

## EDITORIAL

# Knowledge and participation. Moving towards scientific citizenship

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The scientific and technological progress of the first modernity developed through the centralization of intelligence, power and risk control, which was concentrated in technical structures comprising technicians, specialist, decision makers. The relationship between science and society has progressively evolved establishing a net separation between the experts who, through the use of the usual investigative methodologies, are able to reach an excellent level of analytical understanding of the issues that need resolving, and the public authorities. In this sense, the institutions are to be considered the client that ordered the investigations and also the users of these results, which then are transformed into some form of operative function in policy making. In this way, a mechanism has been generated in which collective will is flanked by the desires of policy makers, which are released from democratic procedures but which in their turn are legitimated due to the availability of a *surplus* of knowledge which determines the attribution of representative ability. In the words of Antonio Gramsci in the *Quaderni dal carcere*: “The popular element ‘hears’ but does not always understand or knows; the intellectual element ‘knows’ but does not always understand and especially ‘hears’. If the relationship between intellectuals and population-nation, between directors and subordinates, and between the governors and the governed – is based on a form of participation in which sentiment-passion becomes understanding and therefore knowledge (not mechanically but actively), only then can the relationship be considered representation with an exchange of individual elements between the governed and governors, between the subordinates and directors. In other words, only shared life represents social power” [1].

This is a surprisingly up to date statement if one compares it to the current historical period, characterized by a rapid transition towards a knowledgeable society in which new forms of social relationship are evolving based on the ability to look for, elaborate and gain knowledge, which becomes the parameter in determining the levels of freedom, self-realization and independence of each person. In this sense, it is important to remember that knowledge is a more advanced and refined style of elaboration, because it requires the capacity to create links between people and disciplines. This

means that it can gain value if it is considered a relational asset and not simply as static and limited goods. This prospective is based on the idea that knowledge is, ever more, a cooperative asset and this means it is necessary to modify the structures and forms of representation and inclusion of science, the economy, law and politics [2].

This series of theoretical questions is closely linked to the need to define social strategies and public policies that are able to favour a balanced and rational management of the risks and benefits that are present in the interaction between science and society. Science has become one of the main organizational instruments of a multitude of individual and collective actors and is positioned between the influence of some subjects and forces that are often opposing and which amplify the role of general politics [3]. This new dimension of scientific enterprise means having to increase and diversify the responsibilities of scientists, who must make a broader evaluation of transparency, communication and the use of the results of their research. Identifying the elements that condition the work of scientists and highlighting incongruences does not mean making accusations against science and the cultural patrimony it is based on, but, on the contrary, it simply means posing the question regarding a more serene evaluation of its importance and therefore of the responsibility of science in contemporary society. In order to express the contents and realize the potential of a knowledge-based society, it is becoming ever more important to make a correct evaluation of the conditions of the general background to understand the possible alternatives between risk and benefit. The importance of bearing in mind this intricate network of relations was evidenced by the transformation that has taken place in an extremely delicate sector, namely communication and the public management of risk [4]. The crisis today regards the model which is based on what could be considered as a form of technocratic protection of policies founded on an untouchable “hierarchy of knowledge”, which in cases of doubt “determine knowledge”. However, who is it that decides in those situations of “mixing knowing and not knowing what must and must not be considered as *proof?*” [5]. As Stuart Kauffman so often reminds us, the combination of all biological and technological func-

tions cannot be definitively defined. Even more remote is the possibility to define the combination of all the potential effects surrounding the context [6]. Accepting this positional change means not only making a quantitative analysis of one's own work, and therefore rigorously and verifiable, but also exposing the mechanisms and criteria which guide public policy decisions regarding risk management in such a way as to acknowledge the role of citizens as active and critical collaborators rather than simple beneficiaries of one's activities.

In this regard, an important distinction that must be made, which is becoming ever more important, concerns the *government*, which indicates the governing body, and *governance*, which refers to the governing itself as an activity. More specifically and precisely, *government* is the governing action carried out by the public sector, which looks for the solutions of the problems proposed by society through the involvement of its political-administrative structure, while *governance* is the action of government carried out through the effective participation of a series of subjects that occupy very different positions regarding hierarchical level (central and local actors) and status (public, semi-public and private). The passage from one model to another marks the existence of a series of interactions that are no longer subject to the formal institutions and which involve networks of relations between a multitude of actors. This means overcoming the idea that the decisions in the technical-scientific field are too complex and must be taken so quickly that only specialists are suitable, if we are to avoid economic and institutional paralysis or worse, ethical and social chaos. This is a fundamental issue based on the assumption that innovation is an automatic solution to problems which progresses constantly and where possible margins of risk and uncertainty are considered misunderstandings. On the contrary, the speed and entity of this ongoing transformation demonstrates that it is becoming ever more difficult to sustain the concept that citizens are passive subjects characterized by "irrational fears" or "perceptions" and therefore must be the object of specific communication campaigns to better explain scientific knowledge that has been misunderstood [7]. Refusing to move on from this idea, apart from contributing to making the image of science ever more short-sighted, paradoxically generates a climate of diffidence, or even of antiscientific criticism which often results in movements that base their political-cultural proposal on a general and sterile criticism of modernity. In the public debate, it is becoming more widely accepted that importance must be given to the "cultural factor" in order to try and build a sense of belonging to an open and inclusive community that is able not only to adapt, but also to manage the complexity of the change, the ever increasing asymmetries and the new conflicts arising

from the technological and cultural evolution. *Public engagement with science*, in this way, becomes non just an ambitious objective that is repeated in various places and documents [8] but also an instrument which can favour interaction between the languages of the experts and non-experts and which can extend democracy and its guarantees to scientific debate.

An important example of this concept came from the affirmation in the field of research and biomedical practice of informed consent i.e. the fact it is compulsory to provide patients with a detailed explanation of procedures that will affect them, in such a way that they can take knowledgeable decisions autonomously. This change in outlook not only challenges medical paternalism but it has also literally reversed how concepts are explained and forms of interaction between experts and non-experts, with unforeseen situations arising concerning fundamental issues such as illness, cure and research [9]. Science, considered in this way, becomes ever more a dynamic social institution, involved in the definition of an order which is, at the same time, epistemic and social where politics does not play a passive role but is reciprocally constructive [10]. Understanding and defining the connections that characterize the processes of knowledge gain means identifying the ways in which societies define their epistemological choices and how these influence the socio-political order [11].

The right of access, understanding and choice regarding whether or not to use the results of scientific research is to be ever more considered a widening of the sphere of citizens' rights, which must no longer be bound at territorial level and seen as a universal right which belongs to every human being, regardless of where they were born. An example of this necessity can be seen when considering the question of bioethics, where a sense of belonging and sharing of primary experiences such as birth, cure and death comes into play [12]. Every single human being lives these experiences, independently of the cultural instrument used to understand them in order to make judgments and take autonomous positions regarding their moral choices.

In this way, the concept of citizens' rights means the addition and official legitimation for each individual of a series of expectations, of which satisfaction and above all contents depend on a number of variables. For the State, on the other hand, it means obligations towards society. This new dimension of citizenship requires an epistemological dimension that goes beyond the place and social structures in which each individual lives and works. In this sense, the creation of a critical know-how which helps citizens develop a realistic and concrete vision of technological dynamics and the mechanisms behind innovation represents one of the challenges of contemporary society.

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