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Replicating participatory devices:  
the consensus conference confronts nanotechnology

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## **Replicating participatory devices.**

### **The consensus conference confronts nanotechnology<sup>1</sup>.**

Brice Laurent (Centre de Sociologie de l'Innovation, Mines ParisTech)

## **Introduction**

Studies of public participation in S&T have been developing over the past few years. Numbers of them stress the possibility for lay citizens to provide articulate judgment about scientific matters, if not contribute to the production of knowledge through specific forms of involvement, biomedical and clinical research being the classical examples (Epstein, 1996; Rabeharisoa and Callon, 1999). Local knowledge has been shown to be valuable in the understanding of complex scientific and institutional arrangements (Wynne, 1992). These works have spurred a trend of studies within STS that is concerned with participatory devices and procedures. While STS was initially critiqued by political scientists for its alleged little attention devoted to the “politics of technology policy” (Winner, 1993; Sclove, 1995), questions within the field have been gradually raised about the evaluation of participatory procedures, to the point that a series of papers have been published that proposed a framework for such evaluation (Rowe and Frewer, 2000; Rowe and Frewer, 2004). The “public participation and science” entry of the discipline’s handbook is yet another framework, dividing up participatory procedures according to their “spontaneous” or “sponsored” origin, and their “intensity of participation in knowledge construction process” (Bucchi and Nesserini, 2008). Evaluating participatory procedure has been a long-term concern of political scientists. Arnstein’s ladder of citizen participation, which scales up procedures in terms of the impact they have on decision-making, is perhaps the first, and certainly the most used, of such evaluation mechanisms (Arnstein, 1969). The STS-originated evaluation devices are sophistications of Arnstein’s ladder, and share its standpoint in that they consider procedures as existing and unproblematic instruments that can be assessed according to some criteria, possibly in order to inform future commissioners or organizers. Considering instruments as given goes with a tendency not to question political categories. Indeed, evaluating participating instruments according to their impacts on decision-making supposes that what constitutes (or should constitute) “democracy”, “participation”, “citizenship” is known in

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<sup>1</sup> I thank Michel Callon, Benjamin Lemoine and Michiel van Oudheusden for helpful and detailed comments on previous versions of this working paper. A short version of this paper was presented at the 4S Meeting, Washington DC, October 2009.

advance<sup>2</sup>.

In this paper, I argue that the emphasis put on the evaluation of participatory procedure has been made at the expense of richer analysis of such policy instruments. My objective here is to consider participatory procedures as instruments in the making, that seek to articulate a certain political order and mobilized social science knowledge – under formats that I shall describe. In doing so, one can explore how the aforementioned political categories are constructed.

I am interested here in the consensus conference procedure, as it has been developed at the Danish Board of Technology and then gradually replicated in a number of different countries and settings. The consensus conference is considered in the literature I mentioned as a taken-for-granted device, which can be assessed in terms of its impact on decision-making, and/or its deliberative features. I argue here that the consensus conference is far from being an unproblematic procedure that would be easily replicated. While the reference to the Danish model is permanent, and certain characteristics (selection of a panel, training program, interactions with experts, writing of recommendations) are constantly reproduced (and maintain the common identity of the “consensus conference”), the procedure is frequently questioned. Definitions of the details and roles of the consensus conference are indeed proposed (I shall examine some of them in this paper) but there are several of them, and they have no reason to be granted stabilized features *ex ante*.

As a consensus conference defines who the panel members are, it often refers to the role of the “citizen”. In fact, the examples I shall consider here are all conceived as exercises that should involve “citizens”. As such, they offer ways to explore attempts to articulate visions of citizenship, in which citizens produced in specific, participatory settings, are expected to play certain roles and behave in certain ways. In addition to defining the correct behavior of panel members, and thereby the form of citizenship considered appropriate, organizing a consensus conference implies articulating the issue it seeks to have discussed, and the envisioned use of the end-product. Through consensus conferences is thus defined what the role of the citizen should be in technology development and policy - defined in particular ways.

This paper shall describe the investments and works that are required to replicate and stabilize forms of public participation through consensus conferences. As one can analyze the heterogeneous arrangements of materials, theories and practices necessary to produce valuable opinions in focus groups (Lezaun, 2007), I shall describe here the work required to produce what consensus conferences are expected to provide and, more generally, the problematisation of public participation they may enact. Contrary to some market and/or social science devices like the focus group, the consensus conference is much less stabilized. This paper shall demonstrate that, as a contested instrument, it can articulate different ways to define what the problem of public participation is, each of them containing its – more or less precisely defined- own evaluation framework.

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<sup>2</sup> To be fair, the STS literature also provides deep analysis of the types of citizenship constructed in participatory settings. Irwin’s “politics of talk” paper (2006) is a good example of such studies. Indeed, this paper owes much to Irwin’s proposition to consider that “far from being a simple input to decision-making processes, public opinion should more accurately be seen as an output from particular institutional frameworks and forms of social construction” (Irwin, 2006).

This paper considers more specifically the example of nanotechnology, as an issue about which the consensus conference procedure is mobilized<sup>3</sup>. Nanotechnology is indeed defined in policy circles as a test for public participation in S&T, and the occasion to mobilize specific participatory devices, including the consensus conference (Winner, 2003; OPECST, 2006). I consider here two examples in which organizers of nanotechnology consensus conferences replicated the Danish procedure, as they had mobilized it for previous experiences. The *National Citizens' Forum on Technology* (NCTF), which focused on issues related to human enhancement, was organized in 2008 as one of the projects of the *Center for Nanotechnology in Society* at Arizona State University, and was coordinated by researchers at North Carolina State University, using the *Citizens' Forum* format that the latter had developed. In 2006 the *Conférence de Citoyens sur les Nanotechnologies* was organized by the Ile-de-France regional council<sup>4</sup>.

The consensus conference procedure may define in different ways the problem of public participation. Section 1 uses the NCTF as an entry point to analyze how and describe the technology through which the Citizens' Technology Forum defines what public participation through consensus conferences is. I then proceed in section 2 with an analysis of the *conférence de citoyen*, through which I describe a French version of the consensus conference. In the first two sections, I describe how the actors involved in the two participatory mechanisms that I consider as entry points mobilized instruments already experimented during previously held conferences. Section 3 describes how the cracks and gaps that occur in the replication attempts of the consensus conference left room for the articulation of other forms of public participation through consensus conferences.

## 1. The National Citizens' Technology Forum: a laboratory in deliberation

The NCTF project was part of a program funded by the *National Science Foundation* (NSF) after the 2003 *Nanotechnology Research & Development 21st Century Act* had inscribed in the law the need for the integration of research into the “ethical, social and legal implications of nanotechnology”<sup>5</sup>. The *Center for Nanotechnology in Society* at Arizona State University received an NSF grant to conduct “real-time technology assessment”, one of the components of which being “public engagement and deliberation” with nanotechnology issues<sup>6</sup>. NCTF was part of the public engagement component of the program, which was expected to focus on “deliberation”.

NCTF was coordinated by a team of researchers at *North Carolina State University* led by

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<sup>3</sup> By considering the consensus conference as an entry point, this paper falls within a more general study of public participation in nanotechnology, which, by following various entities as they travel across sites where public participation in nanotechnology is attempted, describes how public participation in nanotechnology is defined as a problem, thereby granting identities for a variety of actors.

<sup>4</sup> The analysis of these two events draws on meetings minutes, interviews with actors involved, transcriptions of panel sessions and direct observation (of the early phase of the preparation of NCTF and of the final public event of the French conference).

<sup>5</sup> The « integration discourse » contains different – and sometimes contradictory, streams (Laurent and Fisher, 2009).

<sup>6</sup> Barben et al., 2008; Guston and Sarewitz, 2002

Patrick Hamlett, a political scientist who developed the “Citizens’ Forum” procedure and organized several of them. The Citizens’ Technology Forum is meant to be a “U.S. version of the Danish consensus conference”<sup>7</sup>. A citizens’ forum is organized as follows: a group of citizens are selected, receive background material that they read before they first meet. They then work together, with a facilitation team, in order to prepare questions to be asked to “content experts”. Using the answers they receive, they write recommendations about the issue being discussed.

The NCTF was part of the research proposal when the *Center for Nanotechnology in Society* applied for the NSF grant. It really took off in March 2007, at the all-hands meeting of CNS, in which participants from all the partnering universities (including North Carolina State University) were involved (and which I attended as well). Patrick Hamlett then presented the NCTF project and explained: “*We don’t do it for the sake of it, we will get publications out of it*”. In calling for “publications” to produce out of NCTF, Hamlett referred to examples of Citizens’ Technology Fora, related especially to biotechnology, which he had previously organized. These previous experiences had been opportunities for Hamlett and his colleagues to study “pathologies of deliberation”, i.e. processes through which discussions are led by more powerful actors, thus hindering deliberation. In a 2003 paper about deliberation technology issues, Hamlett had explained that the social scientist, once informed by “constructivism”, should locate these pathological processes in order to be able, in a later step, to counter them. Indeed,

*Social constructivists are skilled at detailing how the use of language shapes and constructs how artifacts and individuals are understood by others and by those individuals as well.* (Hamlett, 2003c)

This implies that the social scientist “take steps to broaden its connections with larger, normative questions”, as:

*It may be time for constructivist analyses to move beyond the descriptive examination of the social dynamics of technology to a more proactive approach on the larger issues critics identify.* (Hamlett, 2003c)

As another occurrence of the Citizens’ Technology Forum format that Hamlett had developed, the NCTF was supposed to be an opportunity for social scientists to describe these processes but also to “take side”, i.e. make sure that deliberation happens and is not captured by the most powerful actors. Indeed, Hamlett had explained that deliberation theory suffers from its blindness to “power struggles”. It was necessary, for him, to render visible the power games that are at stake in deliberative settings, and prevent minority positions to be heard:

*Constructivists are especially skilled at locating the silenced voices, at deconstructing the apparent agreements and consensus, and at pointing out how language and rhetoric are so often used as weapons in power struggles. Deliberative democrats, following Habermas, seek deliberative practices in which only the better arguments carry weight and in which manipulation or strategic maneuvers are minimized* (Hamlett, 2003c).

The NCTF was thus located in this trend of arguments, and conceived as a device through which “pathologies of deliberation” could be measured, and, in later step, hopefully avoided.

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<sup>7</sup> This is the subtitle of Cobb and Hamlett’s 2008 paper about NCTF.

## Selecting the topic and preparing the background material

The deliberation program of the Center for Nanotechnology in Society naturally focused on nanotechnology. Yet the organizers of NCTF decided from the start to define the topic of the conference more specifically in order to allow – as they explained - for effective deliberation. Choosing “human enhancement” rather than another issue as a topic for deliberation was rapidly agreed upon by researchers at ASU. “Human enhancement” gathers all the technologies that are designed to “enhance human performances”. These technologies are being transformed by nanotechnology advances, especially with their convergence with other technological domains, which now allows for a variety of brain simulation techniques. NCTF organizers foresaw that ethical questions would be discussed. As a significant area of converging technologies, human enhancement was considered appropriate for it allowed references to existing technologies and implications of nanotechnology.

Discussions occurred among organizers about how to write the background material, which would be the basis for the discussion among citizens. Successive versions of the background material were proposed by the coordinator, and rewritten after suggestions from the other members of the committee. Discussions dealt with the “technological determinism feeling”<sup>8</sup> that certain members of the team had about technology development. The discussion was important since for many of the organizers (and, above all, for the North Carolina coordinators) having deliberation occurring implied stabilizing the issue enough to render its measurement possible<sup>9</sup>. An innovation that was planned from the start allowed the treatment of nanotechnology in a way that ensured its use within the Citizens’ Forum format. As part of the *Real-time Technology Assessment* (RTTA) program<sup>10</sup>, scenarios were developed at the Center for Nanotechnology at ASU. Written through a collaborative format involving scientists then being “vetted by experts” and proposed to public comments through a wiki-based platform, these scenarios were meant to present “plausible and collectively produced futures” and by no means “prediction”<sup>11</sup>. Three of these scenarios were included in the background material as illustration of the information presented to panelists (see figure below).

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<sup>8</sup> The expression is that of one of the interviewed organizers

<sup>9</sup> I describe a measuring technique below

<sup>10</sup> See Guston and Sarewitz, 2002

<sup>11</sup> See Barben et al., 2008. The methodology has been gradually refined to answer concerns from the CNS funders about the “objectivity” of the process. The project is presented here: <http://cns.asu.edu/nanofutures/>



Scenarios	
<p><b>Surviving Brain Enhancement/ Sleep:</b></p> <p>The next generation of cranial chip disruptors not only allows the implantee to be able to 'sleep' but also now enables data transmission directly to the implantee's brain during the resting time. This data feed feature dramatically decreases the amount of time needed to assimilate new data each day, in fact the implantee will just 'wake up' knowing what was streamed into their head the previous night. The data feed does not disrupt or alter in any way the 'sleep' of the implantee.</p> <p>The new disruptor cage is constructed out more advanced materials that are lighter and more comfortable for the wearer. No longer is it necessary to lock head, neck and torso in to a rigid structure, the new generation of disruptor cages need only to lock to the head and upper vertebrae of the neck. This new format still provides the same protection against magnetic damage to the brain, advances in real time processing now allow for emergency shut off if the magnetic pulses are not directed exactly at the chip. The use of rare earth magnets in a wider net around the cranium makes for a more thorough disruption of the chip (even while undergoing data feed). This improves 'sleep' for the implantee, removing annoying dream sequences, restlessness, or need for sedatives.</p>	<p>NBIC developments, still in the future, promise important new ways to address genetic and degenerative diseases, the repair of damaged nerves and tissues, the possible restoration of sight and hearing, and so on. It is applications of these sorts that are least controversial, and that most people, specialists and ordinary people alike, support and want to encourage.</p>

*Fig. : Excerpt of the NCTF Background material. In this example a scenario describing a prospective technique of brain enhancement is included.*

Through the use of these scenarios, the future becomes part of what could be deliberated about. The boundary between the information to be provided and the deliberation to study could be effectively maintained. That did not prevent discussions among the organizing members, yet these discussions could happen on how to ensure good deliberation and what to measure during the process, rather than on the nature of "human enhancement". That way, the discussions among organizers could be directed to the study of deliberation, as originally planned.

### **Selection of panel members**

The NCTF was composed of six different panels, one in each of the sites where the conference was held<sup>12</sup>. The Citizens' Forum device is expected to give voice to the "less powerful". Thus, appropriate representation of people was a key concern (which was then stressed upon again in the final report). While following the "original Danish model"<sup>13</sup> of voluntary participation in the panel, each site used statistical criteria (gender, age, ethnicity, political affiliation) to ensure the "diversity of the panels". Ensuring the representation of the "less powerful" meant different things across the sites. In Arizona, for instance, it implied over-representing minorities in places where they were present, but yet not in a number

<sup>12</sup> The six sites were : UC Berkeley, Arizona SU, U of Wisconsin at Madison, U of New Hampshire, U of North Carolina, U of Colorado

<sup>13</sup> The expression is that of one of the organizers. It is also described as such in the final report of NCTF.

significant enough to be present in a 15-member panel.

In all sites, advertisements were distributed in local newspapers, which did not prove enough to ensure that the panel was adequately composed. In one of the sites, an organizer “*had literally to drag people in... She walked in the whole city distributing flyers...*”<sup>14</sup>. Recruitment of panel members was thus not an easy task and organizers had to overcome many difficulties in their attempts to constitute a “balanced panel”, thereby stabilizing the procedure they sought to apply.

### **Managing the discussions among panel members**

Once selected, each of the panels received the background material and met to talk about it during facilitated sessions. Interactions with “content experts” were reserved for a series of Internet-based sessions.

Selecting was not enough to obtain the appropriate panel member. When selected, the members of the panel were not yet citizens that could deliberate; rather, they had to be made deliberative citizens through adequate techniques. In the NCTF, facilitation was part and parcel of the experimental settings, and was considered a variable that could contribute to explain the types of outcomes of the process. However the coordinator of NCTF did not propose a unified set of facilitation techniques that could be used in all of the sites. As a consequence, methodological tips for facilitation were exchanged across sites, and some sites used the help of professional facilitators or people who had experience with group facilitation. Some of the sites explored by themselves what they could do to ensure that the link between the panel member and his or her connection to existing social characteristics did not hinder the deliberation process. A facilitator at one of the sites explained during an interview that “*each of (the panel members) comes with his or her hidden agenda*”. The first thing she did was then to ensure that such “hidden agenda” did not perturb the deliberative process. In doing so, this facilitator used a set of techniques she knew from previous experiences in group facilitation:

*“I don’t want them to introduce themselves right away. Because if they do, they present their own agenda right away. Rather... I start by asking to tell a sentence or two about a random topic... like the weather (...) Once I’m sure that they all have listened to each other, then we do the introductions.”* (Interview, facilitator)

As the discussions went on, she then made sure that “deliberation was going on” by breaking down the group in small groups, and re-arranging them if subgroups did not conduct adequately, that is, had some of their members more silent than others. She was, overall, satisfied with the techniques she used. Yet she also mentioned in an interview the case of one of the participants whom she could not involve in the discussions:

*“there was this one guy (...) I think he was just there for the money. He was high half of the time (...) talking about aliens then getting back to sleep.”*

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<sup>14</sup> Interview with one of the organizers

What to do when panel members behave like this? Facilitators could try to overcome the problem and restabilize the procedure by trying harder to involve the ‘misbehaving’ panel member:

*“you know, I tried to make him be part of the discussion. He would talk about aliens, or, whatever... So I would try to ask him “Do you think it’s really part of the discussion?”. At the end, I simply gave up... You know, I couldn’t be all the time with this one guy. And the others were kind of fed up.”*

In this case, it proved impossible to involve the panel member who was too reluctant to become part of the intended discussion.

### **Maintaining the format through technical devices**

Facilitation techniques required specific material tools: flip charts, tables, screens and projectors are commonly used. More sophisticated devices can be mobilized to help the facilitation process, thereby ensuring that the consensus conference plays the role it is expected to play. “Keyboard-to-keyboard” interactions (i.e. using the Internet as a platform for deliberation) had already been experimented in previous Citizens’ Technology Fora. The NCTF introduced a novelty with the use of “keyboard-to-keyboard” exchanges among the six different sites. The Internet part of the discussion allowed a “truly national” event, since people were grouped across geographical sites.

The Internet was a way to ensure that the deliberative citizen was not captured by special interests. Indeed, as one of Hamlett’s colleagues explains:

*“Online communication can mask the identity of participants with regard to appearance, age, and ethnicity. This can benefit the policy debate because individuals are less likely to respond to others based on their preconceptions and stereotypes.”* (Prosseda, 2003 ; 220)<sup>15</sup>

The Internet dialogues thus allow to produce a citizen who is oblivious to the social characteristics’ of the other members of the group. One can then compare “keyboard-to-keyboard” interactions and “person-to-person” interactions and explore the influence they have on deliberation. The Internet is also a powerful tool for control of the issue being discussed. The software used for the NCTF allowed to disconnect some people, thus controlling who could speak and exchange with the content experts that were supposed to answer the questions raised by the participants. The “truly national” dialogue could not happen without fine technical arrangements about who could speak with whom. People were divided into groups that gathered participants from each of the sites. While one group was active, the others were expected to watch the screen and read the exchanges. That way, the organizers were expected “real deliberation at the national level” (Cobb and Hamlett, 2008), that is, among limited number of people each time, so that the moderator of the Internet session could make sure that every member of the active group had a chance to intervene, and

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<sup>15</sup> This quote is an excerpt from a paper that describes previous Citizens’ Technology Forum organized by Hamlett and his colleagues.

that the issue being discussed remained within the topic of “human enhancement”. As the moderators had priority in the posting of messages, they could intervene quickly when they felt that questions were “too vague” or that they “did not really fall into the topic of human enhancement”<sup>16</sup>. For instance, as some people were trying to raise questions about nanotechnology-related health issues, they were quickly reminded that the topic was human enhancement, and that toxicological risk issues did not fall into that category. As many factors could destabilize the procedure (participants switching discussion topics, or intervening when they are not supposed to), the Internet was a way to overcome potential destabilizations, thereby re-stabilizing the procedure.

Yet what the facilitators could not make sure of was the attention of the “inactive” participants. As reported by some of the local site organizers, many of them simply did not bother to read on a screen while they knew they had a long time to wait before they were allowed to get into the discussions. Hence the exchanges appeared as a series of unrelated, and often repetitive dialogues: the investments put in technology to ensure that it maintained the citizen forum as an experimental setting in deliberation were thus constantly challenged.

### **Producing recommendations**

Producing the appropriate citizen was not enough: once there, the citizen had to produce the recommendations that will be the end product of the event. At this point again, important work was needed to ensure that the citizens came up with the final recommendations<sup>17</sup>. The recommendations were to be those of the citizens and mediation was necessary to make the citizen’s words happen. Therefore, consensus conference organizers were careful not to merge “influence” and “facilitation”. As one of the organizers of the NCTF said in a working paper written after the NCTF: “facilitation is no influence” (Cobb, 2009). No methodology was proposed by the coordinator so each site had to define where “influence” began. An organizer at one of the NCTF sites thus recalled that, as she was sitting in the room where the panel met, “the citizens were asking questions (she) knew perfectly the answers of” and that she “felt she should not answer those questions”, for fear that her intervention might have biased the deliberation processes that were going on<sup>18</sup>.

### **Measuring deliberation**

Measuring deliberation was related to measurements of the quality of the exchanges. In doing so, the North Carolina organizers were drawing on past experiences with the Citizens’

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<sup>16</sup> These were expressions used during the online discussions. The transcripts of the online sessions have been made publicly available by the organizers of NCTF.

<sup>17</sup> Each panel produced one set of recommendations. All of them are publicly available online.

<sup>18</sup> In this example, the questions dealt with existing regulations of nanotechnology. Such reluctance to intervene was based on a “feeling” not necessarily shared by other NCTF actors. In other sites, organizers were clearly involved as “content experts” and intervened to answer questions from the citizens during deliberative sessions.

Technology Forum. In a paper related to the GM citizens' forum, "citizen deliberation" is described as "quite successful" since "*During the deliberations, the (members of the panel) willingly expressed their opinions and listened carefully to the opinions of others. As they worked toward consensus on specific recommendations, they treated each other with respect even when they strongly disagreed.*" (Hamlett, 2003b)

The "commitment" of panel members in discussions about "very complex issues is a criteria. Such commitment (and, as a consequence, deliberation in general) has value if it can be defined as "non-hysterical":

*Our two panels studied the issues very carefully, and their opinions and recommendations represent what the average informed citizen thinks about genetically modified foods. The concerns these groups expressed cannot be dismissed as uninformed or hysterical; they reflect the careful weighing of evidence, competing claims, and public values.* (Hamlett, 2003a)

Demonstrating the "non-hysterical" character of deliberation during the NCTF was done through specific instruments. The organizers of the NCTF conducted "pre- and post-" interviews with the panel members in order to measure deliberative processes. Specific instruments were used. For instance, the IPE device is a test that measures the knowledge of the people being tested as well as their confidence in their answers. Participants are asked to answer a series of questions about the topic of the forum, and grade their confidence in their answers (they also have the possibility to tell that they have guessed). IPE was used by the organizers from North Carolina in order to prove that "effective deliberation" had happened during the NCTF<sup>19</sup>, thereby defining the value of deliberation in terms of learning about a non-problematic issue and awareness of the knowledge gain. Indeed, IPE draws a boundary between what is known and un-problematic (the issue itself) and what is being done in the procedure (the transformation of the citizen). As IPE expects that they are right/wrong answers to technical questions related to the issue being discussed, such instrument is a way to produce a distance between a factual reality (which had been otherwise already described in the background material) and the actions of the citizen (learning facts about this factual reality). The use of IPE in NCTF was the formalization of something already articulated in previous Citizens' Technology Fora : that learning "factual information" about the issue being discussed is one of the value of deliberation. This of course renders the work to produce the background information all the more important.

### **Demonstration of the value of deliberation**

The NCTF made visible some of the features of the Citizens' Technology Forum. The Citizens' Technology Forum procedure has two dimensions. First, it is a means through which the consensus conference can be used as a tool to demonstrate that citizens *can* deliberate and that deliberation has value. Talking about NCTF, Cobb and Hamlett explains that it is a matter of "testing (a) skeptical perspective" on deliberation (Cobb and Hamlett, 2008) that contents that "deliberation is at best useless, at worse dangerous". Here is the

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<sup>19</sup> This is presented in Cobb and Hamlett, 2008.

political value of the social scientist to be found: by demonstrating that citizens can deliberate and that deliberation has value, the Citizens' Forum is expected to convince "policy-makers" that they should rely more on deliberative processes. Indeed:

*"Why should we promote deliberation? One reason is that decision makers are eager to find ways to elicit and integrate public concerns and values in the technology development process."* (Cobb and Hamlett, 2008)

So decision makers are to be exposed to the value of deliberation, and shown that the mechanism works, i.e. that citizens can "listen to each other", "reach an agreement" and "have articulated opinions" against group-based positions. Through such demonstration policy-makers can recognize that deliberation can be a "way to elicit and integrate public concerns and values". The NCTF had another demonstrative interest, as it replicated the consensus conference model at a "truly national level". As the organizers explained, the NCTF was an opportunity to show that the model that proved robust in "a small country like Denmark" could be extended to the U.S.

Once the definition of deliberation and its value are demonstrated, it is then possible to experiment what makes the best format for deliberation – and here is the second dimension. Such study may be undertaken in a comparative fashion: the researcher may compare direct interactions with "keyboard-to-keyboard" interactions within the same mechanism (as it happened in the case of the NCTF). She may compare two consensus conferences in terms of civic engagement, in order to learn about the rules that govern civic engagement, using selection modalities as causal variables. Other research may be envisioned:

*For example, needs to examine which kinds of structures are necessary to prevent pathologies of group decision making on different and more polarizing issues, and whether less costly and resource intensive methods are equally as effective at holding these pathologies at bay.* (Cobb and Hamlett, 2009)

The researcher should thus identify the "pathologies of deliberation" and explore ways to counter them. The citizens' forum thus appears as a social scientific research instrument. The social science knowledge it is based on understands the social order as divided in social groups that articulate "group-based positions". From these premises may the citizens' forum demonstrate that there are ways to get out of "group-based discussions": the future engagement that it modeled is expected to be free from interest-group politics. The citizens' forum parallels other works by the same group of social scientists. For instance, other works by M. Cobb describe the need to "frame" public issues according to the characteristic of different social groups, which act as (political, religious, ideological...) "filters" between these issues and their perceptions (Cobb, 2007). Whereas the political solution is not the same in this trend of work (which advocates the fine tailoring of issue "framing") and in the Citizens' Forum (which heralds the value of deliberation in countering such filters), both approaches share the same vision of the nature of the American political system allegedly captured by interest-group politics.

The experiment in deliberation that the citizens' forum proposes is thus a double-fold process. On the one hand, it is a matter of using a device to create conditions of deliberation and see if deliberation produces interesting outcomes – "interesting" meaning above all that learning about a "factual reality" and the self-perception of this learning process occur. That the device produces deliberation is known; the objective is then to investigate whether deliberation produces interesting results. On the other hand, the device is tested in the same

time in order to know if it allows good conditions for deliberation – again, “good conditions” being those that foster learning. In so doing, the Citizens’ Forum produce deliberative and experimental citizens through the mobilization of a body of social science knowledge that seeks to describe deliberation processes. As such, it is conceived as a laboratory of deliberation, which provides the model of future political action fostering deliberation.

### **Evaluation and use of the outcomes**

Once the recommendations are written, additional work is required to ensure that the public demonstration - of the value and rules of deliberation on the one hand, of the value of informed citizen opinion on the other- is effective. The evaluation of the procedure is a key part, since the whole point is to make visible the value of deliberation, and the social laws that determine it. While some measuring tools are well defined and constantly mobilized by the original promoters of the Citizens’ Forum formats, the replication of the model at the scale of the whole country raised other problems: the criteria of assessment of the deliberation were not always clear. Although “research questions” were proposed by the North Carolina organizers at the beginning of the process<sup>20</sup>, “what exactly was being tested was not clear”<sup>21</sup> for other organizers, who were unsure of the evaluation criteria to apply to evaluate the value of deliberation, even when provided by those used by the initiators of the citizens’ forum format.

Serving both as a demonstration to policy-makers of the value of deliberation and as a research tool intended to academic audience, the NCTF’s end products had to shaped to fit the two goals. Eventually, the report was intended to policy-makers – but few efforts were made to diffuse it, although researchers from ASU conveyed a workshop in which the NCTF was presented to policy-makers. The academic side of the demonstration was made through publications. It implied convincing an academic audience that the experiment was an acceptable demonstration, a task that is still ongoing at the time of writing.

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<sup>20</sup> According to one of the interviewees, research questions comprised the study of “acceleration processes”, “pathologies of deliberation”, and the other topics mentioned above.

<sup>21</sup> Interview with one of the organizers

## 2. The Ile-de-France *Conférence de citoyens*

### Preparing for the conference

In 2007, the Ile-de-France regional council decided to hold a consensus conference about nanotechnology. A regional councilor from the Green party, Marc Lipinsky, who was (and still is at the time of writing) vice-president for research, initiated the process. The project faced strong oppositions from some members of the regional council but managed to get through<sup>22</sup>. The focus on nanotechnology was decided beforehand by the regional council. A *comité de pilotage* was then composed. Its president was a physicist known for his intervention in the domain of the ethics of science. Some of the members of the committee (including the president) did not know much about the consensus conference procedure. Others were familiar with the procedure. Daniel Boy and Dominique Donnet-Kamel were two

of them. They had been involved in the first consensus conference held in France, which was organized by the parliamentary office of the evaluation of scientific and technical choices (OPECST), in 1998 about GMOs. This conference explicitly referred to the Danish model but was named *conférence de citoyens* to avoid the stress on “consensus” (Boy et al., 2000). The GMO *conférence de citoyens* then became a reference for people like Boy and Donnet-Kamel, who were subsequently involved in other conferences (the nanotechnology one being the latest). The 1998 conference was used as a main example in a book Boy co-authored about how to do *conférence de citoyens* (Bourg and Boy, 2000). This book proposed a methodological framework that was mobilized for the nanotechnology conference: the first thing the president of the *comité de pilotage* did when he was appointed was to read the book. The organization then followed closely the process laid out in Bourg and Boy’s book: a *comité de pilotage* (organizing committee), independent from the commissioner, chose the experts, and supervised the whole process. While both the Citizens’ Forum and the *conférence de citoyens* refer to the Danish model of the consensus conference, the training program is not organized the same way in the two cases. The US model has the panel members write questions after having read a background material, and submit these questions to experts. In the *conférence de citoyens*, the panel members are first trained by specialists of the field before reflecting on the questions they will ask during the final public conference.

### The role of Ifop and how the poll institute had been intervening in past *conferences de citoyens*

A poll company, Ifop was chosen to organize the selection of the panel, the facilitation of the training sessions, and the logistics of the conference. Ifop had already been involved in the

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<sup>22</sup> The oppositions dealt with the cost of the overall process – and especially of the movie that was foreseen to be shot during the conference – and also about the “participatory democratic” nature of the initiative, not considered relevant for some of the regional councilors.



1998 GMO conference, and since then had organized a number of *conférences de citoyens* in different settings, some of them for private pharmaceutical companies. It has developed a methodology that the company now commonly uses when organizing *conférences de citoyens*. The *conférences de citoyens* Ifop has been involved in follow the scheme described by Boy<sup>23</sup>. From there Ifop has developed skills in applying this model to various issues. As one of the Ifop people involved in *conférence de citoyens* explained to me, the private companies that commission these conferences to Ifop have been gradually convinced of the value of the instrument:

*“It works very well every time. At the beginning, they [the commissioners] were a little worried, they didn’t really talk about it, since they were wondering what would come out. Now everything’s fine, they know it’s going to be interesting, they know they will get good sense results on health governance.”* (Interview, Ifop)<sup>24</sup>

Thus Ifop is able to propose to its customer a procedure that will show that citizens, once properly informed, can have sensible opinions, which, among other features, will be acceptable to the commissioner. By ensuring that the procedure is reliable enough, Ifop is thus able to make it a stabilized market object. When selected to work on the 2006 nanotechnology conference, Ifop people were confident they would be able to make use of the experience they had and applied a process that they “mastered well enough” as one of the Ifop people explained in an interview.

### **The impact of the *conférence de citoyens***

Marc Lipinsky explained at the beginning of the process that it was “an experiment”: the exercise was supposed to experiment on nanotechnology the consensus conference procedure, and, beyond that, demonstrate the possibility of non-expert thinking on technological issues. The shooting of a movie during the conference was a request from his part, and, in spite of strong opposition within the regional council because of budgetary issue, he insisted that it should be part and parcel of the overall process. The movie was a way to ensure the visibility of the experiment. Lipinsky also insisted from the start that the exercise was “a serious one”, and that he wanted to take the outcomes of the process into account for future political decisions of the regional council. As they mobilized tools and instruments they had already used, some of the actors were also keen to stress the importance of the “impact” of the process. One of the points of interrogation of Bourg and Boy’s book is indeed the “impact” of the *conférence de citoyens*. The authors divide the “impact” of the consensus conference into its “role on the policy debate” and “direct impacts”. While the latter is acknowledged to be low, the former has been defined as the main result of the conference. The process is thus expected to contribute to the decision- making process, as part of the overall debate on technical issue. As Boy and al. explain about the 1998 *conférence*:

*« If one is to adopt this perspective, citizens’ opinion is not situated in the realm of political*

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<sup>23</sup> The Ifop people I met also explained that the first thing they had done when starting working on *conférence de citoyens* was to read Boy’s works.

<sup>24</sup> The interviews used in this section were conducted in French. All the quotes used in this section have been translated into English by the author.

*decision, but in that of public debate. (...) Its ultimate goal is not to reach a « better solution » but to ensure that the main elements of the controversy be noticed. »* (Boy et al., 2000, my translation)

Ifop people for their part are attentive to draw attention on the impact of the conferences they have been involved in. Even when private companies are commissioners, the connection with the “political decision” is a key point. When asked about how they determined the success of the *conférence de citoyens* that they had been involved in, actors from Ifop explained:

*“First thing is obviously : ‘what does all this leads to?’. And I have to say that all our conferences led to results. When we work with ZGM [a pharmaceutical company which is Ifop’s main commissioner], officials and politicians are there each time (...). And the thoughts of citizens about health policies really get to them. Well, it’s never a direct impact (...) but it contributes to the richness of the debate.”*

When participating in the 2006 nanotechnology conference, Ifop as well as the members of the *comité* who had been involved in other conferences thus considered that part of the value of the exercise was to be found in its “impacts”.

### **The *conférence de citoyens* and nanotechnology**

The regional council had determined the topic of the conference (“nanotechnology” without more specificities) when Ifop was chosen and the *comité de pilotage* selected. The early meetings of the *comité de pilotage* were opportunities for the organizers to think about how they wanted to present nanotechnology to the panel members. Two of them, a philosopher of science and the administrator of a civil society organization *Vivagora* that advocates for the “democratization of technical choices”, propose to include in the introductory package to be distributed to panel members a text they had written. This text was entitled *La Vague des Nanos* (“The Nanotechnology Wave”) and attempted to define nanotechnology as a program that went hand in hand with “science-fiction” and “futuristic vision”<sup>25</sup>. The proposition was supported by the president of the organizing committee but encountered strong opposition from other members of the committee, as well as the Ifop people. Ifop and the members of the *comité* who had been involved in past *conférences de citoyens* contended that the document was not appropriate. For them, it did not present nanotechnology “in a factual way”<sup>26</sup>, whereas the *conférence de citoyens* was supposed to separate factual information from panel deliberation – as previous conferences had managed to do. As one of the members of the organizing committee (who had been directly involved in the 1998 *conférence de citoyens* and indirectly in several others) explained:

*“A presentation to the panel should be something factual. It needs to present what the technologies are, what the applications are, what they do...”* (Interview, organizing committee member).”

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<sup>25</sup> The previous two quotes are from *La Vague des Nanos*

<sup>26</sup> The same expression (“*de façon factuelle*”) was used in interviews by Ifop people as well as members of the *comité de pilotage*

She pointed to an excerpt of *La Vague des Nanos* during an interview, and asked me if I “thought it was factual information”:

*“For about twenty years, futuristic visions and scenarios close to science-fiction go hand in hand with nanotechnology developments. For the process of fabrication at the molecular scale leads to « foresee the unforeseen », i.e. renders plausible, if not likely, the apparition of radically new applications and still today impossible to even imagine.” (La Vague des Nanos)*

Such perspective was for the critics of *La Vague des Nanos* at best “an analysis and thus not the needed factual presentation”, and at worst a “biased vision of nanotechnology”<sup>27</sup>. On the contrary, they called for a “factual presentation” of nanotechnology, which could be made of “lists of applications, of the people who develop them, of the scientific principles on which these applications are based”<sup>28</sup>. The Ifop people were also very critical of this document. For them it was not “relevant and objective information” to be distributed to the panel members, but “a sure way to stir up fears and emotions”<sup>29</sup>. Instead, the nanotechnology case for the Ifop’s *conférence de citoyens* meant that the boundary between factual elements and political discussion had to be worked upon once again, this time about the future. Drawing the factual/political boundary implied keeping the future at bay in order to focus merely on “concrete, existing applications based on solid scientific elements”<sup>30</sup>. So while the NCTF organizers managed to deal with the future by using scenarios to objectify it, the replication of the *conférence de citoyens* on nanotechnology faced difficulties in inscribing the future in the already experienced format.

The criticisms of *La Vague des Nanos* were supported by a criticism of the attitude of some of the members of the *comité de pilotage*, especially the writers and supporters of *La Vague*. In the 1998 conference, the choice was made not include “stakeholders” in the comité. The methodology developed subsequently contended that *comité de pilotage* should not be composed of “stakeholders” but specialists of the issue on the one hand, of the methodology on the other hand (Bourg and Boy, 77). Yet for the members of the 2006 organizing committee who had been involved in past conferences, some of the people sitting in the committee (including the authors of *La Vague des Nanos*) were “clearly involved in the nanotechnology debate” and thus “biased against nanotechnology”<sup>31</sup>. The authors and supporters of the text did not claim that they opposed nanotechnology developments though. But it was clear that, for them, nanotechnology could not be reduced to a set of technological advances. Instead, it was to be considered above all as a science and technology policy program tied to a definition of the future, that is, a set of technological practices, roadmaps and visions, that defined what the future should be. When defined as such, nanotechnology encompassed visions of social order as well as technology development, and, consequently, could not be separated from the politics of future that it was built on. Having defined nanotechnology as a political and a philosophical issue, it made little sense for the authors of the text to define a “factual reality” about it, which could be deliberated on by citizens. On the contrary, they argued that any discussion about any aspect of nanotechnology should locate possible spaces for the political intervention of civil society actors in decision making processes.

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<sup>27</sup> Interview with a member of the organizing committee

<sup>28</sup> Idem

<sup>29</sup> Interview, Ifop

<sup>30</sup> Idem

<sup>31</sup> These expressions were used during interviews by some members of the organizing committee and Ifop.

As no agreement could be made about a common introductory text, the presentation package to be distributed to panel members was eventually made of a collection of press articles chosen to represent different viewpoints and opinions about nanotechnology. But the discussions about nanotechnology were not limited to the composition of the background information material. They were numerous during the exchanges about the training program. While Ifop tried to apply the methodology they had developed to yet another technological case, some members of the organizing committee kept referring to the specificities of nanotechnology. Through an insistence on the “ethics of technology”, some members of the organizing committee (and, above all, the president of the committee) sought to reflect on nanotechnology as a science policy program first articulated in the U.S. They thus contented that work was to be done about how technology was being thought of as a social and political activity. The insistence on nanotechnology as a science policy program led to request the participation of social scientists in the training program, as well as representatives of civil society organizations, who could then explain why civil society mobilization was needed on such issue. Such calls led to considerable changes in the procedure as Ifop and some members of the organizing committee were used to. Nearly half of the trainers eventually came from outside the natural sciences, some of them from NGOs active about the “ethical implications” of nanotechnology<sup>32</sup>.

### Selecting the panel

The selection of the panel members was done by Ifop. The company used a similar process as that it had been using in previous conferences. In a first step, Ifop employees were sent across the Paris regional area<sup>33</sup> and identified a set of potential panel members. This group was supposed to fell into statistical criteria. Yet the criteria used by Ifop are far from determined once and for all. As it is important to have a balanced opinion, part of the job of the recruiting person is to ensure that factors that may affect the outcome are taken into account. Thus:

*“We improve the criteria each time. For instance, we realize that having kids has a significant influence on risk perception.”* (Interview, Ifop)

As a consequence, the number of children was used as a criteria in the nanotechnology Ile-de-France conference. For all the sophistication of the criteria being used, the selection required last-minute adjustment and ad hoc strategy. One of the members of the panel thus told how she was recruited:

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<sup>32</sup> A long-term participant of several *conférences de citoyens* speaks – somewhat critically- about the “academic concern” of the *conférence de citoyens*, in which the participation of “the best specialists in the field” is a requirement for the “neutrality of the process”. Indeed, the 1998 *conférence* was set up as such, as well as most of the *conférence* organized afterwards. The question of the identity of the trainers is raised by Bourg and Boy in their book. They do not exclude the possibility of having non academic interventions during the training part yet such choice would imply the submission by the trainer of a “declaration of interest” and maybe even a “declaration of convictions”. Bourg and Boy are indeed reluctant to have people intervene if they prove to be “acknowledged activists” (Bourg and Boy, 85). At stake here is a concern for a separation between what should be made available to panel members (“factual information” as one of Ifop members insisted on) and the discussion among them, where “opinions” can be raised.

<sup>33</sup> In some of the other conferences where Ifop had been involved, panels were selected across the whole country.

*“I have a friend who participates in panels, focus groups, things like that... She was called to participate in this, and wasn’t free. So she asked me and that’s how I ended up being there.”*  
(Interview, panel member)

The second step of the selection process was then to interview the people who had been selected and make sure that they would be appropriate panel member. *“One has to check if they will be playing the game”* explained one of the organizers from Ifop. In the nanotechnology case, the methodology was far from perfectly determined. Although the second-step interview had become a standardized procedure in the selection, refinements were made each time about how to assess the participants-to-be, which, according to organizers, did not prevent “mistakes” to happen. The nanotechnology Ile-de-France conference was such a case:

*“No, it doesn’t work each time. And for the nano conference, we got it wrong on a case... Well I should have noticed. This guy told during the interview that he didn’t really believe that 9/11... Well, he said something like that, like Americans didn’t really make it to the moon. We did another interview to confirm but eventually, I put him in the group. Eventually it didn’t turn very well with him. He saw conspiracies everywhere.”* (interview, Ifop)

I will come back to the case of this person – whom I will call Louis for the reminder of the text – in the following of this paper. The “mistake” that was made resulted in the presence in the panel of a citizen who did not behave as he should have.

### **Managing the discussions among panel members**

Ifop was in charge of the facilitation of the training and working sessions of the citizen panel. The facilitator who was hired by Ifop to do this had become a long-term partner of the *conférence de citoyens* team of the poll institute. He was originally a consultant in strategic management, and had shifted his professional activities to group facilitation in companies, and, thanks to Ifop, in *conférences de citoyens*. His methods were based on a set of techniques inspired by social psychology: breaking down the panel in small groups, making sure that the less vocal people were given a chance to talk, the key point being, according to his own terms, to “make sure that a group identity was created”<sup>34</sup> thanks to a permanent attention to who spoke and who did not. These techniques are well known by professional facilitators, but they do not constitute a stable methodology to could be easily put into practice. The Ifop facilitator thus explained that:

*“It’s more or less the feeling that matters... With the experience, I know roughly what we have to do, but it depends a lot on the group and the debated topic”*

That the effectiveness of the facilitation techniques “depends on the group and the topic being discussed” is visible when considering that for all the efforts put in the facilitation techniques, it may happen that they fail to make panel members engage in the discussion the way they should. Indeed, Louis proved to be a difficult case for the facilitator:

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<sup>34</sup> The quotes in this paragraph are taken from an interview with the conference facilitator

*“There was this one guy... It’s just not possible to work with people like that... Civil servant and member of a union, you see what he could be like... Well, always complaining, always questioning what I would propose.”*

Louis contradicted the facilitator a number of times, and insisted on a critique of nanotechnology programs, that several members of the organizing committee called “radical” since it contested nanotechnology as a science policy program, rather than accepting to consider nanotechnology a set of technical applications that could be discussed one by one. Louis wanted to have the most radical activists<sup>35</sup> talk to the panel members as part of the training program and suspected the organizing committee to hide elements of the debate. So in addition to the disagreement among members of the *comité de pilotage* about what nanotechnology was, oppositions appeared between Louis and the facilitator on the same topic: while the facilitator kept referring to the “facts of nanotechnology”, Louis insisted on questioning what he believed was a global program with questionable political objectives. Not only did Louis cause additional work for the facilitator (“*I always had to keep an eye on him*” told the facilitator in an interview), but through his interventions nanotechnology proved to be an issue difficult to maintain as the previous *conférence de citoyens* Ifop had organized had managed to. Yet to the satisfaction of the facilitator, Louis’s interventions turned out to contribute to the constitution of a “group identity”:

*“The good thing is, these people are self excluded. The group gradually reject them... You see the others bonding against them.”*

The objective of the moderation techniques is to gradually bring citizens to the point where they will be able to “work by themselves” and “produce something valuable”. When starting the process, the facilitator of the nanotechnology conference was confident. Talking about the many conferences he had been involved in, he explained:

*“I manage to ensure that there is a group identity created. It’s the condition for citizens to work together and produce something.”*

Yet as he sought to make this group identity happen on more time, the moderator faced difficulties raised by nanotechnology considered as a science program, and by the involvement of social scientists and NGO representatives in the training program. As some members of the *comité de pilotage* stressed the need to take ethics into account, “ethics” gradually became for the Ifop people the symbol of a refusal to look at the issue in a neutral fashion. As such, it prevented the mobilization of the methods already tested in other cases. They complained that, as a consequence, the members of the panel “felt that something was going on”. Contrary to what happened in the other conferences they had organized, the panel members “were lost, they were extremely negative”.

Facing this situation they feared to lose control of, Ifop people thus proposed to have a scientific journalist come and talk in order to clarify things: “*Everything was about risks, there was a need to provide a cold explanation of what this technology was*” (Interview, Ifop).

The presentation done by the scientific journalist did not raise questions about nanotechnology, but presented, “in a simple language”, the applications that nanotechnology

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<sup>35</sup> For a description of the most radical anti-nanotechnology groups, see Laurent, 2007

could lead to. It also illustrated the opposition among the organizers: it was *a factual description* for Ifop, but *pure demagoguery to please people* for the president of the *comité de pilotage*.

### **Closed rooms**

Following Bourg and Boy's advice, Ifop advocated closed rooms in the conferences it is involved in. Closed rooms were indeed important material resources for Ifop in the nanotechnology *conférence de citoyens*. Closing the rooms in which the citizens worked was a way to physically ensure that the deliberations did not suffer from perturbation, that the training program was not deviated in ways that would hinder the knowledge transmission. As such, closed rooms were ways for Ifop to ensure that the training program brought "factual information" to the panel, and means for the poll institute to reproduce its facilitation methodology. Yet the rooms where the citizens conveyed proved extremely difficult to close during the nanotechnology conference. As the movie was being shot, the director and technicians were constantly present, and according to the Ifop people, they sometimes intervened in the dialogues among citizens to ask questions or call for clarification. In addition, the *comité de pilotage* required that all the sessions were recorded for members of the *comité* to watch and follow how the training program went. Recordings were ways for the *comité* to comment on the methods followed by Ifop: the president of the *comité* used them to contest some of the intervention of the facilitator<sup>36</sup> and other members advised him to be "less directive" after having watched the recording of the session<sup>37</sup>. In addition, the regional council had requested that an evaluation of the conference was done. As a consequence, an evaluator (a political scientist) was present during all the sessions, which was at first opposed by Ifop. Negotiations again happened when the final recommendations were written by the panel, and the agreement that was settled allowed the evaluator to assist to the session without recording it. Hence maintaining these closed rooms always on the verge of opening up proved extremely difficult for the Ifop people.

### **Producing recommendations**

After the public conference during which they invited some people to answer their questions, the panel members conveyed in a one-day session, during which they wrote their report. As in other conferences, the panel members of the nanotechnology conference were expected to produce recommendations. The writing of the recommendations was done through the mobilization of specific tools: displaying propositions from the panel on a screen, then confronting with earlier propositions made in subgroups was a technique used by facilitators of the conference. The objective was then to "make sure that words are really those of the

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<sup>36</sup> More details on this point will be provided in the next session.

<sup>37</sup> Such monitoring was hardly bearable for the facilitator, who harshly told me in an interview "*It was incredible. They would record everything! They really had nothing better to do... How can one do good work when you're spied by a bunch of under occupied civil servants!*"

citizen” as one of the Ifop organizers put it. The same person explained in an interview that the facilitator and himself had “rewritten sentences just for grammar issues”.

Recommendation writing was an exercise Ifop had been thinking about when it had become involved in the organization of *conferences de citoyens*. As the facilitator explained, this requires constant care:

*“D. and myself, we are always with them. Now that we have been working together for some time, we know how to do it...”* (interview, facilitator)

Yet no visible “influence” is acceptable: *“the challenge is to gradually disappear, while having been at the origin of the group constitution”* told the facilitator of the nanotechnology conference. Ensuring that the recommendations were indeed those of the citizens proved difficult to ensure in the 2006 conference. Consider the following story, told by a member of the organizing committee (M). This person is talking about one of the experts who intervened in the panel’s training program:

- M: *“It was a little annoying... She was a young researcher, very enthusiastic. She told them directly: ‘if I were you, here is what I would put in the recommendations’. And that’s what they did!”*

- Interviewer: *What was the recommendation?*

- M: *that the CNIL<sup>38</sup> budget be raised*

- Interviewer: *And that proposal was problematic?*

- M: *No, not at all... But still, I know we hadn’t provide explicit guidelines, but it was more or less agreed that experts wouldn’t take side, that they would let the citizens deliberate. So, we ended up having a little to much emphasis on issues of individual freedom.”*

The researcher in question told during an interview:

*“I do have doubts about the process... When you look at how you can influence the process (...) What I told them on CNIL, I found the almost exact same expression in the recommendations.”*

In this case, the link between the training program and the recommendations was too easily visible and the training became an “influence”. One could too easily tracked back one of the recommendations to its origin. The result was, for many actors, a perturbation in the definition of nanotechnology as a careful and balanced set of various technological sectors. Whereas “individual freedom issues” were but one of the many issues related to nanotechnology, they received an “exaggerated treatment” with regards to the other components of nanotechnology.

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<sup>38</sup> “Commission Nationale Informatique et Liberté”, a French public agency responsible for the defense of privacy rights. CNIL regulates the use of personal data.



## Outcomes of the process

The recommendations of the citizen panel, while being overall supportive of nanotechnology research, eventually asked for more research in toxicology, increased institutional oversight of nanotechnology developments, and greater control over private companies. During a public event in 2007, the Ile-de-France regional councilor who commissioned the conference thus presented the recommendations:

*“One can see that citizens worked seriously (...). Their recommendations, it’s first of all the translation in clear language of what several expert agencies had said.”*

He was referring here to the call for increased public spending in toxicology research in the potential health effects of nanoparticles. For him, the conference had a demonstrative value: that of the capability for “ordinary citizens” to articulate sensible opinions on technological issues. As explained above, he was also keen to prove that he was taking the exercise seriously. A few months after the conference, he sent a letter to all panel members in which he explained that, although most of the recommendations were addressed to national regulatory actors and thus impossible for the regional council to meet, he had managed to take some of them into account by fostering regional funded toxicology research projects.

Having worked hard to make sure that the panel were made of the “ordinary citizens” they expected, the Ifop people for their part were overall satisfied with the end product. They explained in interviews that “eventually they manage to get through in spite of all the problems”<sup>39</sup>. “Getting through” meant here “producing sensible opinions”, as Ifop had managed to do so in previous conferences.

The experiment that the main commissioner of the conference realized through the conference was expected to demonstrate the value of the procedure, and that of the contribution of citizens to the debate about technology (see above). Making sure that the demonstration worked implied ensuring appropriate media coverage of the events, and trying to have policy makers attend the final public conference – turn out was eventually disappointing. The movie<sup>40</sup> was widely distributed and eventually used as an educational tool aimed to illustrate the value of the process.

## The *Conférence de citoyens* as a specific form of public participation

The 2006 nanotechnology conference was an opportunity for Ifop to enact methods and instruments they had been using on previous conference. For some of the committee members, the event was based on the mobilization of tools they were familiar with. Through the nanotechnology conference thus emerged a way to do public that is based on a separation between “factual information” provided to panel members, and the “discussions” among

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<sup>39</sup> The “problems” refer in this quote to the discussions about the framing of nanotechnology and the making of the training program.

<sup>40</sup> *Les Nanos et Nous*, David Hover.

them. Such separation allows the procedure to travel and be replicated. It can make Ifop be comfortable about the procedure they sell to their successive customers, but it also requires constant work in order to ensure that the panel is made of appropriate citizens, and that the issue being discussed is properly framed. For that matter nanotechnology proved to be a difficult case, which did not fit well in the procedure as some of the actors involved referred to the specificities of nanotechnology to argue for modifications in the procedure Ifop sought to replicate. A second characteristic of the *conférence de citoyens* as it emerges through this example is its demonstrative role. They were indeed repeated concerns for the “impacts” of the experiment, but the commissioner was equally concerned with the demonstration it produced that lay people could articulate “sensible opinions”<sup>41</sup>.

### 3. Other forms of public participation in cracks and gaps

In the last two sessions, I described two ways to problematize public participation in technology through consensus conferences. The Citizens’ Technology Forum sees the consensus conference as an experiment through which deliberation can be explored and worked upon, in order for less powerful social groups to be heard. The Forum is meant to be a small-scale experiment that proves the value of deliberation in general. The *conférence de citoyens* shares the demonstrative feature, but integrates it in a concern for the “impact” of lay citizen thinking on technological issues. Contrary to the Citizens’ Technology Forum, the *conférence de citoyens* is expected to bear on decision-making or at least contribute to a general debate.

These two ways emerged through the mobilization of instruments and work on previously used methods, thereby inscribing them in certain genealogies. In the two cases, I insisted on the work that is needed to maintain these formats over the course of the organization of nanotechnology conferences. Destabilization effects (e.g. citizens not behaving correctly, organizers calling for a treatment of the issue considered inappropriate) that needed to be overcome permanently accompanied this stabilization work. In the work to make the procedure easy to travel and to replicate, purifying it from the issue being discussed is a necessary condition. That way, one can study deliberation processes with robust methods (NCTF), or demonstrate the ability of lay citizens to have articulate opinions on technical problems using already tested methodologies (*conférence de citoyens*). As seen here, such attempt requires considerable work, in order to ensure that the panel member is indeed the appropriate citizen, while the issue (here nanotechnology, or problems related to it) stands still enough for the procedure to be run according to principles that have been developed. As both the citizen and nanotechnology prove costly to stabilize, cracks and gaps in the consensus conference sought to be re-enacted may appear – as they did in the case of the

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<sup>41</sup> The importance of the demonstrative dimension is clear in other instance of *conférences de citoyens* organized about nanotechnology. One of the organizers of a 2006 conference sponsored by an association of private companies thus explained : “my predecessor had told me he wanted to organize a *conférence de citoyens*. He had insisted on the interest of this device in order to show that science/society relationships may happen not in a crisis mode. I was convinced. The whole thing was then to choose a subject.” This interest of the conference is here to demonstrate that it is possible to “held sensible discussions on complex issues”, no matter the specificities of the issue. In this example, nanotechnology was chosen because, as an emerging issue, “it had not been shaped by the media.” (interview, 2006 conference organizer).

conferences I consider here.

In such situation, where tensions are always present between stabilization and destabilization processes, room may appear for alternative problematization of public participation through consensus conferences, at the condition that connections be drawn among various elements - ideas, instruments and practices through which other citizens, other issues and other definitions of the problem of public participation may be explored. These explorations may be ad hoc adjustments. They may also lead the actors involved to refer to other situations and previously held conferences.

### **The conflicting status of the experimental setting: how to use the consensus conference as an empowerment device**

I presented the model of the Citizens' Forum as laboratory of deliberation to one of the organizers of the NCTF during an interview. She immediately replied:

*“Well... that might be a fair description of Hamlett’s view of the consensus conference... but I do think it’s about democracy after all. It’s about giving to people the possibility to make their voice heard, to give them the ability to act in the policy world.”*

She then referred to an public presentation of the NCTF made to policy-makers in Washington in March 2009, during a one-day meeting organized by the Center for Nanotechnology in Society. My own attempt to define the Citizens' Forum as an experiment in deliberation thus revealed a tension about the nature of the NCTF. While the citizens' forum has been developed by researchers at North Carolina State University, the other partners of the NCTF were not necessarily familiar with the format when they started working on the organization of the forum. The additional fact that methodological material provided by the organizers was minimal made it possible for some of the organizers to problematize public participation in a way that was different from that of the Citizen Forum format's promoters.

A good example of the possibility for alternate problematizations of public participation is provided by the use of scenarios. Ensuring the possibility for the panel members to grasp the issue was a concern of some of the proponent of the scenario method. In the NCTF case, scenarios allowed to maintain the future within the set of topics panelists could deliberate about. As seen above, they were tools for the conduct of the experiment in deliberation that the NCTF was. Yet the researchers involved in scenario making projects<sup>42</sup> saw the scenario mainly as tools for citizens to get confidence in their own capability to influence the future, something they could later work on through collaborative tools, and a way to “build reflexivity through foresight” (Barben et al., 2007). As such, scenarios were not supposed to produce a boundary between the deliberative process and the material provided as a background of it. Rather, they were meant to “cope with uncertainty” in order for those who produce/comment on/use them to “take some sort of action” (Selin, 2005).

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<sup>42</sup> That is, researchers at CNS-ASU who contributed to NCTF by providing the scenarios.

Looking more closely at the NCTF process reveals that other visions of the role of the consensus conferences were articulated, in particular through references to another citizen conference on nanotechnology organized two years before NCTF at Madison, Wisconsin. The Madison conference had been organized by researchers at the University of Wisconsin with the support of the *Center for Democracy in Action*, a local organization that promoted civic engagement in political action. The University of Wisconsin researchers then participated in the Madison part of NCTF, and one of the researchers at Wisconsin subsequently moved to Arizona, where he then worked on the organization of the Arizona part of the NCTF. The 2005 Madison consensus conference led to the presentation of the final recommendations to state-level politicians. The panel members subsequently created a “citizens’ coalition on nanotechnology”; they launched a science cafés program and went on working on nanotechnology. They set up a website, in which they have been publishing essays on issues related to the governance of nanotechnology. When the National Nanotechnology Coordination Office<sup>43</sup> conveyed its first meeting on Environmental, Health and Safety Issues connected to nanoparticles, the citizens’ coalition on nanotechnology submitted written comments. These comments reasserted the call for government oversight of potential health risks, increased toxicology research and development of risk management methodologies, which were considered necessary given to take into account the potential release of engineered nanoparticles in the environment. They also insisted on the need for public dialogue with civil society organizations – theirs being one of them. One of the members of the coalition flew to Washington for this meeting. The Citizens’ Coalition – now renamed Nanotechnology Citizen Engagement Organization a.k.a nanoCEO – then participated in an initiative launched by the International Center for Technology Assessment that led to the submission to the Environmental Protection Agency of a petition that called EPA to regulate nanosilver as a pesticide.

The researchers at the University of Wisconsin involved in the organization of the 2005 Madison conference were key part of the process of mobilization in which the panel members were engaged. They help set up a press conference after the exercise. They help the group of citizens organize science cafés, and brought information to them. References to the Madison experiment were made by researchers involved in the NCTF. For some of them, following up with the citizens after the event was over was “clearly not the main concern of NCTF”, which, in comparison with the Madison event, was “a little bit disappointing”.

All the efforts made by NCTF organizers to maintain the format of the citizen conferences as a laboratory in deliberation implied ensuring that citizens behave adequately during the Internet sessions. Yet, as explained below, these sessions failed to convince participants to engage in them. Here is an example of cracks in the attempts of the NCTF organizers to enact the laboratory in deliberation the Citizens’ Forum is supposed to be. This crack left room for some actors to problematize public participation differently, with the help of the reference to the 2005 conference. Indeed, a reason to explain the lack of interest for the online sessions was brought forward by a researcher at the University of Wisconsin who participated in the 2005 conference and the NCTF. She explained that in the latter case “*citizens knew that they were part of a research project*”. As a consequence, they tended to “not even bother” to fight for ideas or opinion. This perspective was opposed by this person to the 2005 Madison conference in which “the framing was different”, in that the organizers insisted from the start that the conference was expected to have consequences on political processes. As a result, the

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<sup>43</sup> A federal agency in charge of the coordination of nanotechnology federal activities.

recruited people were “concerned about the topic” and, as such, who would “probably not have made it into the NCTF” (because of their involvement with the issue being too high)<sup>44</sup>.

The reference to the Madison example, the discussions about the future of the recommendations, and the position of scenario proponents offer way to see another definition of public participation through consensus conferences. Referring to the Madison experience allowed to stress the importance of the idea of empowerment, though which consensus conference appeared as a method through which less powerful social groups can exercise control over technology in participating in its assessment. This definition of public participation through consensus conference ties with the view of prominent advocates of public participation in science and technology, above all Richard Sclove and Langdon Winner. Thus, the organizers of the Madison citizen conference who took part in the organization of NCTF referred directly in interviews to Richard Sclove’s work to describe their vision of the citizen conference. As a proponent of “technological pluralism”, Sclove advocates the involvement in knowledge production of *social groups comprising non-experts – that is, ordinary women and men. Sometimes they are organized according to their occupations (a little bit like our trade unions), sometimes according to their social concerns (like our environmental or women’s groups), and sometimes according to where they live (like our community and grassroots organizations)*. (Sclove, 2000: 112)

In this view, consensus conference is a way to grant power to lay citizens, to those who would otherwise be left out of the decision-making processes related to technology. For that matter, nanotechnology is a special domain, for which there might be additional possibilities for citizens to exercise social control over technological choice. This is the sense of Langdon Winner’s testimony at Congress during the hearings on the “social implications of nanotechnology” before the House committee for science and technology, during which Winner specifically advocated the use of consensus conferences (Winner, 2003).

The 2005 Madison example can therefore be interpreted as a way to ensure the control of technology by less powerful actors. As organizers of the 2005 Madison conference explains in an academic paper in which they reflect on the value of this exercise, “consensus conferences could be critical mechanisms for building perceived capacity to participate among ordinary citizens. This increased citizen capacity could in turn contribute to longer-term policy outcomes, particularly if broader and more diverse groups of citizens participated” (Kleinman and Powell, 2006). The experimental deliberative setting of the NCTF and the empowerment vision of the Madison conference share the same understanding of the social order. In both models, they are “group- based positions”, i.e. those advocated by particular interest groups with identifiable social identities. Yet while the CTF-type consensus conference is used as a device to show how power relations in deliberative settings can be identified and possibly set aside, conferences in the empowerment perspective are tools for the social control of technology, as they can empower groups that are less powerful than others<sup>45</sup>.

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<sup>44</sup> The researchers at Madison involved in the two conferences have drawn a comparison of the two events in terms of the identities of the participants and the outcomes of the processes (Kleinman and Delborne, 2009)

<sup>45</sup> The empowerment of less powerful social groups is alluded to by the 2005 conference organizers (Kleinman and Powell, 2006). It is explicitly stated by Winner (see (Winner, 1993) for his critique of constructivism. Hamlett shares the same critique but does not draw the same political consequences (cf. section 1)).

## A “quality citizen” discussing nanotechnology as a science policy program

While members of the organizing committee of the 2006 *conférence de citoyens* confronted about the issues being discussed, oppositions appeared about the role of panel members. The president of the organizing committee, speaking about the members of the panel, thus explained:

*“Fortunately, there was Françoise<sup>46</sup>, it’s her who kept the discussion going. Because Ifop wants ‘neutral’ citizens, but then they refuse to have those who know things ! I think she managed to get through their selection process by mistake.” (Interview, president of the organizing committee)*

Indeed, Ifop is looking for people who, according to a member of Ifop’s consensus conference team, “do not know anything about the issue at stake”, to the point that, for the president of the *comité*, they refuse to accept potentially valuable contributors. Contrary to this vision, he described a “quality citizen” who should take decisions after having reflected on the technology issues being discussed. According to the president of the organizing committee, Françoise was the one who fostered the discussions by introducing reflections on financial incentives for toxicology research. Once the conference over, Françoise was sent by the president of the organizing committee to talk about the citizen conference in other public events. As the outcomes of the citizen conferences were unclear (as were the way to ensure the link of the process with further political decisions), he had numerous opportunities to send this person rather than others. For the president of the organizing committee, not everyone was able to fulfill the role of the quality citizen he called for:

*“Yes, as compared with the others... There were grand mothers, very nice, they did what they could but well... it never really went very far”*

These latter persons were precisely those the facilitator were happy about:

*“One really saw that people like them [the « grand mothers » in the previous quote] could make good sense remarks. When they said, for instance, that industrialists couldn’t do whatever they wanted.” (Interview, facilitator)*

As panel members who accepted that they did not understand, and nevertheless provided remarks *de bon sens*, they were acting as good members of the panel.

The “quality citizen” as proposed by the president of the organizing committee did not fit in the facilitation process as proposed by Ifop. As the president explained during an interview:

*“We clearly had two different visions of neutrality with Ifop. For the facilitator, neutrality was gained ignorance (he would always say, « don’t worry I don’t know anything about this »)... They have a horizontal conception of neutrality, they want to have a group as diverse as possible... I do think that quality matters ”*

So the opposition on the identity of the “good citizen” was not only a matter of defining the appropriate format of citizenship to be enacted in the citizen conference process. It was also

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<sup>46</sup> He is referring here to one of the panel member. The name has been changed.

linked to the nature of the device and its connection to the issue being discussed. As the facilitator claimed that he did not know anything about the issue, he made the issue independent from what he did (procedure organization). The panel, and himself, had to be trained, but the process was not problematic: the methodology allowed for adequate exchanges among panel members, and himself, on any technical issue that was objectively presented. The difficulties that Ifop encountered to keep the rooms closed were ways for the president of the *comité de pilotage* to contest their choices, and insist on the importance of the quality citizen to discuss nanotechnology: as he watched the training sessions, he complained several times to the facilitator that “no efforts were made to ensure that citizens raise questions about nanotechnology development programs”<sup>47</sup>. For the president of the organizing committee, the quality citizen had to reflect on scientific issues, which needed to be questioned according to the specificities of the case being discussed. Nanotechnology thus implied, for him, a stress on questions of “ethics and policy”: as a global science policy issue, it implied a lot more than evaluation of risks and benefits, namely a careful examination of the crafting of research programs and regulatory devices. As nanotechnology proved difficult to stand still in the procedure replicated by Ifop, some organizers were inclined to think that it was “too broad a subject for a *conférence de citoyens*”. For the president of the organizing committee, on the contrary, nanotechnology was a perfect case to have the citizen exercising a reflection on policy institutions. As nanotechnology proved difficult to frame and the behavior of panel members revealed to be not straightforwardly defined, the 2006 Ile-de-France *conférence de citoyens* thus left room for the articulation of an ad hoc definition of public participation, which contended that a quality citizen was able to reflect on the specificities of the issue at stake.

### **A critical vision of public participation**

As discussed above, producing a citizen that will be able to be trained and who will produce an articulate opinion is not a straightforward task. It does not always work, and members of the panel sometimes do not behave properly. While this may have re-stabilization effects (e.g. though the constitution of a group identity against the person acting badly, and thus becoming excluded), it also produces cracks in the model, which can then be the basis for a critique of it, and more than that, the articulation of other forms of public participation through consensus conferences. One of the evaluators of the Ile-de-France nanotechnology conference thus explained:

*“I thought there would be more critical perspectives within the panel. The guy that criticized the most gave up after a while, that’s a real shame” (Interview, evaluator)*

She is here talking about Louis, the very same person that the facilitator blamed for “not being able to do anything”, and who at the end of the process gave up trying to include his critical perspective in the final recommendations. For her, Louis played an important role, albeit confined and eventually limited in what it produced. Through him a critique of the facilitation process could happen. She herself thought that the facilitation role of Ifop ended up producing middle of the road positions that did not were particularly relevant (if not

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<sup>47</sup> Interview, president of the organizing committee

politically dangerous if used in a legitimizing manner):

*“I think Ifop « moderates » the opinions of panel members ; they want to make sure that they get to a mild opinion” (interview evaluator)*

Ifop, for her, prevented the most radical positions from happening, “radical” being positions that called for critique of nanotechnology, not as a risk issue, but as an issue of science policy. That is, positions that questioned how decisions were supposed to be taken, why a nanotechnology program had to be undertaken, and, ultimately, why participatory mechanisms had to be organized at all. That Louis eventually gave up his fight to see some of his radical views included in the final recommendations was interpreted by her as a sign that Ifop was trying to ensure that the opinions expressed were “moderate”. The work needed to ensure that the citizens behaved adequately and that the issue was “factual information” thus left room to articulate a critique of public participation as proposed by the *conférence de citoyens* model. These positions paralleled those of the “external” critics, i.e. those that refused to participate to these events allegedly already part of a technology program that should be critiqued<sup>48</sup>.

### **Cracks, gaps and rooms for other ways to define the consensus conference**

As I described above, the tensions that occurred in the framing of the issue being discussed, in the selection of the panel, in the moderation processes, in the production of the recommendations and in the management of their use were opportunities to introduce other ways for the citizen to behave, and, more generally, other definitions of the problem that the consensus conference was supposed to deal with. While some actors were at pain to draw a boundary between a participatory methodology that they seek to replicate in different settings, others questioned it and proposed to reconsider both the role of the citizen in the conference’s panel, and the way to discuss a complex technological domain such as nanotechnology. Using the bits and pieces of the procedure that they found at their disposal, they explore other ways to problematize public participation. I thus described how the nanotechnology *conférence de citoyens* led to the articulation of a definition of public participation through consensus conferences specifically tailored to nanotechnology: a quality citizen develops her initial competencies substantially enough to question nanotechnology as a science policy program. Another way to define public participation that emerged through the difficulties to maintain the citizen of the *conférence de citoyens* was the one that contended that public participation was a political program that needs to be critiqued, again with specific references to nanotechnology, a domain in which calls for public participation – misleading calls in such vision – are numerous. The American examples offer an empirical case in which the difficulties to stabilize the experimental deliberative version of the consensus conference left room for the articulation of a consensus conference based on empowerment. In this case, it

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<sup>48</sup> Indeed, all French consensus conferences on nanotechnology stemmed criticisms from civil society organizations. Reacting on another conference organized in 2006 by an association of private companies, *Les Amis de la Terre* released an article called “‘Conférence’ ou manipulation de citoyen” in which they criticized not only the limited framing of the conference in terms of risk issues, but also the necessity to have consensus conference at all. The article contended that consensus conferences were mere communication campaigns, which could never hope to have a say in any concrete decisions.



was mostly through references that were made to the Madison conference - as NCTF proved less concern with following up with the recommendations written by the panels – that the empowerment version could emerge<sup>49</sup>.

## Conclusion

Considering participatory procedures as instruments that define the nature of the issue being discussed, the behavior of the citizen, the nature of the products, and thereby the problem of public participation, this paper has described two ways to problematize public participation through citizen conference. The Citizens' Forum is characteristic of an "experimental deliberative way", in which the consensus conference is expected to play the role of a laboratory for the study of deliberation on technical issues. As such, it goes hand in hand with standardized social science knowledge about what it means to do public participation in science policy. French examples define the model of the *conférence de citoyens* in which the public demonstration of the validity of informed lay thinking on technology is the main point. Through this analysis, consensus conferences appear as devices which can be mobilized for different aims, and the machinery of which are called for to produce certain citizens – a work that supposes selection, judgment over what behaviors are acceptable or not, fine grain adaptation to ensure that deliberation occurs. Here also, the standardization of the procedure allows some actors (and notably private companies) to make the procedure travel and replicate it across various technological issues.

The case of nanotechnology renders visible the work needed to enact the consensus conference as expected by certain models. As previously used instruments were re-enacted about nanotechnology, such complex issue has to be made fit for the procedure, and it required work to do so. Symmetrically, the re-enactment of known models of consensus conference expected the production of specific citizens – and that proved costly to ensure. The boundaries on which the stabilization of the previously known devices were based (between materials provided to panelists and deliberation processes to be studied on the one hand, between factual information and political discussions on the other) proved difficult to maintain. Hence I described some cracks and gaps that were visible in the NCTF and the Ile-de-France *conférence de citoyens*. In these cracks and gaps could citizenship, nanotechnology, and ultimately public participation in technology be differently problematized. The U.S example echoes tension between deliberative and interest-group democracy – a long-term concern of American political science (Mansbridge, 1980): the two ways to do consensus conference that I identified are equally built on the basis that the social world is composed of different social groups with identifiable (albeit potentially subjected to evolutions) interests. The French example offered opportunities to explore different paths to public participation, in which the citizen could take part in the national debate on technology.

The perspective laid out in this paper contends that the analyst of participatory procedures

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<sup>49</sup> This does not imply that the Madison conference enacted the empowerment vision, while NCTF enacted the experimental deliberative one. Rather, both examples contained elements of the two, while earlier works of NCTF's coordinators clearly fell into the experimental deliberative problematizations of public participation through consensus conferences.

cannot easily separate *ex ante* the issue being discussed from the participatory procedure that is expected to deal with it in order to explore which procedure is adapted to the treatment of a given issue. Both the issue and the procedure are discussed in the same time, as, for instance, actors insist on re-opening the details of the participatory device that is sought to be replicated for yet another technological area. In fact, separating the “procedure” from the question that it is supposed to deal with results from the work of the actors themselves, when they try to isolate a participatory methodology that can be replicated independently from the technical issues to which it is supposed to be applied. As I described in this paper, such separation may be contested by actors who argue for the specificity of the issue (in that case nanotechnology) and the need to adapt the procedure to it – whether to allow for a discussion on global science policy, or leave room for a collective empowerment that could eventually allow an emerging social movement to intervene in science policy.

Looking at participatory procedures as contested arrangements leads to re-think the problem of their evaluation. A given problematization of public participation through consensus conferences defines its own relevant evaluation criteria – and these criteria might differ substantively. Consequently, the “impact on decision-making” criteria poorly account for the multiplicity of potential evaluations. The NCTF’s demonstrative value may have nothing to do with a direct “impact” on decision-making: that does not make it a politically meaningless device. On the contrary, I argued that it contributes to produce a political order of which it seeks to be a laboratory. The institutionalization of participatory devices similarly appears as a more complex process than the inscription of it in a decision-making line. Institutionalization is better understood in terms of stabilization, which, as I showed here, requires investments, so that the procedure is able to solve the tensions that occur as it gets replicated, without leaving room to competing articulation of public participation. Institutionalization thus appears less a matter of ensuring legislative existence to participatory procedures than of stabilizing ways of dealing with technology.

Contrary to continuing calls for the professionalization, and institutionalization of public participation<sup>50</sup>, this paper recognizes the value of ambivalence in public participation, both at the theoretical and political level. On the one hand, taking ambivalence of participatory procedures seriously allows to explore the machinery of the production of the “participating citizen”, the investments required to do so, and the diversity of potential definitions of public participation in S&T through the same participatory instrument. I also explored the way through which ambivalence is managed: in some cases, individuals are in charge of maintaining the procedure, in others a loose relationship between social scientists and companies ends up opposing the many destabilizations that occur. On the other hand, acknowledging the ambivalence of participatory procedures is a way to go further than the radical critique of public participation. For some critics<sup>51</sup>, participatory procedures are built on questionable power relationships hidden behind the stress put on consensus and deliberation. As such they prevent political oppositions much needed in any healthy democracy. The analysis laid out in this paper has shown that there are indeed forms of social order enacted by the participatory procedures. It refuses the romanticized vision of the consensus conference as an unproblematic instrument that reveals that lay citizens have articulate opinion on complex and technical matters. Yet far from invalidating consensus conference in particular (and public participation deliberation in general) altogether, the analysis shows that the permanent diversity of the procedure is what allows to reintroduce

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<sup>50</sup> A growing numbers of French authors support this perspective (see Blondiaux, 2008)

<sup>51</sup> See e.g. Mouffe, 1999; 2000

conflict, opposition, and politics in public participation. Ambivalence is what results from the permanent tensions that accompany the enactment of certain ways to do public participation. As such, it is a necessary condition for the exploration of different definitions of public participation.

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