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Mapping Social Innovation Networks (Preliminary draft)*

Benoît Desmarchelier, Faridah Djellal, Faïz Gallouj[†]

Abstract

Contrary a widely shared opinion in the literature, this paper brings evidence that social innovations are getting more routinized. This process is not the result of a change in technological regimes in the social economy, but the result of the appearance of new type of actors: the knowledge intensive social services (KISS), which are equivalent to KIBS but for the social economy. Like KIBS, they provide their clients with specific knowledge assisting them in their (social) innovation efforts. A major difference with KIBS is that KISS are also connectors bridging public, private and social actors. We bring evidence that these connecting activities are generating increasingly sophisticated networks.

Keywords: Social Innovations, Innovation Systems, Technological Regimes, Networks.

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1 Introduction

Social innovations are the innovations of the not-for-profit sector, sometimes referred to as social economy. They are distinguished from standard innovation by their objective, which is about "*the (re)introduction of social justice into production and allocation systems*" (Moulaert and Ailenei, 2005[18]). Hence, they encompass a large variety of forms, ranging from redistribution systems, to the provision of health-care and education, or even the provision of stable energy sources (for instance to some remote communities). In addition to this specific objective, social innovations are generally perceived as craftwork. For instance, Klein et al. (2014[15]) state that social innovation is "*built locally [...] it does not results from new mechanisms and processes initiated by large organizations or institutions, but from territorialized actions*" (p. 11).¹ Similarly, Mulgan et al. (2007[20]) underline the initiatives of "*a very small number of heroic, energetic and impatient individuals*" (p. 13) in the emergence of social innovations. And, while they acknowledge the role of "social movements" and of organizations, they still emphasize on the role of "*pioneers*" (p. 15) and "*leadership*" (p. 16).

In a Schumpeterian perspective, these observations suggest that the social economy is characterized by an entrepreneurial regime, in which innovations are mostly radical, but infrequent, and performed by heroic individuals. Such a regime describes well industries in their infancy, but innovations in maturing sectors generally become more routinized, that is incremental, frequent, and made by large established organizations (Winter, 1984[26]).

History of the social economy is as old as the Industrial Revolution (Mulgan et al., 2007[20]), and is even rooted in charity practices found in all ancient civilizations. Defourny and Develtere (1999[5]) mention for instance farmers' associations during the Tang Dynasty in China, the presence of working groups in pre-colonial Africa, or a rich associative life in Medieval Europe. With time, many associations and Foundations of the social economy have gained considerable importance (e.g. the Red Cross and the Red Crescent, the Young Foundation, the Wikimedia foundation etc.), which puts into question the view of the social entrepreneurs as the main source of social innovations.

These preliminary reflections suggest that social innovations might actually become more routinized, and performed by large established social organizations. This paper will show that it is not the case. The social economy can be characterized by an entrepreneurial regime, but social innovations are nonetheless becoming increasingly routinized thanks to the appearance of a new category of actors: the knowledge intensive social services (KISS). Like knowledge intensive business services (KIBS), they provide their clients with specific knowledge and assist them in their (social) innovation efforts. But also, they specialize in linking social actors together, favoring the emergence of large social innovation networks.

This paper is organized in four parts. In Section 2, we distinguish tech-

¹Authors' translation.

nological regimes and innovative behaviors. Section 3 addresses these two questions in the context of the social economy. In Section 4, we provide empirical evidence of the routinization of social innovations through the activity of KISS actors. Section 5 concludes the paper.

2 Conceptual Clarification: Search Routines and Technological Regimes

Theoretical discussions about the routinization of innovation processes date back to Schumpeter's writings. The story is well-known. In his *Theory of Economic Development*, Schumpeter identifies the main source of innovations as being the individual entrepreneur, who - thanks to a rare combination of personal qualities - perceives and seizes profit opportunities through the introduction of new products, new processes, new modes of organization, new sources of inputs, or the uncovering of a new market (Fagerberg, 2005[10]). Progressively, this individual behavior was largely - but never entirely - replaced the large firm and its R&D department, within which invention and innovation are routinized.

The heroic individual and the R&D department are both search behaviors. We can speak of search routines (Cyert and March, 1963[4]; Nelson and Winter, 1982[22]), bearing in mind that the entrepreneurial search is all but routinized. Winter (1984[26]) highlights that these two routines thrive in different institutional environments - the "entrepreneurial regime" and the "routinized regime" - which are characterized by different degrees of "secrecy, patent protection, and intrinsic difficulty of imitation" (p. 296) as well as by the extent of "technological opportunities", themselves related to the easiness of access to the relevant knowledge base.

Hence, the entrepreneurial "routine" is relatively more successful when the level of secrecy and of patent protection are relatively low, while relevant knowledge is easily available and imitation opportunities relatively straightforward. In such a situation, innovations are primarily introduced by new entrants (Malerba and Orsenigo, 1997[16]). At the opposite, large established firms are more likely to be the main innovators when secrecy and patent protection are high, and when imitation is difficult - for instance due to the importance of tacit knowledge in the industry. Indeed, such conditions offer a favorable environment for the capture of monopoly rents as well as significant barriers to the entry of newcomers.

As the creation of a new industry is necessarily an entrepreneurial activity, Winter (1984[26]) advocates that the entrepreneurial regime precedes the routinized regime along the industry life cycle. This point remains controversial, as Malerba and Orsenigo (1997[16]) brings empirical evidences of regimes that are sector-specific.

The tertiarization process has not necessarily modified the institutional en-

vironment of capitalist economies, but it did disturb the economic environment in which firms operate: for instance the saturation of goods markets or the digitalization of the economy required new and more agile market strategies (Arthur, 1996[3]; Kim and Mauborgne, 1999[14]). In this context, innovating calls for the use of a larger knowledge base, which exceeds the one formerly relevant to the industry and which is not necessarily available within large organizations, particularly because of employees' acculturation to the code of their organization (March, 1991[17]).

According to Gallouj (1994[11]; 2002a[12] and 2002b[13]) these needs of established organizations supported the emergence of a third type of search behavior, in addition to those identified by Schumpeter: the innovation through interactions with knowledge intensive business services (KIBS thereafter). KIBS are service organizations which specialize in knowledge accumulation and which place it at the disposal of their clients (Gallouj, 2002b[13])

This new mode of innovation is not incompatible with the two aforementioned regimes, although it seems more suitable to the routinized regime as KIBS respond to a demand of adaptation formulated by established organizations. This new and emerging mode of innovation also proves that technological regimes are not characterized by frozen patterns. Thus, a sector may be routinized while witnessing the entrance of innovative newcomers, that is the KIBS in the present case.

3 Search Routines and Technological Regimes in the Social Economy

The preceding section emphasized on the plasticity of the routinized regime: new economic agents, the KIBS, accumulate knowledge and make established organizations adaptable to rapidly changing economic and technological landscapes. In comparison, the entrepreneurial regime may appear as rather ephemeral. Besides, Winter (1984[26]) finds that a routinized regime performs better on the long run. Indeed, in his simulation model, frequent incremental innovations favor faster productivity growth than the infrequent radical innovations generated by the entrepreneurial regime. In this context, we start this section by characterizing the technological regime of the social economy. Then, we investigate ways in which social innovation is actually getting more routinized.

In terms of secrecy, cases of social innovations are highly publicized by officials and academics (see for instance Murray et al., 2010[21]). Besides, the main driver of social innovators is not profit, but the quest for social justice. In this perspective, the more the initiatives are replicated - even by other agents and in other places - the better. Similarly, patenting is by definition uncommon in the social economy, as patents are designed to provide some monopoly rent to the successful innovator.

These two criteria are those of an archetypal entrepreneurial regime. For all that, replication of social innovations is usually not easy. The literature indeed abounds of examples of failed diffusion. For instance, Akrich et al. (1988[1]) relate the setbacks of the diffusion of photovoltaic kits in Africa. These kits were conceived by French engineers and their pre-diffusion was financed by the French Government. The kit failed to be adopted by local populations because it was not enough alterable by local electricians. Reversely, it is unlikely that "barefoot doctors" of Maoist China² can be transposed in Western societies. The knowledge base is difficult to grasp in the case of social innovations, as it often involves mixes of codified and technical knowledge with a complex set of social skills. It is thus not surprising that many social innovations take the form of territorial-specific solutions instead of general purpose and easily replicable tool boxes (Moulaert and Nussbaumer, 2014[19]; Van Dyck and Van den Broeck, 2013[9]). This observation suggests important entry barriers in the social economy, but these barriers are not hampering social innovation activities by local actors.

Altogether, these elements suggest the presence of an entrepreneurial regime in the social economy, with no obvious path towards the advent of a routinized regime. Does this mean that there is no routinization tendency in agents' search behaviors? Like with the KIBS in the business sector, we suggest that the social economy is actually experiencing the development of interactive innovations thanks to the appearance of a new category of actors. These actors are specialized in the accumulation of knowledge and expertise in the conduct of social innovations, and they make this knowledge disposable to groups of actors who express the will to undertake social innovation. In analogy with the KIBS, we propose to label these actors as knowledge intensive social services (KISS).

4 Mapping the Role of Knowledge Intensive Social Services in Social Innovation

This section provides the example of a KISS: the Agence Nationale des Solidarités Actives (ANSA)³. This will help refining the definition of KISS as well as precisising their mode of operation.

ANSA is an association founded in 2006 with the objective to "participate to the implementation of social innovation and experimentation".⁴ As of 2017, it counts 20 employees and it has participated into 52 social innovation projects all over France. These projects are grouped in a number of thematic: (i) access to rights, (ii) access to health-care, (iii) food, (iv) governance and participation, (v) financial inclusion, (vi) digital inclusion, (vii) social and

²Farmers that are "trained to diagnose and treat common diseases without professional assistance" (Rogers, 1983[24] p. 326) to solve the problems of medical deserts during the Mao's era

³<http://www.solidarites-actives.com/fr>

⁴<http://www.solidarites-actives.com/fr/notre-association/notre-histoire>

professional integration, (viii) youth, (ix) accommodation, (x) inclusive mobility, (xi) early childhood, equal opportunities, (xii) social protection and support.⁵ These actions cover the entire French territory with various scales of intervention - from the city level to regions. We are thus facing an actor with a national range of action, which is larger than the local (Murray et al., 2010[21]) and regional (Moulaert and Nussbaumer, 2014[19]) ranges documented in the literature. Also, its participation to 56 projects in a small lifespan suggests a high degree of professionalization.

ANSA is a specialized connector: it provides social innovators with scientific and management methods and it connect them with public and private actors which are willing to provide financial resources. All its employees have graduate degrees, mostly from social and political science, and most of them have extensive prior experiences from both associative, public and private sectors.

Following a methodology developed in Desmarchelier, Djellal and Gallouj (2016[6]) and in Desmarchelier and Zhang (2018[8]), we use the time-frames and the lists of involved partners of these 52 projects to create an adjacency matrix summarizing the linkages built by ANSA over the years. By doing so, we make the hypothesis that all partners involved in the same projects are linked together. We obtain a list of 11 networks from 2007 to 2017.

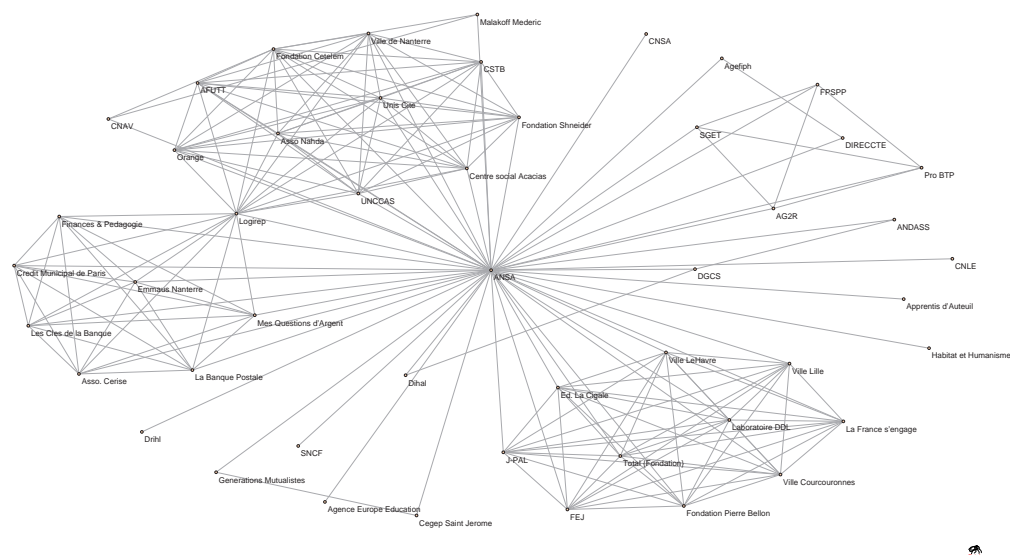


Figure 1: The network of social innovations built by ANSA, here in 2016

The central position of ANSA in Figure 1 is clear. In a recent report, Desmarchelier, Djellal and Gallouj (2018[7]) were referring to the existence of an "initiating agent, a triggering entity" (p.33) which engineers public-private social innovation networks. It is apparent from the Figure 1 that KISS agents

⁵<http://www.solidarites-actives.com/sites/default/files/2018-04/AnsaRapport%20activit%C3%A9%202017.pdf>

- here ANSA - are this purposive agents. ANSA's central position is propitious to both knowledge accumulation and diffusion. It should also increase ANSA's capacity to establish new connections in future projects, as well as its reputation within the network.

Descriptive statistics for the ANSA's social innovation network are provided in Table 1. We observe that the number of actors involved in this network grows markedly from 4 agents in 2007 to 41 in 2017, while the path length⁶ remains contained in low values. Such low and relatively stable path length compared with the size of the network is the sign of a small-world effect (Watts and Strogatz, 1998[25]; Newman, 2003[23]). Hence, information - and also knowledge - can circulate a high speed from one periphery of the network to another. This small-world effect is here particularly strong, as the network is composed by one single component.

These desirable properties of the network are mainly the result of ANSA's involvement in all projects. We can note, however, that networks with a particularly uneven connectivity - that is networks with very few central actors - are particularly vulnerable to the defection of the central actor (Albert et al., 2000[2]). As an example, Figure 2 provides a view of the same social innovation network as in Figure 1, but without ANSA. This network is now composed of 13 distinct components, the largest being made of 20 agents - only 41% of the total population of actors.

Year	Links	Agents	PL	Nb of Components
2007	6	4	1.00	1
2008	7	5	1.30	1
2009	13	8	1.53	1
2010	17	9	1.53	1
2011	17	9	1.53	1
2012	95	25	1.68	1
2013	96	26	1.70	1
2014	96	26	1.70	1
2015	138	43	1.85	1
2016	189	49	1.84	1
2017	142	41	1.83	1

Table 1: *

Descriptive statistics of ANSA's social innovation network.

PL stands as Path Length - i.e. the average shortest path connecting all pairs of agents within the main component of the network.

⁶Path length of a network is the average shortest path connecting all pairs of agents within the main component of this network.

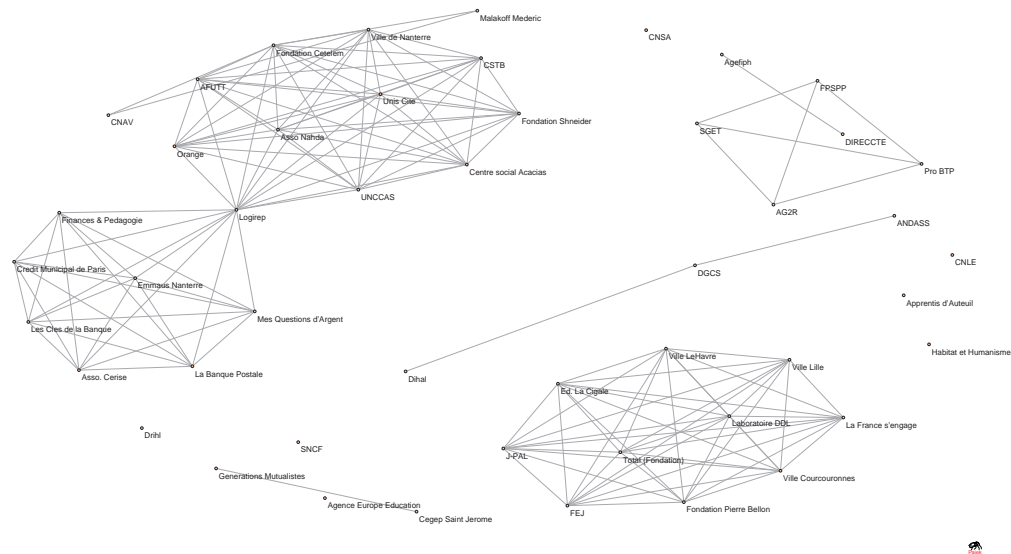


Figure 2: The network of social innovations built by ANSA in 2016 after the removal of ANSA.

A weakness of organized networks is their excessive dependence on the organizer. However, social innovation networks organized by KISS agents can also enter in contact with other such networks and form larger, more self-organized entities (Desmarchelier, Djellal, Gallouj, 2018[7]). This is what happened to the ANSA network in 2015, as it became mingled with the network of Action Tank. Action Tank was founded in 2011. It is an association whose mission is to help companies at implementing concrete initiatives of "social business", that is business activities dedicated to solving social issues and whose profits are completely re-invested in the development of these activities.⁷ Like ANSA, ActionTank employs a small team of highly qualified individuals. It provides companies with consulting services for assisting them in their innovative efforts. Action Tanks is thus an equivalent of KIBS at the difference that it is a not-for-profit organization dedicated to social innovations.

The ANSA-Action Tank network in 2016 is represented in Figure 3. Descriptive statistics for the ANSA-Action Tank network are provided in Table 2. We observe that the two networks join in 2015 as the meta-network is formed by one single major component in that year. Previously, the ANSA and Action Tank networks were separated, and Action Tank was growing faster, since the relative size of the main component - i.e. ANSA - was gradually reducing from 75% of the total population of actors in 2011 to 56% in 2014. Globally, the small-world effect is preserved, since the path length remains very small compared with the size of the network.

⁷<http://www.at-entreprise-pauvrete.org/laction-tank/la-mission/>

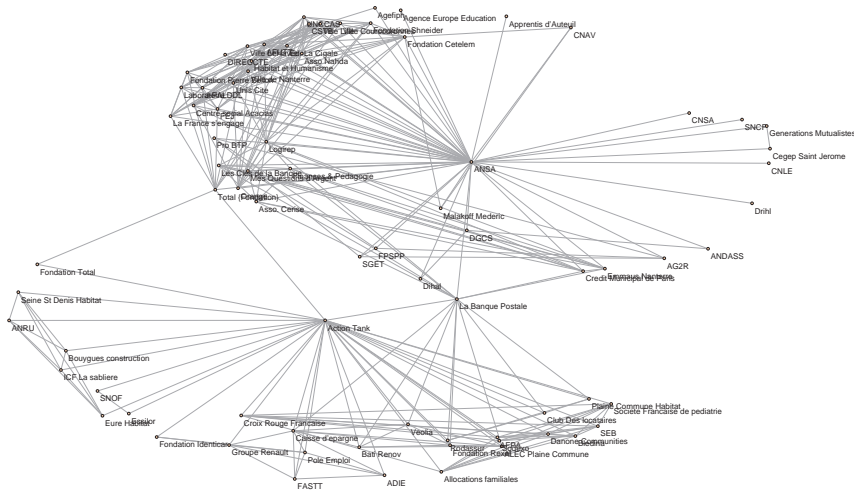


Figure 3: The ANSA-Action Tank network in 2016.

Year	Links	Agents	PL	Nb of Components
2011	20	12	1.49	2(75%)
2012	104	31	1.67	2(80%)
2013	141	43	1.69	2[60%)
2014	150	48	1.72	2(56%)
2015	239	72	2.62	1
2016	293	79	2.53	1
2017	328	80	2.19	1

Table 2: *

Descriptive statistics of the ANSA-Action Tank social innovation network. *PL* stands as Path Length - i.e. the average shortest path connecting all pairs of agents within the main component of the network. Parentheses in the "Nb of Components" column provides the size of the main component relative to the total population of agents.

Interestingly, we observe in Figure 3 that the inter-connections between ANSA and Action Tank networks are not made by these two actors, but by two companies: La Banque Postale and Total. We can thus assert that this new meta-network is presenting signs of self-organization, as it develops connecting hubs apart from its founding fathers. This also implies that the overall network becomes less vulnerable to the defection of ANSA or Action Tank. To test this affirmation, we re-created what would be this network in 2016 without ANSA (see Figure 4 a) and without ANSA and Action Tank (see Figure 4 b). these two networks are now composed by 12 and 16 components, respectively. The largest component in the first network accounts for 76% of the total population and exhibits a short path length of 2.75. Of course, the network displays less desirable features than with ANSA being present, but nonetheless, the interconnection with the network of Action Tank made it

less vulnerable. In the case of the second configuration, that is without ANSA and Action Tank, the network is made of 16 separate components, the largest being composed by only 42% of the total population of agents. The emerging meta-network thus remains heavily dependent to KISS as connectors, but it nonetheless shows signs of consolidation and auto-organization over time.

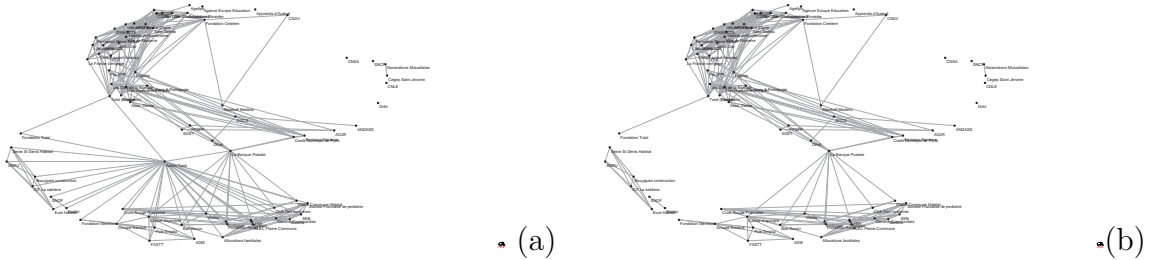


Figure 4: The ANSA-Action Tank network in 2016: (a) without ANSA, and (b) without ANSA and Action Tank.

5 Conclusion

This paper has argued that social innovations are showing signs of routinization. This movement does not seem to result from a change in technological regime, as the not-for-profit nature of the social economy renders patenting difficult. Routinization is rather the outcome of a new mode of innovation, labelled as "interactive innovation" or "Schumpeter III" innovations by Galouj (1994[11]; 2002a[12]). In this mode of innovation, established firms rely on knowledge intensive business services (KIBS) for innovating. Similarly, we observe that agents willing to implement social innovations can rely on agents which are specialized connectors and that we have labelled as knowledge intensive social services (KISS). The KISS encountered in this paper are small size and not-for-profit organizations, with highly qualified employees. They provide social innovators with scientific and management methods and connect them with public and private actors which are willing to provide financial resources. KISS actors are typically participating in a large and growing number of social innovation projects, which gives rise to growing networks of social innovators. These networks are organized around KISS agents, but they are also showing signs of self-organization through the emergence of interconnections between different social innovation networks.

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