks in terms of generating knowledge and innovation, since these properties emerge as a consequence of the interactions between socio-material resources. Therefore, generic, systemic, and structural solutions to regional and context-specific problems rarely work as suggested.

4.2. Managerial implications

The managerial conclusions to be drawn from the theoretical discussions in this paper can be summarized as a shift in focus away from analyzing the actors, the region's industrial heritage, and its innovation system, towards a focus on the socio-material resources being exchanged within the specific relationships. That is, not focusing on the

Table 2

The different characterizations of core concepts in new economic geography and the IMP approach, and the managerial implications of such characterizations.

Concept	Conceptual characterization		Managerial implication	
	New economic geography	The IMP approach	New economic geography	The IMP approach
Industry agglomeration	Viewed as a result of the district's institutional characteristics and the balance between competitive and collaborative forces in regional clusters, enabling firms operating in similar industries to produce shared externalities and spillover effects.	Viewed as an emergent property of specific companies tying their socio-material resources together in interdependent relationships.	Focus on establishing an arena in which business actors in a certain industry, public organizations, and academic institutions can collaborate and set shared goals.	Focus on which socio-material resources the actors in the regional development initiative add to the collaboration.
Social capital	Viewed as the value that the shared culture of a region produces, either through trust and norms of cooperation or through the networks that facilitate the dispersion of information.	Viewed as the value accrued from mutual adaptations of shared socio-material resources and specific social bonds between actors within networks or dyadic relationships.	Focus on developing a regional innovative culture or facilitating special norms for the exchange of information within a specific industry or technological sector.	Focus on the specific connections between the actors in the regional development initiative and the enactment of knowledge that their mutual resource adaptation entails.
Knowledge	Viewed as the result of cognitive and abstract information spillover between actors embedded in a regional context, or as information that can be decoded through access to regional cultural habits and mutual technological understanding.	Viewed as a processual and performative construct that is inseparable from the socio-material resource interactions within specific relationships.	Focus on creating the institutional conditions in which abstract and cognitive information can be exchanged between different sectors or industries.	Focus on enacting and creating context specific knowledge by achieving mutual adaptation of the socio-material resources between the actors in the regional development initiative.
Innovation	Viewed as the finite result of the number of patents and R&D investments within a region, or as an outcome of a working system of regional institutions.	Viewed as the process of resource interaction between specific companies in producer-user interfaces.	Focus on developing joint inventions or ideas with high objective technical novelty or premeditated usefulness for a presumed end-user.	Focus on how an invention will fit the resources within the specific producer-user interfaces which will enable its use.

single actor itself, or that actor's institutional affiliation, but on the actual exchange between the actors. Hence, viewing actors as representing a certain institutional context, and therefore creating avenues for those actors to meet representatives of other contexts, is less important than the actual exchange itself.

Table 2 lists the juxtaposing conceptual characterizations that new economic geography and the IMP approach will impose on the four studied concepts: industry agglomeration, social capital, knowledge, and innovation. The managerial implications of the different conceptualizations are then listed to aid the understanding of the practical implications our conceptual dichotomy imposes.

The change in focus suggested in Table 2 will mean that overarching traits of social capital are considered less important unless they influence the network of actors in a regional development initiative in a direct way. The norms and cultural traits that dictate interaction will be irrelevant since they can be considered too rigid for the manager of a regional development initiative to influence. Instead, managers are encouraged to analyze the network configuration of the actors involved and then ask whether actors who are not currently involved in resource interaction could benefit from such an interaction and what socio-material resources could be exchanged through this potential connection. In this case, concepts from social network theory, such as network density, network subgroup cohesion, and structural holes, together with a resource-based view, might form a welcome contribution to regional development policy.

Given that knowledge, both explicit and tacit, is not directly transferable between different contexts of use, it is no longer relevant to enable systems of knowledge dispersion in regional development initiatives. Because knowledge is not solely abstract, it must be enacted in order to create value for the involved actors. Thus, instead of focusing on achieving information exchange, managers should encourage knowledge to be put into practice through joint projects. This will embed knowledge in its practical implementation and the knowledge used would become context-specific and not “in the air” or reliant on abstraction through “buzz” effects.

An invention that is not in widespread use does not generate value since value is created in the combination of heterogeneous resources. Therefore, measuring innovation by the number of patent or investments in R&D will not capture the value that a regional development initiative generates. The only way to create lasting value is to form viable changes in the producer–user interfaces that utilize existing socio-material resources in a manner that improves combinatory power. Therefore, an analysis of the extraction of such combinatorial power should form the basis for evaluating the management of regional development initiatives. There are good reasons to doubt that the region is a central tenet in companies' innovation work. As a result, the notion of the geographical region as important for innovation is a creation of regional politics, not a creation of companies' real innovation work. Subsequently, if companies' innovation work is to be promoted, such endeavors should be evaluated on the basis of how they actually innovate, not as a result of politicians' willingness to promote regions.

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