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A Democratic Expertise? Public Participation in Science-based Decision-making

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Abstract:
The article focuses on the importance of technical and scientific assessments in present public regulation, notably in extra-national governance. The necessity to rely on experts' opinions in order to neutralize decisions, so to avoid arbitrariness and harmonize policies, is both crucial and increasingly predominant. Nonetheless, such evaluations are not always neutral, sound or independent. This may produce arbitrary decisions for regulatory measures that need to be at least impartial. Instead of proposing to shift the decision-making on behalf of discretionary or political regulators, the article insists on the idea of improving the moment of scientific assessment. The tool to increase the reliability of science-based opinions without compromising scientific neutrality is to realize a knowledge-based participation, only open to qualified interveners. The latter should be experts belonging to no-profit private associations pursuing public interests, with the aim to open up the discussion in uncertain fields of scientific investigation. This would make science democratic, but aims to legitimize its opinions – by adding democratic devices to scientific assessment – when they are not objective and have a regulatory effect, assuming that experts are exercising an (indirect) role of public regulators. The implementation of a mechanism of public participation in scientific assessments – limited to a selected representation of stakeholders qualified for their competence, knowledge and preparation – would enhance a scientific debate that would make scientific assessments plural without conditioning them to public opinion. Such a model could have advantages and some drawbacks, although the latter could be overcome with the application of an effective and efficient legal discipline covering the entire procedure.

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1 Introduction

In contemporary public regulation, the role of scientific evaluation is both crucial and increasingly predominant. Most public choices – in terms of intervention or non-intervention in a particular field, in shaping the content of a regulatory measure, in funding a project, in adopting a new policy or in agreeing to an authorization – are based on necessary, and sometimes binding, expert opinions.[1]

It is rare that public administrations make a decision based exclusively upon legal prescriptions or exclusively in accordance with the political orientation given by the government. Most of the time, much of the decision is guided or directed by expert studies. This method is increasingly frequent in present day, given the complexity of the matters in need of regulation and the undeniable development of independent, harmonized and neutral administrations.[2]

The role of science and specific knowledge in administration is visible in everyday decision-making. If an authority decides to invest public money in the construction of a bridge it must consult and wait for the reports of engineers, geologists, and so on. Similarly, if the Minister of Health has to authorize a new medicine or to withdraw it from the market, chemists, biologists, and doctors must be consulted. Further, if there are two or more projects for restoring an ancient building with a touristic and historical value, the competent administration will make its selection based on economic, artistic and tourism-related assessments provided by experts operating in those fields.

Despite all this, the abovementioned examples are only occasionally purely technical.

In many cases in which public regulation relies on scientific assessment, uncertainty, discrepancies or disagreements can occur. In addition, many scientific disciplines may be factored into the decision. Finally, beyond that of an expert opinion, a teleological evaluation may also be necessary. Even in the abovementioned examples, we can consider that for a bridge-building project, the opinions about feasibility given by engineers may conflict with the opinions of geologists, environmental scientists or sociologists dealing with tourism or with local communities. Equally, upon the authorization or withdrawal of a new medicine, some scientists may take

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the risk to authorize its sale, while others may suggest performing more tests. Finally, as a choice of restoration project implies – as in the other cases – a political, or discretionary, choice between two (or more) alternatives.

One advantage of science-based regulation is neutralizing the decision-making and avoiding (or reducing) potential arbitrary decisions. The use of technical evaluations improves efficacy and efficiency in decision-making, as the experts are better skilled than bureaucrats in confronting certain problems. The deliberative model is basically neutral: it is the technique and not public opinion to direct public policies, above all in specific and delicate sectors, such as the environment, finance, competition, health, and so on. Finally, the impact of such a model is global-oriented, as it leaves aside states and political orientation, providing common solutions to be used for all.

Notwithstanding, scientific evaluations cannot always be sound, objective and universal: science can be divided, uncertain, and doubtful.[3] This raises a common problem of any science-based decision-making: it tends and aims at neutrality, but if it is biased, uncertain and/or controversial, it may produce arbitrary decisions,[4] creating discontent among the recipients of the regulations, who have limited means to contest decisions presumed to be technical and grounded on hard sciences evaluations.[5]

Administrations make decisions on a scientific basis, but this mechanism sometimes does not produce better regulation,[6] nor eliminates the necessity to balance interests, to follow a political orientation, or to involve management choices to add to the evaluation of the scientific reports,[7] as it happens, for instance, in risk regulation. The more scientific results are uncertain, debatable or controversial, the more the final decision will be discretionary or politically oriented. However, if politics and discretion are not part of the decision and the scientific results remain as the only criterion on which a regulatory policy is based, an unreliable scientific basis can lead to an arbitrary decision, which will have a considerable regulatory weight, being at the same time protected by a reduced accountability which is wrongly presumed neutral, sound and objective.[8]

The solution adopted for extra-national regulation – where the plethora if interests involved is wider and more complex – is to rely on scientifice investigation and shift the burden of proof to the party that wants to derogate from it, for instance to act in accordance with the precautionary principle, charged with the onus to demonstrate at least the probability of a risk. This approach has its logic, but it proves weak whenever science is so uncertain that a definite and objective decision cannot be made. The precautionary principle – which in Europe is adopted as a solution in front of uncertainty and risk possibility – is, at present, not applied in global administrative law.[9]

So, how do we overcome this *impasse*?

By bringing in more democracy, while maintaining the possibility of relying on science, through mechanisms of embedded and restricted public participation and open dialogue in the phase of scientific assessment.

The idea of reproducing a democratic or representative model in the scientific community sounds like an aberrant solution. Indeed, the purpose should not be to make science democratic, but to legitimize its opinions – by adding democratic devices to scientific assessment – when they are not objective and have a regulatory effect, assuming that experts are exercising an (indirect) role of public regulators.[10] In addition, the proposed reform should not be seen as a definite solution, but just as one first step in the long path to improve public decision-making.

The implementation of a mechanism of public participation in scientific assessments – limited to a selected representation of stakeholders qualified for their competence, knowledge and preparation – would enhance a scientific debate that would make scientific assessments plural without conditioning them to public opinion. In this way, if there are no controversies and the scientific community is united, nothing will change; otherwise, if science is uncertain, divided or threatened by corporate interests, the open and participated assessment will make the controversial issue visible to the public.[11] This would allow the final rule-makers – the risk managers, for instance – to base their decision on a more reasoned opinion, grounded on a plural, public debate involving different scientific actors. The managers will then be more entitled to use their discretion, assuming the responsibility for the option selected from those debated.

The described mechanism – which will be discussed in more detail further on – would create a scientific dialogue, which would open up technical evaluations, making them plural, more transparent and more accountable without compromising the independence of the assessors. Such a scheme would present advantages, but also risks and drawbacks, and would need a very effective legal structure to work properly.

This article focuses on this special kind of participation, limited to qualified stakeholders, circumscribed to the scientific assessment, embedded into strict rules and procedures, and directed to make scientific evaluations more reliable whenever these are uncertain, controversial or debatable. Simplified, such an institutional dialogue can be defined as "knowledge-based participation".

The paper is divided in three parts, as follows.

The first (§ 2) focuses on "technical administrations",[12] underlining the importance and the spread – particularly in reference to extra-national regulation and in certain specific sectors – of public regulatory measures

based on crucial scientific evaluations. The food safety sector, for instance, is an interesting example of such regulation.

In these circumstances, the decision is so strongly influenced by the scientific assessments that discretionary power is almost entirely lost by administrations, with scientific experts becoming indirect regulators. This creates other problems: how are decisions made in such fields when science is uncertain? In whose name are they made? Is decision-making reliable enough in terms of legitimacy, transparency and neutrality? Are people's expectations satisfied?

The second part (§§ 3. and 3.1.) is dedicated to a participatory mechanism, which would involve external experts into the scientific assessments, as a tool for increasing efficiency, effectiveness and legitimacy of science-based regulations. Such a model, to be applied to independent bodies composed by experts, is presented as an alternative path to the present science-based decision-making, not denying the importance of science in public regulation, but aiming at opening up the scientific approach, in order to increase scientific pluralism. Therefore, a dialogue among experts can support that uncertain science. It presents positive and negative effects and requires detailed and accurate procedures to discipline the moment of intervention.

Finally, in the conclusions (§ 4), the aim is to demonstrate that a scientific decision-making process that is open to debate and dialectic among experts could produce improvements in terms of legitimacy, enhancement of scientific pluralism and effectiveness of evaluations. In order to make such participation work, considering the special nature of the subjects receiving the contribution of the stakeholders, the dialectic period needs to be accurately regulated, with special restrictions and rigorous procedural guarantees. Despite this, some critical consequences or legal pathologies may be unavoidable, although manageable through legal tools.

2 Neutrality, effectiveness and legitimacy of "science-based administrations": the case of food safety

The food safety regulatory system is an interesting example of the use of science in administration, particularly when we consider that most of the governance of this sector occurs at an extra-national level.[13]

For instance, several disputes decided before the Dispute Settlement Body (DSB) of the World Trade Organization (WTO), in accordance with the Agreement for the Adoption of Sanitary and Phytosanitary Measures (SPS Agreement), confirm the described trend.[14] In all of them, the DSB has decided against the party that restricted trade, as the latter was not able to provide a scientific demonstration of the rational relationship between the alleged risk and the protectionist measures adopted for health reasons.

The DSB decisions and the relative literature on them[15] show that while global law requires exclusively a science-based measure in order to derogate free trade (implementing policies for the public good), at national or regional level the regulatory approach is open to allow wider discretionary powers on behalf of regulatory authorities, for instance admitting the application of the precautionary principle when science is uncertain. Such a principle does not apply at the global level, as it is considered a potential cause of arbitrariness disguising protectionism and limiting free trade. Nonetheless, at the same time, the scientific evaluations on which the free-trade oriented measures are based cannot always be considered sound, objective and universal.

All the abovementioned cases – concerning much-debated issues like the use of growth promoting hormones in cattle breeding, the spread of fire blight and the authorization to produce and sell Genetically Modified Organisms – perfectly exemplify typical circumstances where science is uncertain and divided. Moreover, they show another character of public regulation of such sectors (and common also to others, such as health, the environment and so on): these are complex subjects and governing complexity cannot be left merely to a technical assessment. For instance, admitting or denying the production of GM seeds for animal (feed) or human (food) consumption is not limited to the dichotomy of safe/non safe for human consumption. Public decisions upon these issues – assuming they cannot be left only to the market dialectics – involve resolutions on several and heterogeneous crucial subjects: economic and agricultural policies and approaches that may be differently strategic for certain countries or geographical areas; correct information for the consumers; protection and enhancement of food quality and food tradition; protection of the environment and so on.

The use of science is crucial in global food safety law, as the possibility to adopt a policy aimed at protecting human, animal or vegetal health, derogating to the norms enhancing free trade only relies on the capacity to perform a scientific risk assessment demonstrating the likelihood of a risk. The rationale is simple and clear: if we want a common global market, goods and services need to move freely, with no barriers. Therefore, any derogation directed to protect competing interests (health, environment, social justice, and so on) needs to be justified and properly motivated. The objectivity and independence of hard sciences are the best way to realize a neutral harmonization, including also its exceptions, i. e. the way to derogate from it. In the global legal space,

the need to avoid arbitrariness is to be reached through science, legal procedures and indirect representation. At present, the results of the first are more reliable and sounder than the others.[16]

Nonetheless, such a model reveals flawed, controversial and ineffective when experts cannot give all the answers, that is when the scientific community is divided and the results are uncertain. In those cases, the strictness of a system that does not permit discretion ends up increasing arbitrariness, instead of diminishing it.

A few examples of uncertain and controversial scientific decisions, which resulted in wrong regulatory measures can be drawn from the agro-food sector:

1. The US Food and Drug Administration, recently banned partially hydrogenated oils (PHO) in foods within the US because they are no longer "Generally Recognized as Safe". This came after an extensive evaluation of epidemiological health data that shows that PHOs increase the risk of cardiovascular disease.[17] Such oils have been used since the 1950s, but until today, under the WTO law, it would have been very problematic, for another WTO member (e. g. Europe, where they have been banned for years) to stop PHOs from being used.

2. Glyphosate (chemical name for Monsanto's Round-up), a popular herbicide used in conjunction with genetically modified Round-up resistant soybeans, was originally believed to be safe for use and was touted by its manufacturer as working example of the success of biotech products.[18] However, recently, and many years after its approval for use, the World Health Organization determined that glyphosate is a probable carcinogen.[19] Although the question is still scientifically debated, many studies consider glyphosate unsafe.

3. In November 2014, the FDA stated that Bisphenol-A (BPA), a popular raw material used in the epoxy lining of cans, was safe under its current use conditions within the food industry.[20] More recently, the Environmental Working Group (EWG) released information that contradicts the FDA position and suggests that the FDA is "rushing to judgment" ostensibly because the FDA studies were superficial.[21] The EWG points out that the US Environmental Protection Agency has proposed new regulations that specifically highlight that BPA is "a substance that may present an unreasonable risk of injury to the environment on the basis of its potential for long-term adverse effects on growth, reproduction and development in aquatic species at concentrations similar to those found in the environment".[22]

4. In the middle of the 1990s, in the UK and then also in other European countries, the so-called "mad cow disease" (Bovine Spongiform Encephalopathy) was found in bovines bred in Europe, and there it also proved to affect humans. In this case, the experts considered feed given to the cows as safe, even if some scientists claimed they were dangerous for both the animals and humans.[23] The epidemic outbreak that derived by that wrong assessment spread all over the continent, with many cases of the Creutzfeldt-Jakob disease, which killed more than two hundred people.

These examples highlight that the "existing science", which would be relied on to perform a risk assessment, can be quite unreliable in predicting certain risks. Further, prejudices or pressures may affect science, significantly by lobbying for the use of certain chemicals or technologies. On these, the following legal challenges are at issue.

First, the need to ensure enough transparency in the decision-making: science-based administrations must present guarantees in terms of access to the information, openness of the assessments, spreading and sharing of data and knowledge. This is a fundamental prerequisite for the legitimacy of any independent and expertise authority. Confronted with diminished accountability aimed at maintaining distance from involved interests, it should present as a virtual "greenhouse", ensuring transparency in favour of a knowledge and reputational control performed by all the interested constituencies.

Second, the level of excellence and the neutrality of the experts is to be protected by specific legal tools. This is a guarantee of: public and meritocratic methods of selection; rotation of the experts; declarations of interests; publication of their scientific background and of the results of debates among the experts; the possibility of also relying on external opinions in the evaluation of candidates to be hired; incompatibility for the experts during and at the end of their mandate and adequate remuneration for scientists.

Finally, in terms of independence, the problem of balancing the need to ensure a minimum level of accountability and avoiding popular conditioning of scientific assessments is still open. The aim should be to produce a reduced monitoring and administrative accountability, to strike a balance between maintaining independence and accounting for the decisions made by such authorities.

Aside from the just mentioned procedural and legal adjustments that partially are or can be applied to knowledge-based administrations, another improvement, which aims at guaranteeing more reliable opinions, consists of increasing the possibility to consult and confront other experts. To elaborate, this is the creation of a science-based participatory dialogue. This is the main focus of the following paragraphs.

3 Public participation in science based regulatory procedures

A project named "PSx2", realized by a network of associations from several European Countries and financed by an EU fund, explored the participatory role of civil society organisations (CSOs) in new scientific and technological developments, with particular reference to experiences in the development of agricultural biotechnology.[24] As written in the final Report,[25] the initiative shed light on the weight of CSOs in order to define, aggregate and pursue the general interests and democratize the scientific expertise, showing the advantage of involving stakeholders to science-based decision-makings.

Such a model insists on the following idea:

> As Sheila Jasanoff (Jasanoff 1996, 2000, 2004) has convincingly argued, science cannot be approached as a neutral activity, qualitatively distinct from other social activities, as science and technology are the result of a process of *co-production* in which social, political and scientific actors inter-act and finally determine the directions, the priorities and the advances of the scientific activity. The advancements of science, therefore, are always the result of the priority choices of the specific society in which the advancements take place. In her words, the co-production of scientific and social order relates to the production of mutually supporting forms of knowledge and styles of life.[26]

The Report collects direct experiences, empirical studies, case studies and theoretical contributions of seven different organizations working in the European area, in order to demonstrate the benefits of using such a mechanism. These can be summed up, as follows.

First, pluralism is increased in the so-called moment of "science policy",[27] that is when the scientific question is posed, which has a weight in conditioning the approach and the orientation of the technical bodies. Nowadays, this moment is on behalf of the private subjects requesting a measure (for instance an authorization) and of the regulatory institutions, demanding a scientific opinion. If CSOs are called to participate, already in this preliminary phase, the inputs given to the experts are discussed and finalised by a wider amount of subjects, not limited to companies and institutions but open also to different kinds of stakeholders. This should favour the democratization of the deliberative moment triggering the scientific assessments, which is the result of debates and discussions of all the subjects having interests in the field.

Second, the openness of techno-scientific procedures increases transparency and a general and effective control in the phases of collection, elaboration and assessment of scientific data. Thanks to the presence of CSOs, even as observers, not only the final result is open to the public, but also the premises and the development of the analytical proceeding. This produces three further consequences: more publicity of the moment in which private subjects activate the authorities[28]; a more accurate "translation" of the experts' findings for common people; another kind of interpretative role, going in the opposite direction, translating people's requests and questions directed to the scientists, which would improve "risk communication".[29]

Third, in the view of scientific co-production, stakeholders' participation can improve the quality of official opinions: suggesting alternative tests or approaches, producing new or unknown data; providing alternative assessments or showing possible drawbacks using different scientific disciplines than the ones used by the official bodies.

The "PSx2" project, took in consideration 'qualified' organizations composed of employees with high technical expertise and qualifications. Therefore, in the experiments they conduced, it was implicit that the dialogue would be based on scientific issues and not merely ideological. However, the model of participation that was put in place did not foresee any compulsory condition or prerequisite for the CSOs to ensure that the dialectic between them and the institutions would have been grounded on scientific and technical arguments. This raises a fundamental and preliminary objection and focuses on three potential drawbacks of such a model, which are specular to the previously indicated advantages.

The preliminary objection to the hypothesis we are considering is based on the fact that we already have the possibility for a plurality of interests to participate to the decision-making concerning biotechnology or food regulation in general (or the rule-making of similar fields of regulation, such as the environment). This mechanism is foreseen by several national legislations, by the EU Regulations and Directives and even in International Organizations, as the Codex Alimentarius Commission. Nonetheless, this participation occurs only in the moment of management and never in the phase of scientific evaluation, such as the risk assessment. But we cannot say that the guarantees of public participation are not ensured.

However, the request of introducing a deliberative mechanism also in the phase of scientific evaluation is justified by the aim to reach certain positive effects, which are more difficult to accomplish in the other phases: democratizing and enhancing transparency for technical opinions that have become more and more influential; increasing the dialogue among experts; showing the path to follow in case of uncertainty and controversial debates.

Moreover, if the scientific assessment is open to any kind of stakeholders' contribution, such a moment risks succumbing to all the plurality of pressures to which is exposed. This may nullify the separation between scientific assessment on one side and political and administrative management on the other: if the interests-balance has already occurred in the first moment, it is illogical and unreasonable to propose it again in the second one. Such a criticism confirms the importance of distinguishing and separating the two phases, which should be organized and regulated in two different ways, with a scientific dialogue in the phase of assessment, and a teleological one in the phase of management.

As anticipated, the openness of the scientific assessment to public participation needs to be embedded by a specific regulatory discipline. Otherwise, it may present the following drawbacks.

First, if any representative organization is allowed to participate, there may be a risk of conditioning and undermining scientific independence of the assessors. That is why, as it will be explained further, this must be exclusively a knowledge-based participation, grounded on experts-experts dialogue, as introducing teleological or ideological claims – even if in good faith and for the common good – could mine the neutrality of the scientists.[30]

Secondly, the presence of non-qualified CSOs, lacking the ability to understand, interpret and elaborate the scientific evaluations performed by experts could produce a distorted effect, misinforming the public. Neither they would be able to translate the claims of the people for the experts.

Finally, the procedure may be slowed down, with the so-called ossification of the rule making,[31] with a decrement of efficiency, speed and efficacy of the decision-making.

In front of the possible drawbacks of the experimented model, we need to go further and imagine a special kind of participation: open to a limited number of participants; based on strict pre-requisites on behalf of the CSOs; including a selective assessment to authorize the intervention, performed by an apposite body; providing formal and procedural limits for the activity of the stakeholders. Such a model, which presents both advantages and pitfalls, seems to be more suitable to create a dialogue or dialectic in the scientific assessment, striking a balance between open deliberation and technical neutrality.

3.1 "Knowledge-based participation": a procedural dialogue between official experts and scientific stakeholders

Participation in public regulation aims to enrich and pluralize the public debate, giving a voice to weak interests and keeping authorities accountable. So to improve governance, by making it inclusive, open and multidimensional. Public participation is a crucial deliberative mechanism showing how, in addition and despite democratic representation, "a fair procedure plays an important role in building social consensus. Process control or voice encourage people's cooperation with authorities and lead to legitimacy".[32] That is why recognizing participatory rights in any legal order may increase fair and impartial rule making and improve public governance.

The institute of participation has three purposes – implying three advantages for the sake of public governance. First, an anticipation of the contestation of the authority from the citizens, before it may happen again in front of a judge; second, an increment of efficiency and efficacy, as the stakeholders may *help* the administrations to decide better; third, an increment of dialogue and democracy in decision-making, based on a greater pluralism.

At the same time, participation may also present drawbacks: a risk of regulatory capture, with the most powerful participants affecting public decisions and decreasing impartial decisions; a potential diminishing of efficiency and speed in the procedures, as the consultation may slow down the final deliberation.

In order to realize the main purposes for which public participation has been introduced and to avoid or reduce its pitfalls, the deliberative moment needs to be properly organized and disciplined.

Any stakeholders' participation generally needs to rely on:

a. Completeness of information;

b. Specificity of information towards the particular issues at stake;

c. Awareness and correctness of the subjects involved;

d. Plurality of the stakes presented in the debate.[33]

In order to guarantee all these conditions, participation is to be surrounded, supported and integrated by procedural guarantees (transparency, duty to give reasons, judicial review, and so on)[34] and needs to be limited by a regulatory discipline, which prescribes when, how and under which conditions it can be used and applied.

Notably, these requisites are even more important when the moment of deliberation involves independent experts providing assessments on which base the decision-making. In the field of scientific evaluation, more than in others, participation cannot be free or unregulated. On the contrary, it needs to be "embedded", that is covered and restricted by specific and precise rules, which admit the intervention only of certain actors and which subordinate the mechanism only under certain conditions and according to formalities and procedures.

The embedded knowledge-based participation can be described as follows.

Firstly, it would be limited to subjects – be they public or private – able to demonstrate high- level technical skills, competence and knowledge. They cannot be simply stakeholders, as they need to prove professional requisites, for instance by having in their organization chart experts in the same subjects interested by their participation.

Secondly, participants need to demonstrate neutrality and impartiality to political, private or corporate interests. The organizations' statutes need to align with public interests legally recognized (such as the environment, health protection, social conditions, consumers' rights, and so on) or with the general objective to contribute to scientific and knowledge progress (universities or research programmes). To these ends, they need to present these requisites: a statute describing purposes and reasons of the association; a non-for-profit nature; transparency in any kind of organizational aspect, in both in funding and in the activity; the demonstration – through declarations, conflicts of interest, and so on – to be extraneous to certain interests of private nature.

Thirdly, a selective procedure is to be established to assess, among others, the scientific and the formal qualifications of the candidate organizations. Such selection needs to follow predefined criteria and to occur under public scrutiny, in a transparent fashion. It would be as an authorization, granted or denied with a motivated decision.

The selective function could be attributed to a public body – separated from the one "receiving" the participation and extraneous to the decision-making at stake – that needs to guarantee itself independence, transparency and reliability. For instance, it could be an Ombudsman.

The selection itself would consist of a short-termed public tender, in which the candidates should present an application proving to satisfy all the formal pre-requisites and submitting the *curriculum* of their members to be appointed for the participation. An independent commission would evaluate the latter and then publish the results. Finally, a register of external experts could be instituted, in order to have a reliable list of knowledge-based organizations that could be lasting for a defined amount of time (for instance five years).[35]

Fourthly, the participatory period would be limited to certain phases, having different characters in the various steps of the proceeding: it would be a non-decisional intervention, to be taken in consideration by the experts. At the beginning, it could pluralize the moment of the scientific questions to propose to the experts; during the studies, it could produce alternative inspections and tests or just guarantee transparency (the participants may only be observers); in the final step, when the assessment is concluded, it could add further elements or alternative interpretations to be considered by the managers.

For the described model, which at the moment is just hypothetical and would need further research and study in detail in order to be trialled, and, further down the line, we can foresee some advantages and some drawbacks.

With regards to the initial concerns, it could be noted that if the participation model functions, then the likelihood that scientific evaluations are tainted by ideological conditioning is considerably reduced. The expertise of the interveners, the non-decisional character of participation and the way the dialogue among experts – and not among mere stakeholders – is conduced, would bring an enhancement of deliberative decision-making, grounded on knowledge and not on ideology, with an improvement of the scientific dialogue.

Second, such a model of participation increases transparency and publicity in the assessment phase: all the controversial issues are discussed in an open fashion, with particular focus on the most critical ones. This would make easier for civil societies to understand the reasons of a public decision, translating scientific opinions to common people and, at the same time, reporting people's instances to experts.

Third, in a process of scientific co-production, participation would enhance the quality of assessment; increasing also efficiency and effectiveness of the intervention, as this would be immediately directed to the feasibility of the measures, to the methods of evaluate scientific data and to the most controversial issues of the scientific studies. With the effect of reducing further contestations, as the main debate has already occurred among experts.

With regards to the weaknesses of the model, the following should be mentioned, considering also the tools to tackle and reduce them.

First, the system of selection may become a way to exclude unfriendly associations. At the same time, if it is not enough strict and rigorous the admissions of certain organizations can lead to undue influence, for instance based on economic or political interests.

However, to counteract this pitfall, legal and procedural tools exist: as for public tenders and contests, through the presence of strict formal dispositions is possible to design impartial and reliable methods of selection and to perform a transparent procedure to choose the candidates.

Secondly, the duty to respect certain prerequisites of neutrality and fairness for the associations can be bypassed, as it is not easy to make such private associations transparent and accountable without compromising their independence and autonomy. Therefore, the organizations could be surreptitiously created in order to influence the activity of experts and the presence of associations driven by teleological finalities – even when in good faith – could have an impact on the neutrality of scientists. Moreover, the economic capacity of these bodies could have a weight in their activity, linking the quality of the scientific studies to the financial resources of the organizations.

Nonetheless, a possible countermeasure could be found in the representativeness of the participants. They would be interested in adhering to very strict selective methods as this would have a positive impact on their reputations in terms of reliability, representativeness and reputation[36] in the community and for their members. In addition, even the presence of interests-oriented organizations – as far as it occurs in a plural and transparent contest – would still have a positive effect: the open deliberation would enhance the debate among different interveners and only the most reliable proposals would prevail, independently from the source where they come from.

Third, the presence of non-qualified CSOs – unable to produce a correct interpretation of experts' decisions – could lead to a distortion of public information, as the organizations themselves could create misunderstandings between scientists and civil societies.

In order to tackle this criticism, the selective mechanism should be reliable and rigorous and the institutional authorities, bearing the responsibility of the final decisions, should have adequate tools to justify and motivate their regulatory measures.

Finally, the complexity of the selective system and then of the intervention in the proceeding could cause a slowdown in the decision-making, producing the so-called "ossification of regulatory programs",[37] with a decrement of efficiency, rapidity and effectiveness.

Nonetheless, once again the selection period is the key to managing this pitfall, as the presence of high quality experts would also produce an improvement of the quality of the participation, which would be punctual, functional and effective, so to enhance efficiency, rapidity and effectiveness of the decision-making. In addition, if the scientific issue is not questionable, the assessment will not be slowed down. Inversely, it seems fair that a subject up for debate is allocated an appropriate amount of time.

4 Conclusions

Looking at the different legal mechanisms to ensure legitimacy of public regulators, we can distinguish three decisional patterns, all characterized by deliberative mechanisms aimed at increasing fairness, respect of formal requisites and impartiality. Such mechanisms can be found alone, as alternatives, or combined together.

The first is grounded on representative delegation and finds its justification in democratic consent and people representation. The legitimacy of the regulator is delegated from above, for instance by the representative body to that of the executive.

The second model is based on the effective deliberation of the actors involved,[38] on stakeholders' participation and the possibility of representing their interests before the decision-makers or even to contributing to the decision-making procedure. In this case, legitimacy comes from below, directly from the sovereign people and from their participation in the discussion.

The third model is founded on the neutralization of decision-making, thanks to the contribution of experts, and the adoption of scientific opinions that affect, limit or even compel public regulatory authority. Legitimacy is drawn from the exterior, from technical neutrality that makes objective and sound the decisions, so not contestable in their content and under the profile of the use of discretionary powers.

As said, the three models can be combined. For instance, it is frequent that representative democratic policies admit also the participation of stakeholders or are based on scientific evaluations helping to produce the final decision.

Nonetheless, a more complicated combination concerns the last two patterns, involving deliberative participation and science-based assessments. This combination, as previously seen, can be effective and useful. It can compensate for the lack of accountability and plurality when scientific assessments are, at the same time, affected by uncertainty and controversies, and able to direct and limit regulatory decisions.

This brings us to the advantages and drawbacks of science-based rule making. For instance, one of the key solutions to legitimize public regulation – notably when this needs to be harmonized at an extra-national level

to find common solutions for common needs – is relying on scientific reports: if these are sound, objective and non-controversial, neutrality creates sound, legitimate and commonly agreed regulation.

However, when science is uncertain or for any reason unreliable, and there are not enough effective alternatives (for instance based on discretion and motivated consensus), public decision-making may still risk being arbitrary, partial or interests-driven. In addition, at the global level, one regulatory approach may prevail over another, and this is does not always produce fair results for the citizens. Finally, the technical nature of the approved measure – despite being sometimes only under a formal perspective – reduces the adequate and effective means to check and contest that decision and diminishes the accountability of the decision-makers.

Among the various solutions to tackle such a problem, there is the hypothesis of dedicating *more* importance to the scientific assessments with the above safeguards, making them pluralistic and open to dialogue and debate. To put it more simply, trying to democratize – or, better, to increase the democratic guarantees governing – expertise.

One way to do that, without compromising scientific neutrality, is to realize an embedded knowledge-based participation, which would be only open to qualified interveners. The latter should be experts belonging to no-profit private associations pursuing public interests and their activities would aim to open up the discussion in uncertain fields of scientific investigation.

Such a model would not represent a definite solution, but just a mechanism to improve knowledge-based decision making, above all at extra-national level. In addition, besides certain advantages, it could have some drawbacks, although the latter could be overcome or reduced with the application of an effective and efficient legal discipline covering the entire procedure.

Notes

1 On the role of science in law-making and democratic regulation, the literature is significant and various. See, among others, Y. Ezrahi, *The Descent of Icarus*, Cambridge, MA: Harvard University Press, 1990; S. Fuller, *The Governance of Science: Ideology and the Future of the Open Society*, Buckingham: Open University Press, 2000; D. Guston, *Between Politics and Science: Assuring the Integrity and Productivity of Research*, New York: Cambridge University Press, 2000; S. Jasanoff, *Designs on Nature: Science and Democracy in Europe and the United States*, Princeton, NJ: Princeton University Press, 2005; R. Feldman, *The Role of Science in Law*, Oxford: Oxford Scholarship Online, 2009; M.B. Brown, *Science in Democracy: Expertise, Institutions, and Representation*. Cambridge, MA: MIT Press, 2009.
An interesting example of such decision-making can be found at the EU Parliament, with its so-called "scientific foresight". Here, a group of experts takes into consideration a subject, and after scientific analysis, foresees possible results and effects, suggesting a regulation, which will have special justification once it is adopted. "The Scientific Foresight Unit (STOA) carries out interdisciplinary research and provides strategic advice in the field of science and technology options assessment and scientific foresight. It undertakes in-depth studies and organises workshops on developments in these fields, under the guidance of the STOA Panel of 25 MEPs. The STOA Panel forms an integral part of the structure of the European Parliament", https://epthinktank.eu/author/stoablogger/. On this issue see also L. Van Woensel and D. Vrščaj, *Towards Scientific Foresight in the European Parliament. In-depth Analysis*, European Parliamentary Research Service, Scientific Foresight (STOA) Unit, PE 527.415, Brussels, 2015 and I. Miles, *The Development of Technology Foresight: A Review*, in *Technological Forecasting & Social Change*, 77 (2010) 1448–1456. Similarly, another system of science-based decision-making is the Scientific Advice Mechanism (SAM), provided for the EU Commission. "The main component of the SAM is the High-level Group (HLG) of seven prominent scientists charged with providing the Commission with independent scientific advice on specific policy issues, either at the request of the Commission or proactively. The HLG is expected to work effectively with existing advisory bodies such as the Joint Research Centre, national academies and the wider scientific community. The HLG is assisted by a dedicated SAM secretariat located within the Directorate-General for Research and Innovation" (V. Reillon, *The Scientific Advice Mechanism*, Brussels: European Parliamentary Research Service, European Union, 2016, p. 1).

2 The increment of science-based and neutral regulatory measures is due to the need to harmonize regulations, particularly at an extra-national level, where the agreements among states' delegates and indirect popular consensus, while there are no representative institutions (such as a world government or parliament), are deemed insufficient to ensure representative political decisions. Therefore, public policies seek legitimacy and justification upon a reliable source: neutrality and objectivity of sound science serve this purpose.

3 When science is not able to ensure neutrality – because of uncertainty, controversies in the scientific community or the inadequacy of the technical institutions – it becomes a sort of "political expertise", betraying its main purpose of objectivity. In this sense, see N. Irti, *Norma e luoghi. Problemi di geo-diritto*, Roma-Bari: Laterza, 2006, p. 64 ff. and *passim*. The studies of the legal science and – notably – of other disciplines on the limits of science and the risk of a scientific reductionism and technocracy increased in the last years. For instance, a criticism about technical devices as means for ensuring legitimacy are to be found in the sociological theory for which the development of a technology can be understood only considering that particular technical issue into a wider "macro-system", in which also political, economic and cultural issues are involved. On these see S. Jasanoff, *States of Knowledge: The Co-production of Science and Social Order*, London and New York: Routledge, 2004. The literature on the subject is various and heterogeneous: A. Gras, *Fragilité de la puissance. Se libèrer de l'emprise technologique*, Paris: Fayard, 2003; G. Myrdal, *The Political Element in the Development of Economic Theory*, tr. En. by P. Streeten, London: Routledge & Kegan, 1955, p. VII; J. Meynaud, *La technocratie. Mythe ou réalité?*, Paris, 1964; C. Schmitt, *Der Begriff des Politischen* (1932), tr. it. *Le categorie del 'politico'. Saggi di teoria politica* (a cura di G. Miglio e di P. Schiera), Bologna: Il Mulino, 1972, p. 182; M. Heidegger, *Discorsi e altre testimonianze del cammino di una vita. 1919 – 1976*, Recco (GE): Il Melangolo, 2005; E. Severino, *Téchne-Nomos: l'inevitabile subordinazione del diritto alla tecnica*, in P. Barcellona (a cura di), *Dialoghi su giustizia e verità*, Bari: Dedalo, 2001; K. Popper, *The Myth of the framework (1975)*, tr. it. *Il mito della cornice*, Bologna: Il Mulino, 1995, pp. 119 ff.; P. Strache, *Pensare per Standards*, Milano: E.s.i., 1995, pp. 94–95.

4 "*It is an old maxim that the "scientificiation" of politics leads to the politization of science*", A. Von Bogdandy, *Law and politics in the WTO – Strategies to cope with a deficient relationship*, in *Max Planck Year Book of United Nations Law*, 2001, n. 5, p. 642.

5 A problematic aspect of science-based decision-making concerns the controversial conflict when the necessity to guarantee experts' independence excludes mechanisms of control, review or accountability for the latter. Experts demand not to be made accountable for their decisions; otherwise the need to accomplish the controllers' expectations would condition their activity. Nonetheless, this produces

an unavoidable lack of accountability in the activity of rule-making. For this, above all in cases of uncertainty or in order to avoid pressures or corruptions also the scientific assessment needs to be covered by formal and procedural guarantees, of transparency, effective neutrality, protection from external influence, and it should be combined with a second moment of decision-making composed by teleological oriented and accountable powers.

6 On this theme see B. Steel, P, List, D. Lach, and B. Shindler, *The Role of Scientists in the Environmental Policy Process: A Case Study from the American West*, in *Environmental Science & Policy*, 7 (2004), pp. 1–13, available at https://andrewsforest.oregonstate.edu/sites/default/-files/lter/pubs/pdf/pub4413.pdf.

7 Interests evaluation does not disappear: it can survive the experts' opinion – or can hide inside experts' opinions –, although it may result diminished by the technical norms, which most of the time embed the policies through sound and objective evaluations.

8 In many sectors, the limits and conditions determined by the experts towards public regulators are especially evident. This is due to the complexity of certain subjects, to their extra-national – therefore common – relevance and to the need to find harmonized and generally agreed solutions for transnational problems.

9 The literature on the issue is quite wide. Among many, see A. Herwig, *The Precautionary Principle in Support of Practical Reason. An Argument Against Formalistic Interpretations of the Precautionary Principle*, in C. Joerges & E.-U. Petersmann (eds.), *Constitutionalism, Multilevel Trade Governance And Social Regulation*, Oxford: Hart Publishing, 2006; J. Tickner, C. Raffensperger, N. Myers, *The Precautionary Principle in Action: A Handbook, 1st edition*. Science and the Environment Health Network; D. Bevilacqua, *The EC-Biotech Case. Global v. Domestic Procedural Rules in Risk Regulation: The Precautionary Principle*, in *European Food and Feed Law Review*, 6, 2006; J. Cazala, *Food Safety and the Precautionary Principle: The Legitimate Moderation of Community Courts*, in *European Law Journal* 5(10), 2004; J. L. da Cruz Vilaça, *The Precautionary Principle in EC Law, in European Public Law* 2(10), 2004; P. Harremoes & oth., *The Precautionary Principle in the 20th Century. Late lessons from Early Warnings*, London: Earthscan, 2002; J.S. Applegate, *The Proemetheus Principle: Using the Precautionary Principle to Harmonize the Regulation of Genetically Modified Organism*, in *Indiana Journal of Global Legal Studies, Indiana University School of Law*, 2001; O. Perez, *Precautionary Governance and the Limits of Scientific Knowledge: A Democratic Framework for Regulating Nanotechnology*, in *UCLA Journal of Environmental Law and Policy*, 28(1), 2010, available at https://escholarship.org/uc/item/3v08n89m.

10 On these issues see EU Commission, *Science and society Action Plan*, Bruxelles, 2002 (https://ec.europa.eu/research/swafs/pdf/pub_gender_equality/ss_ap_en.pdf) and A. Liberatore and S. Funtowicz, *Democratising' Expertise, 'Expertising' Democracy: What does this Mean, and Why Bother?*, in *Science and Public Policy*, 06/2003; 30(3):146–150.

11 An interesting example can be taken from GMOs regulation in Europe. Recently, the European Food Safety Authority (EFSA) had to provide an assessment on glyphosate, a chemical herbicide produced by the corporation Monsanto, particularly effective with GM plants, but also debated for its possible adverse effects on the environment and human health. EFSA has been accused of excluding from its glyphosate assessment a key study only because of a negative comment by a former US Environment Protection Agency (EPA) official, who is under investigation in a US court case brought by cancer sufferers, who believe that exposure to Roundup triggered their disease. Based on internal Monsanto documents disclosed in the lawsuit, the official is accused of colluding with Monsanto to defend glyphosate's health record (a report of the case is available at http://www.gmwatch.org/en/news/latest-news/17639:*Did former US EPA man influence EFSA verdict on glyphosate?*, Published: 24 May 2017). Such a situation – which is open to different interpretations and puts a shadow on the conduct of the official experts of EFSA – would be avoidable if the assessment had been open to participation and to public debate, as the intervening organizations could have asked directly why that particular study had been excluded by the assessment.

12 The technical administrations are public bodies empowered with direct or indirect regulatory tasks, composed by experts, which through studies, evaluations and technical assessments provide data, information and scientific opinions on which base the rule-making or, sometimes, adopt regulatory measures on their own.

13 Food safety has reached a strongly developed extra-national character: the mentioned cases showed how the policies determining what we eat are not established only at the national level. On the contrary, they are the result of a global institutional dialectic involving legislative, administrative and adjudicatory domestic and ultra-state authorities, with a significant participation of private bodies. With the globalization of trade and the European common market, rules concerning food must be common and shared in a legal space that goes beyond the State. On this issue the literature is wide and exhaustive. See, among others: S. Pardo Quintillàn, *Free Trade, Public Health Protection and Consumer Information in the European and WTO Context*, in *Journal of World Trade*, 33(6), 1999; L.M. Wallach, *Accountable Governance in the Era of Globalization: the WTO, NAFTA and International Harmonization of Standards*, in *University of Kansas Law Review*, 2002. T. Christoforou, *The Regulation of genetically modified organisms in the European Union: The Interplay of science, law and politics*, in *Common Market Law Review*, 2004; A.T. Guzman, *Food Fears: Health And Safety At The WTO*, in *Virginia Journal of International Law*, Fall 2004; C. Joerges, *Transnational Governance and its Legitimacy Problematics: The Examples of Standardization and Food Safety*, NYU, 02 February 2004, http://www.law.nyu.edu/kingsburyb/spring04/globalization/index.html; L. Caduff e T. Bernauer, *Managing Risk and Regulation in European Food Safety Governance* in *Review of Policy Research*, 2006, N. 1, vol. 23; M. A. Recuerda Girela, *Food Safety: Sicence, Politics and the Law*, in *European Food and Feed Law Review*, n. 1/2006; S. Negri, *Food Safety and Global Health: An International Law Perspective*, in *Global Health Governance*, vol. 3, n. 1 (FALL 2009) http://www.ghgj.org; A. Alemanno, *Trade in Food: Regulatory and Judicial Approaches in the EC and the WTO*, Cambridge: Cameron, May 2007; B. van der Meulen and M. Van der Velde, *European Food Law Handbook*, Wageningen: Wageningen Academic Publishers, 2008; B.M.J. van der Meulen, *Science based Food Law*, in *European Food and Feed Law Review*, 1/2009.

14 *EC – Measures Concerning Meat and Meat Products*, WTO Appellate Body Report 1998, WT/DS 48/AB/R, *Japan – Measures affecting the Importation of Apples*, WT/DS45/AB/R and Panel Report, *European Communities – Measures Affecting the Approval and Marketing of Biotech Products*, WT/DS291/R (Sept. 29, 2006) are the most important rulings of the DSB of WTO in terms of food safety. All of them were decided on the base that there was a trade restriction, which was not based on a scientific demonstration able to demonstrate at least the likelihood of a risk.

15 On these issues the legal literature is broad and consistent. For an analytical synthesis, see D. Bevilacqua, *Introduction to Global Food Safety Law and Regulation*, Groningen: Europa Law Publishing, 2015, p. 35 ff.

16 The sector of global governance implies common regulatory solution for common socio-economic problems. The former are founded on international treaty law, which establishes a common discipline to face trans-national matters. In performing such decisions, States' delegates have their weights and the negotiation, the approval and even the adjudication of the international provisions are regulated by procedural norms and formal guarantees. In addition, a significant and crucial method of decision-making is to rely on scientific opinions, presuming these are sound, objective and neutral, therefore reliable for harmonized governance. The latter, in many cases, prevail on political and discretional approaches, as these are considered arbitrary and non-objective.

At the European level, where the development of a general legal order is in a more advanced phase than at the global scale, there is a better balance between sound science and political or teleological discretion, for instance through the phase of risk management and above all through the possibility of invoking the precautionary principle. Nonetheless, the issue is still on the table, as it involves also other sectors besides food regulation. An important criticism, for instance, may concern all the economic policies decided by the competent EU institutions, on top the ones provided by the European Central Bank, and affecting the decisions of regularly elected Parliaments in national Member States.

17 FDA Press Release – FDA takes step to further reduce trans fats in processed foods (2013), http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm373939.htm, last accessed 7 Jun 2015
18 Monsanto (2015) Roundup/Glyphosate Background Materials, http://www.monsanto.com/products/pages/roundup-safety-background-materials.aspx, last accessed 7 Jun 2015.
19 D. Cressey, Nature.com – Widely used herbicide linked to cancer, 24 Mar 2015. http://www.nature.com/news/widely-used-herbicide-linked-to-cancer-1.17181, last accessed 7 Jun 2015
20 FDA (2014) Bisphenol A (BPA): Use in Food Contact Application. http://www.fda.gov/NewsEvents/PublicHealthFocus/ucm064437.htm, last accessed 7 Jun 2015.
21 Environmental Working Group (2015) BPA in Canned Food: Behind the Brand Curtain. http://www.ewg.org/research/bpa-canned-food/regulation-bpa, last accessed 7 Jun 2015.
22 Environmental Working Group (2015) BPA in Canned Food: Regulation of BPA, http://www.ewg.org/research/bpa-canned-food/regulation-bpa, last accessed 7 Jun 2015.
23 On this see M. Jacob e T. Hellström, *Policy Understanding of Science, Public Trust and the BSE-CJD Crisis*, in *Journal of Hazardous Materials*, 2000, p. 303
24 http://www.fondazionedirittigenetici.org/psx2/psx2/.
25 AA. VV., *Participatory Science and Scientific Participation. The role of Civil Society Organizations in decision-making about novel developments in biotechnologies*, Rome, 2009, http://www.fondazionedirittigenetici.org/fondazione/files/PSX2_final.pdf.
26 *Ibid*., p. 8. On this issue, see, among others, S. Jasanoff, *Contested Boundaries in policy-relevant Science*, in *Social Studies of Science*, vol. 17, 1987, pp. 231–256; *Beyond Epistemology: Relativism and Engagement in the Politics of Science*, in *Social Studies of Science*, vol. 26 (2), 1996, pp. 393–418; *Reconstructing the Past, Constructing the Present: Science Studies and the History of Science*, in *Social Studies of Science*, No. 4, vol. 30, 2000, pp. 621–631; and *States of knowledge*, cit.
27 Any scientific assessment may be conditioned by the request of the institutions needing that opinion, embedding, limiting and affecting the content of the following research: "*While risk assessors should be as purely scientific and as free of policy as possible, the state of knowledge in a given area is often so limited that risk assessors are forced to choose among alternative models or inputs by following rules that take into account considerations other than science. These rules are science policy*", D. Milijkovic, *Sanitary and Phytosanitary Measures in International Trade: Policy Considerations vs. Economic Reasoning*, in *International Journal of Consumer Studies*, 29, 2005, a p. 285.
28 If the entire process of scientific evaluation is transparent, for instance in the authorization procedures as for the GMOs, the company applying for the authorization will be aware that any information submitted to the experts is subject to public scrutiny. This would avoid immediately any surreptitious attempt to provide false data to influence the scientific authorities.
29 On the issue of science communication see G.E. Likens, *The Role of Science in Decision Making: Does Evidence-based Science Drive Environmental Policy?*, in *Front Ecol Environ* 2010; 8(6): e1–e9, doi:10.1890/090132. Available at http://onlinelibrary.wiley.com/store/10.1890/090132/asset/fee201086e1.pdf;jsessionid=55C14C91E378054777D59E89785ECD1B.f01t01?v=1&t=j63fq94z&s=8fe73dfff494cb521f3d91a6d4801a4376e29b1d.
30 If administrations rely too much on participation of private subjects, they risk being captured by the stronger organized stakeholders, and so becoming weaker and less effective in producing good governance. On this see S. Cassese, *La partecipazione dei privati alle decisioni pubbliche*, in *Rivista trimestrale di diritto pubblico*, n. 1/2007, p. 15 and from the same author, *A Global Due Process of Law?*, in G. Anthony-J.-B. Auby-J. Morison-T. Zwart (eds.), *Values in Global Administrative Law*, London: Hart Publishing, 2011, pp. 17–60.
31 The concept developed in United States in the 1970s, underlying the negative effects of "hard look" control of judges on administration and some excess of procedures in the administrative proceedings. See R.J. Pierce, *Seven Ways to Deossify Rulemaking*, in *Administrative Law Review*, Vol. 59, 65, 1995; W.S. Jordan III, *Ossification Revisited: Does Arbitrary and Capricious Review Significantly Interfere with Agency Ability to Achieve Regulatory Goals Through Informal Rulemaking?*, in *Northwestern University Law Review*, Vol. 94, 393, 2000; T.O. McGarity, *Some Thoughts on "Deossifiying" the Rulemaking Process*, in *Duke Law Journal*, vol. 41, 1992, p. 1382 ff. On a different opinion, contesting the concept of ossification, see J. Webb Yackee e S. Webb Yackee, *Testing the Ossification Thesis: An Empirical Examination of Federal Regulatory Volume and Speed, 1950–1990*, in *George Washington Law Review*, vol. 80, 2012, p. 1414 ff.
32 S. Cassese, *The Global Polity. Global Dimensions of Democracy and the Rule of Law*, Sevilla: Global Law Press, 2012, p. 112.
33 In this sense see A. Ferrara, *Democrazia e apertura*, Milano: Mondadori, 2011, p. 99.
34 The institute of public participation in public regulation needs to be "one element of a larger body of law, requiring transparency (in order to let participants know the administrative decision being prepared), a reasoned decision (in order to allow the participant know if its point of view has been taken into account) and judicial review (to make the administrative agency respect procedural requirements)", S. Cassese, *The Global Polity*, cit., p. 160.
35 A register already exist in the European Union: "Attempts to regulate the role of external expertise in EU policymaking date back as far as the early 2000s, when the European Commission released the first guidelines for the use of expertise and advice in policymaking. In 2005, a register of expert groups was established. By June 2016, a total of 27 199 members were registered. These members made up 820 'Commission expert groups'. The role of experts and external advisers in EU policymaking remains controversial. Concerns include the neutrality, transparency and balance of external expertise. Following a 2014 European Ombudsman investigation, the European Commission announced that a revised register of expert groups would be operational by the first quarter of 2016. Revised rules for the expert groups were adopted at the end of May 2016. Further changes have been introduced by the Interinstitutional Agreement on Better Law-Making between the European Parliament, Council and Commission. The own-initiative report being drafted by the Parliament's Committee on Budgetary Control may also influence the way the system evolves", G. Sgueo, *External Expertise in EU Policy-Making: The Quest for Transparency* (January 14, 2017). Available at SSRN: https://ssrn.com/abstract=2899373*or*http://dx.doi.org/10.2139/ssrn.2899373.
36 "*The category of public reputational accountability is meant to apply to situations in which reputation, widely and publicly known, provides a mechanism for accountability even in the absence of other mechanisms as well as in conjunction with them*", R.W. Grant e R.O. Keohane, (2004), *Accountability and Abuses of Power in World Politics*, in *American Political Science Review*, Vol. 99, No. 1 February 2005, p. 37.
37 See above, footnote n. 32.
38 On this issue see, among others: C. Pateman, *Participation and Democratic Theory*. London: Cambridge University Press, 1970; J. Elster (ed), *Deliberative Democracy*. Cambridge: Cambridge University Press, 1998; D. Pelletier, V. Kraak, and C. McCullum, *The Shaping of Collective Values Through Deliberative Democracy: An Empirical Study from New York's North Country*, in *Policy Science* 32:3 (103–31), 1999, J. Dryzek, *Deliberative Democracy and Beyond: Liberals, Critics, Contestations*. Oxford: Oxford University Press, 2002; D. Held, *Models of Democracy*. Cambridge: Polity Press, 2006.