

**Title**

Social Innovation and Uncertainty

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## Uncertainty in the innovation processes

Several authors have emphasized the strong link between innovation and uncertainty. Freeman (1982), for example, divided innovation uncertainty to three categories, technical, market and political-economic. Even if market research has been done beforehand, it isn't possible to know with certainty how a technological innovation will be received by its potential users, or how market competition will react, or how economic and political conditions, which influence the processes of innovation, will develop. In a subsequent review, Freeman and Soete (1997) spoke about technological, commercial and organizational uncertainty.

Bessant (2008) focused on technological, market and regulative uncertainties. The latter is related to innovation policies, which are also designed and developed in conditions of uncertainty. That is due to the fact that it isn't possible to have all existing information, and because the way agents of an innovation system will react to a certain policy is unpredictable.

Cantarello et al. (2011) added another type of uncertainty, the behavioral one, which appears along the process of innovation with the behavior of diverse agents and stakeholders.

Recently, Harri Jalonen made a systematic review of the publications related to the innovation/ uncertainty relationship. According to Jalonen, uncertainty represents "the hidden side of innovation" (Jalonen 2002, p. 3). After having examined hundreds of articles about the topic, he distinguished up to eight factors of uncertainty in the processes of innovation: "Technological uncertainty, market uncertainty, regulatory/institutional uncertainty, social/political uncertainty, acceptance/legitimacy uncertainty, managerial uncertainty, timing uncertainty, and consequence uncertainty" (Jalonen 2012, p. 33).

The latter seems significant to us, because a process of innovation produces not only specific results, which are more or less sought from the beginning, but it also has later consequences, which do not depend just on the people promoting the innovation, but on other agents as well. Some of these consequences can generate unexpected and even undesirable effects. The systematic character of innovation processes demands a consequentialist approach, based not only on the evaluation of immediate results.

In short, we affirm that the emergence of unexpected effects derives from the conditions of uncertainty in which the processes of innovation are developed, especially in the diffusion phase, as Everett Rogers indicated in his classic study on the topic (Rogers, 1962). Rogers clearly states that "the newness means that some degree of uncertainty is involved in diffusion" (Rogers, 1962, p. 6).

The reason for this is quite clear, and is connected to the necessary presence of multiple agents in the phase of diffusion, as well as to their diverse attitudes and criteria towards a proposed innovation: “the same innovation may be desirable for one adopter in one situation, but undesirable for another potential adopter in a different situation” (*Ibid.*, p. 12)

There are technological innovations that can be beneficial for some, for example, those who have invested in an innovative company, but harmful to others, such as the competing companies. It is not possible to foresee all the consequences of a process of innovation; it isn't even possible to say if they will be beneficial or harmful in general, due to the fact that there are different attitudes and criteria before any technological innovation. Insofar as agents with free wills surge along the process of innovation, the uncertainty is guaranteed. If there is freedom in an innovation system, the innovation processes are not deterministic.

In this contribution we will take Jalonen's proposals as our starting point, and will apply them to social innovation, emphasizing the importance of the *consequence uncertainty*. We'll also add another type of uncertainty, which seems particularly important to us at the moment of designing and implementing policies and strategies of innovation: *data uncertainty*.

Social innovation can arise from civil society (Goldenberg, 2004; Mulgan, 2007), but it can also originate from the private and public sector (Murray, Caulier-Grice and Mulgan, 2010). Social innovation processes are normally local, and they can appear in small, medium or large scales.

In these processes several agents always intervene, adding more complexity and variety to the process (Phills, Deiglmeier and Miller, 2008). Therefore, the uncertainty of social innovation is even more significant than the uncertainty of technological innovation. In particular, replication of social innovations in other contexts is never guaranteed, precisely because it's always context dependant and socially located.

Let us consider now the policies of innovation. Some of them may be innovative, for example, current European policies of social innovation, which were presented during the Conference "Challenge Social Innovation" (Vienna, September, 2011), organized by European BEPA and the Zenter für Sozial Innovation (ZSI).

If we wish to make these policies not uncertain, it's necessary to consider the diverse types of uncertainty that can affect them, especially the consequences derived from the policies mentioned above.

Firstly, we find that policies of innovation must be based on empirical information and reliable data. Many political scientists and different institutions support this

methodological rule, which defines a basic principle of contemporary governance. For instance, the OECD says: “Sound measurement of innovation is crucial for policy making” (OECD, 2010, Foreword). And NESTA too: “Measuring innovation effectively is important because policy is affected by how we measure results. Lord Kelvin’s adage “if you cannot measure it, you cannot improve it” has an important implication: if something needs to be improved, it must first be measured correctly” (NESTA, Innovation Index, 2009, p. 6). When designing policies or strategies of innovation, if there is a lack of data or it is imprecise, the eventual undesirable effects are certain. The degree of uncertainty is more significant in the case of disruptive innovations, due to the fact that they involve a breaking with the past (Drucker, 1985; Bressant, 2003).

For its part, the Oslo Manual also accepted the uncertain condition of the innovation process, emphasizing the difficulties to measure the outputs that stem from a process of innovation (Manual Oslo 2005, § 126). As for open innovations, Chesbrough began his book on the topic admitting that most of them fail (2003). Therefore, policies of innovation do not always have positive effects, nor produce successful innovations, rather the opposite. It is always necessary to evaluate the relative efficiency of the policies mentioned above, and, use data that can be integrated and compared for this purpose. A way of reducing uncertainty when making decisions consists in having data of the initial situation and of the evolution of the process of innovation, as well as in comparing this information with data extracted from other similar processes.

There are several reasons for the bigger uncertainty and complexity of social innovation in comparison to technological innovation. First, it involves a much bigger diversity of stakeholders and agents (third, private, and public sectors) (Freeman et al., 2010). Secondly, it’s sometimes promoted by organizations that don’t always plan their actions and strategies, or even calculate the possible consequences. Thirdly, it’s based on social knowledge, which involves greater uncertainties than the knowledge of the physical-natural world. Fourthly, it doesn’t have a guarantee for stable funding, which makes any prediction of final results very difficult to anticipate. Also, as we have just said, the processes of social diffusion are multiagent. And last but not least, methods and instruments to measure social innovation are limited.

So, social innovation has its own factors of uncertainty, added to the ones we have mentioned that are related to innovation in general. An important way to reduce this uncertainty and to avoid unwanted effects consists in having data with which we can analyze the evolution of a process, as well as compare several processes. Replication of a social innovation, for example, must be based on data, so that the original innovation could be compared with its replications, although they take place in different social environments.

We will conclude that confronting the problem of social innovations requires measurement indicators in order to reduce uncertainty. We will make some contributions to the process of constructing these indicators.

### **Policies of Social Innovation**

Firstly, we will give a brief explanation of our conception of social innovation. There is a great variety of definitions of innovation, social innovation included.

In this article we will start from the definition that the European Union assumed, due to the fact that its social innovation policies depend on this definition. On December 2012, the pages of DG Enterprise and Industry of the CE defined social innovation as follows:

“Social Innovations are innovations that are social in both their ends and their means – new ideas (products, services and models) that simultaneously meet social needs (more effectively than alternatives) and create new social relationships or collaborations. They are innovations that are not only good for society but also enhance society’s capacity to act. Social innovations take place across boundaries between the public sector, the private sector, the third sector and the household” ([http://ec.europa.eu/enterprise/policies/innovation/policy/social-innovation/index\\_en.htm](http://ec.europa.eu/enterprise/policies/innovation/policy/social-innovation/index_en.htm), accessed December 17, 2012).

This definition comes from the Open Book of Social Innovation published by Murray, Calulier-Grice and Mulgan in March, 2010. It is based on the notion of social needs, which is probably too restrictive. We prefer talking about social problems, as the Social Innovation Center of Stanford University does (Phills, Deiglmeier, & Miller 2008). We understand social innovation as a process that tries looking for new solutions, and to improve existing solutions, for social problems. These processes can be promoted by the private sector, the public sector and also by the third sector. It is obvious that its results and consequences will be very diverse (and unpredictable) depending on who is the promoter, the maintainer and the beneficiary of the social innovations.

Up to now, social innovation has been usually analyzed from a perspective based on social entrepreneurship and social companies. Entrepreneurial perspective emphasizes the role and personal characteristics of social entrepreneurs, as well as the socio-economic contexts in which they act, and the unsatisfied demands that emerge there (Neck et al., 2009; Seelos y Mair, 2005; Sen, 2007; Weerawardena y Mort, 2006; Zahra et al., 2009). On the other hand, nonprofit organizations have been considered as

privileged agents of social innovation thanks to their development of different types of social services (Mulgan 2007).

Nevertheless, the analysis of social innovation based on social companies and nonprofit organizations seems to be insufficient. In the last years we have seen a significant change in the identity of the agents of social innovations. Many solutions to diverse social problems don't originate in social entrepreneurs but in diverse types of organizations and alliances (companies, technological centers, nonprofit organizations, state authorities etc.), who demonstrate a growing commitment to social values.

At the same time, research on social innovation is changing. They do not analyze the initiatives of individual altruism or the practices of committed philanthropists anymore. Many social innovation projects are promoted by heterogeneous organizations that assume a new function and play a new role in the solution of social problems (Goldenberg, 2010; Phills et al., 2008). This requires orienting new organizational competences towards social innovation (European Union, 2012). Therefore, we think that the investigation and policies of social innovation need an approach that overcomes the individual perspective of social entrepreneurs, and that assumes a systematic conception of change, based on regional organizations. In short, it means expanding the systematic model to the arena of social innovation.

These considerations can be of interest for designing policies of social innovation, and, particularly, when studying their effects. We accept OECD proposals (2010b) on the importance of data and indicators in order to orientate the policies mentioned above. Nevertheless, we think that social innovation arises and develops in a local and regional level. That is why these data have to be based on regional studies and indexes of social innovation; without forcing criteria for a later comparability among European regions.

Recent changes in the concept of innovation (CE, OECD) have made possible the spring of social innovation policies in the USA (Social Innovation Fund, White House, 2009) and in the EU (European Social Innovation 2010). This is a part of the "Union Innovation 2020" strategy which insists in the relevance of social innovation. The promotion of social innovation by the European Commission defines an innovative policy that can be successful or not: it is necessary to analyze its effects and consequences. Having a box with conceptual, methodological and statistical tools for social innovation is a condition sine qua non, especially in a regional scale.

Let us put a concrete example of the risk that derives from the insufficiency of data: the registry of potentially innovative agents. In the case of technological innovation, this registry exists, as the Oslo Manual is based on the premise that firms are the innovative agents par excellence. In the case of social innovation, however, identifying

the potentially innovative agents and their projects, it is a very complex task, which can only be done at the local and regional level. It requires a deep analysis of the local and regional systems of innovation, and particularly of the relations between the agents.

One of the biggest uncertainties in the study of social innovation derives from the unavailability of a reliable list or census of the potential innovative actors, statistical data or an indicators system. In the case of Sinnergiak, testing and designing a regional index of social innovation supposes the first step in this direction. It will help to reduce considerably the uncertainty in the decision making regarding the policies of innovation, and particularly in the policies that promote social innovation.

One last observation: In spite of accepting the OECD's stress on the importance of data to design the policies of innovation (OECD, 2010b), we are not supporting technocratic policies and we don't hold a deterministic conception of the processes of innovation. On the contrary, we see processes of social innovation as usually developed in conditions of high uncertainty.

Consequently, social innovation policies have to be experimental, at least at this moment, due to the limits of available knowledge and the lack of a system of indicators. On the other hand, it's important that these policies need to be developed at a regional and local level, since it is there where their effects might be measured. We sympathize with Hasan Bakhshi, Alan Freeman and Jason Potts' proposals. On the document State Uncertainty published by the British NESTA in April, 2011, they suggested the following:

“Innovation policy would work better if modelled on experimental science and directed to the task of minimising the uncertainty that entrepreneurs face in the discovery of opportunities and constraints” (Bakhshi, Freeman and Potts 2011, p. 4).

In order to analyze the effects of social innovation policies, it's necessary to use experimental indicator systems to measure effects and explain whether they are beneficial, harmful, and for whom. Policies of social innovation have to be experimental, as well as being orientated to the regional and local area. Otherwise, the consequences of these policies will be unobservable and, therefore, unforeseeable.

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