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Scanning Blue Skies, Feet on the Ground: Converging Citizen Visions into Relevant Research Agendas

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Abstract

This paper focuses on an on-going action research project, CIVISTI, which aims at identifying emerging issues for European S&T and producing a set of policy options of relevance to future European framework programme. The CIVISTI project aims to integrate long-term futures thinking with citizen participation. The strengths of consulting citizens and societal stakeholders have been acknowledged by the so-called "deliberative paradigm"[1]. It refers to the idea that deliberation provides democratic legitimacy, social acceptance and expanded knowledge and cognitive frameworks, all contributing to more robust decisions. The ideals are overshadowed by concerns about the functionality of the deliberative praxis. Some concerns related to the *selection of participants* include questions of (their) fair representation and adequate level of competence. Questions of productivity, efficiency and transparency are related to the *quality of the deliberative process*: examples include concerns of regulatory imprecision; increasing complexity and deceleration of decision making; and concealment of inequalities. Concerns of the *quality of outcomes* include e.g., scepticism over the novelty and policy relevance of results based on laymen's deliberation. We argue that such problems can be mitigated through a mixed citizen-expert-stakeholder process, which bases its design in solid theoretical understanding of deliberative theories and where there is a strong linkage to a real life context of decision-making. In our paper we focus on an *analytical model* that through its multiple functions helps converging citizen visions of future into relevant research agendas.

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1. Introduction – toward the integration of participation and long range S&T thinking

Our societies are changing rapidly as a consequence of globalisation, new technologies, multi-cultural societies, environmental and climate challenges, new energy issues, increasing welfare and consumption, etc. These are developments, which increase the pressure for policy makers to establish well-functioning interfaces between science, technology and society (*STS-interfaces,* for short) and enhance the capacity to carry out *foresight*.

Improved STS-interfaces or increased interaction and communication between civil society and S&T expert organisations are needed to narrow the gap between these two realms, which threatens to be distanced from each other due to the specializing and autonomous tendencies of the latter. Therefore, it is currently a commonly shared understanding in several contexts of S&T policy and research that narrowly rationalistic, technology-centred and expert-based decision-making in science and technology is in a state of crisis. The European controversy over biotechnology exemplifies the symptoms of the crisis: the insufficiency of democratic legitimacy and social acceptance, and the difficulty of effective policy-making [see, e.g., 1; 2-5]. The introduction of participatory forms of governance has been the generally recommended correction to the assumed problems of technical decision-making [see, e.g., 6; 7-10]. Research fields such as the social study of science and technology [e.g., 11; 12], sociology of public understanding of science [e.g., 13; 14], risk studies [e.g., 15; 16] and studies in technology assessment and foresight [e.g., 17; 18] indicate that S&T decision-making would strongly benefit from the increased participation of citizens, stakeholders and heterogeneous experts external to specific fields of S&T. Recommendations for increasing participation have also been made in various policy contexts. The need for public involvement in the agenda setting for European policies and priorities has been indicated in documents and activities of the European Union, such as the Lisbon Agenda, the Plan D initiatives, the Aarhus Convention, in the Science and Society Action Plan of FP6 and the Science in Society activities of FP7 [19-21].

Efforts to develop more effective STS-interfaces through participation has been a longer term interest in the field of policy analysis. According to Geurts and Mayer (1996), participatory policy analysis had an ideologically motivated start in the late 60s [22]. Today, however, the motivation has become more pragmatic and participation is a mainstream issue. The prolonged attention to participatory procedures and governance mechanisms has not been without consequences. Europe has built up a profound experience of citizen consultation on science and technology issues during the last 20 years, mainly through technology assessment activities in the member states. During the

last 5 years, the national experience has been supplemented with a few examples of trans-European activities[2]. Currently there is also an initiative called "World Wide Views on Global Warming" which is about to expand participatory practice, at global level to the international politics of climate change[3].

There is currently enough evidence to indicate that participation is an important and intensifying trend in the context of S&T policy and research. A multitude of participatory methods have been designed and tailored to specific issues, problem situations and contexts during the last two decades[4]. Remarkably, methodological development has often been rooted in a framework that is inspired by the "discourse ethical" theory and norms [see, e.g., 23; 24; 25]. *Fairness*, *competence* and *transparency* are among the central criteria that discourse ethics proposes to the design and evaluation of deliberative processes. Recent evaluations of participatory practices have also emphasized more instrumental criteria such as *effectiveness*, *efficiency* and *social learning*.

In parallel with the increasing interest in participatory governance of S&T, there has been a longer-term effort to develop capacities in foresight, especially in the field of futures studies. Experts in futures studies have conducted systematic scenario exercises on long-term future issues since the 1950s [26; 27]. Established methods, in addition to the scenario approach, include e.g., Delphi techniques, trend extrapolation, trend impact analysis and different types of modelling [see, e.g., 28]. More recently, foresight praxis in Europe has developed drastically during the last decennium, much motivated by the activities of the European Commission[5] [6]. Among the most recent futures activities of interest are "horizon scanning" exercises aimed at identifying emerging and long range issues for policy making [29]. The products often consist of catalogues of signals and ideas, and lists of high priority issues. The methodology is diverse, and often includes face-to-face brainstorm sessions with experts, stakeholders and policy-makers, Delphi studies, open web-based templates for adding issues to the scanning, and different forms of interview techniques. Triggers for the interest in such scanning procedures have been found in strong structural trends (e.g., the ageing of population, increasing capacity of IC-technologies) and in abrupt or steadily developing disasters (e.g., terrorist attacks, climate change) which have changed policy agendas dramatically.

In addition to typical methodologies, futures studies have also developed some epistemic guidelines and rules of thumb that help orient futures studies. One of the basic epistemic notions is Masini's [30] distinction of *possible*, *probable*, *plausible* and *desirable* futures, which reflects four different epistemic fields of research in futures knowledge, ranging from more cognitive and predictive

knowledge interests toward more pragmatic and normative ones. Focal issues for most future-looking studies have been the identification of prospected *trends* in particular fields of development, structural *megatrends*, *weak signals* that provide early stage information on forthcoming discontinuities as well as *visions* that describe a state of will defined by a person, group or other actor [see, 31; 32]. The "standard" way to connect (normative) visions with (descriptive) analysis of future developments has been the creation of *scenario pathways* that indicate critical decision points in a future time line, in which (alternative) strategic choices can be made. The commonly shared understanding in the field of futures studies is that strengthening the ability to shape the future is more important an ambition for futures research than the difficult task to predict. This has also been reflected in the way that futures knowledge has been evaluated. Greeuw et al. [33], for example, consider the quality of recommendation equally important aspects in the evaluation of future scenarios as analytical and methodological quality. While consensus on the criteria of good recommendations in futures studies may prove difficult to achieve, a minimum requirement is that such recommendations provide some new or challenging insights to policy makers while retaining a sense of feasibility.

Characteristic to long-term futures research, both in its traditional and current form, is that visions of future have mostly been build on the basis of futurists,' scientific and technical experts', and societal visionaries' ideas and concerns. This has contributed to a dominance of techno-economic framing of future challenges and in the tendency to seek remedies from experts' visions of technoscience [34]. Such were the findings of a recent report by ForSociety ERA-net project[7] that studied the state-of-the-art of the European foresight: most foresight projects involve national policy makers and S&T experts, while neglect citizen participation in their methodologies[8] [9] [10]; the issues of European foresights studies focus mainly on R&D development and competitiveness, thus giving a limited picture of broader future issues such as trans-national infrastructures, natural resources and demography.

To summarize, there is much research, activity and experimentation that currently focuses both on participatory technology assessment and foresight – separately – but there is less attention to the combination of the two. In the specific case of identifying new directions for S&T on a European level, the issues of political legitimacy and counteracting the risk of lobbying taking over the search for new research agendas are prominent challenges. Our view is that there is a high potential to find new means to tackle these problems in the intersection of foresight activity and the deliberative

participatory approach; the combination of these two could be called *long-term participatory foresight.*

To establish long term participatory foresight calls for new initiatives and pilot studies that broaden the knowledgebase from the sphere of established foresight experts toward civil society members and the public at large. The new agendas may very well be found among some of the tensions and frictions in our societies, and the citizens have special qualifications for identifying those. Instead of analysing the needs for S&T from the viewpoint of the scientific disciplines (inside-out perspective) we believe there is a need to include the opposite perspective – looking at the S&T needs from outside. This is exactly what we intend to do in the CIVISTI project, the objectives and design of which will next be presented (Section 2).

2. The CIVISTI project and approach

CIVISTI[11] (2008-2011) is medium-scale action research project under the EU 7th Framework Programme. The project involves seven partner organisations[12] from smaller countries across EU, which are selected to provide a balance of geographical representation from the European area. The participating organisation include public technology assessment institutes, research institutes in the field of consumer, innovation policy and market research, and a governmental S&T advisory body.

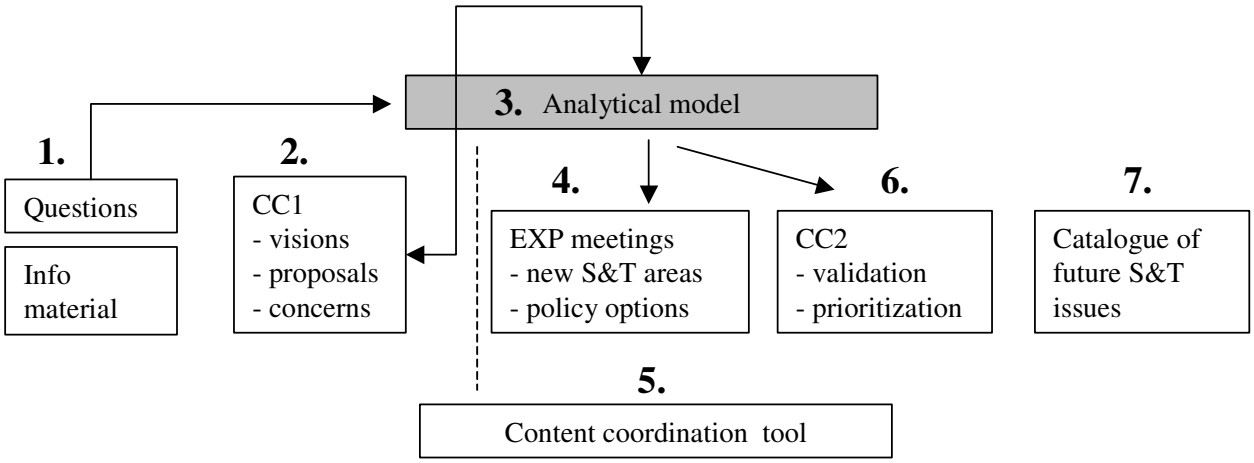
CIVISTI has the following *objectives* (related to the discussion in the first section): 1) to produce a list of new and emerging issues for European S&T; 2) to produce a set of policy options of relevance to future European framework programmes; and 3) base these products upon a novel process of citizen participation in seven member states, supported by the analytical capacity of experts and stakeholders.

The *methodological design* of CIVISTI is based on an adaptive approach that is known from the current praxis of technology assessment, which bases the design of the process on an analyses of the "problem situation" and its specific needs [35]. This approach has led to the identification of the following methodological requirements: 1) to integrate citizens and an extremely wide range of possible future issues; 2) the call for policy-relevance; 3) the need for European applicability including a wide set of cultures; and 4) the need for identifying new and emerging issues that may affect European S&T. In addition, the CIVISTI method aims at applying high discourse ethical standards (fairness, competence, transparency and authenticity) in its methodological design. A related feature is that the method involves close discussion between heterogeneous participants

during several intensive workshops; the quality of these discussions is therefore thought to be more important than the quantity of participants or results.

The main steps of the CIVISTI project are illustrated in Figure 1. Since the focus of this paper is on the analytical model of the project, the description of the various steps includes a consideration of how the various steps contribute to, or, are dependent on the analytical model.

Figure 1 The main steps of the CIVISTI process (and the linkages between the analytical model and other components of the project)



The CIVISTI project is organised as follows. First, citizen consultations (**Box 2.** in Figure 1) are organized by involving c. 25 citizens in seven European Union member states, for one and half day workshops. The participants are selected from random (or quasi random) samples of citizens that are collected through different media, e.g., from person registers or through newspaper announcements. From these samples, target individuals are selected according to particular social criteria: sex, age, education, occupation and residence. The intent is to provide highly heterogeneous panels that to a large extent correspond with national population structures.

Second, the citizens participating in the first citizen consultations (CC1) are provided background information (**Box 1.** in Figure 1) through an info magazine that presents the work of futurists and other issues related to visioning. The purpose of the info material is to prompt citizens to consider different aspects of the needs, concerns and visions of the future with a 30-40 year perspective. The engagement of citizens is aimed at encouraging them to express views on the future, which are

new or not generally recognised as policy issues. The visioning exercise is structured according to a question catalogue (**Box 1.** in Figure 1) that guides panellists to discuss and think about visions from different points of view. The questions are kept open ended (in order to allow below the radar issues to be included), but citizens are encouraged take into consideration both personal, national, European and global level issues. Examples of questions are: What people were dreaming in the past some 30-40 years ago? How do you think your life will be at 30-40 from now on? What is your dream for Europe of the Future? And finally: What is the vision?

The visioning exercise is supported by 4-5 facilitators who are available in each national CC1 consultation; their role is to help citizens formulate and write down their visions of the future. The objective is that each national panel produces a catalogue of 10 visions; the visions are given a name, a concise description (1-2 pages of A4) and an assessment of what benefits are associated with it to whom; what negative repercussions the vision has, and what (knowledge, policies, resources, skills etc.) is necessary to fulfil the vision. In total, some 70 visions from seven EU countries will be gathered through the visioning exercise. The visions will in themselves be a result (and not only for policy makers thinking about next priority areas of S&T, but more generally), since the visions depict the worldviews and generally hold values and concerns of average citizens in contemporary Europe. On the other hand, the 70 visions thus gathered provide a starting point for the further steps of the CIVISTI project.

Third, in order to transform the insights of the citizens into operational recommendations for S&T policies and agendas, a filtering mechanism is developed for transforming the citizens' visions, wishes and concerns into future research agendas. An *analytic model* (**Box 3.** in Figure 1) is therefore established for the extraction of both (a) the S&T 'component' of the issues identified and (b) the component of policy option of relevance to S&T. (The analytical model will be presented, in detail, in Section 3 of this paper).

Fourth, the identification and characterisation of new and emerging issues for S&T will be made in a two day expert- and stakeholder workshop process (**Box 4.** in Figure 1). The analytical model, which clusters citizen visions, characterizes emerging S&T issues and delineates dimensions for policy options, will support and organise the expert and stakeholder process. The S&T issues at the focus will relate to scientific disciplines and technological development and complex trans-disciplinary challenges. The expert and stakeholder analysis will result in a catalogue of potential new areas for S&T, including an overview of related policy options.

Fifth, an important element of the process is a web-based *content coordination tool* (**Box 5.** in Figure 1), which binds the activities together across nations and across the project phases and facilitates the dissemination of the results. The synthesis of the expert-stakeholder process will be made available as an input to the second round of citizen panels (CC2) via the content coordination tool. More generally, the content coordination tool will be used to distribute information material to the panels; questions for the citizen panels to answer, and it will provide a tool for presenting and comparing the answers between the national citizen panels. The web tool will also ensure transparency of the process by making all data publicly available on the CIVISTI webpage (http://www.civisti.org/).[13]

Sixth, the citizens will be consulted again (CC2 in **Box 6.** in Figure 1) to validate and prioritise the new S&T agendas and policy options. In the second round of consultation, the citizens consolidate the results by adding their comments, and accepting or rejecting the suggested policies, priorities and processes. The final result will be a set of S&T issues and recommendations, which citizens find most important for their future (**Box 7.** in Figure 1), and which can directly be fed into the processes of defining Framework Programme 8.

Other elements in the CIVISTI process include business-as-usual type supportive elements such as the coordination and management teams, the scientific advisory panel, the process plans and schedules, and perhaps more innovatively, a "cook book" or a methodology manual that is updated and agreed upon regularly among the project partners during the process. A policy workshop will also be organised at the end of the project to disseminate and discuss the results with relevant EU and S&T policy makers. We next focus on the analytical model and its key functions in the CIVISTI project.

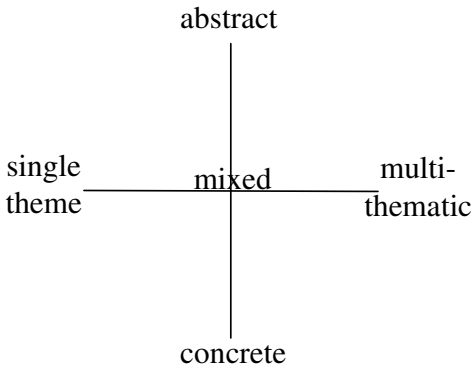
3. The analytical model and its functions

As a result of the first round visioning exercise (CC1), c. ten visions in seven EU member states will be produced. The visions will be translated and published in English in a *vision catalogue* that consists of some 70 visions (in estimably 70-140 pages of A4).

The first function of the analytical model is to provide guidelines for the **clustering of the visions (1.)**. Clustering entails grouping visions into clusters so that visions from the same cluster are more

similar to each other than visions from other clusters. Clustering helps make apparent the uniformity vs. multiformity of the visions. Since the participants of the citizen panels have different cultural and individual backgrounds, and because the visioning exercise is based on open ended questions, it would be surprising, if all visions would be alike. Instead, it is expected that there will be a high variety of visions both in terms of themes and level of abstraction. The first **step (1.1)** in the clustering process is to *distinguish between single vs. multi thematic and abstract vs. concrete visions* (see Figure 2).

Figure 2 visions according to their thematic structure and level of abstraction



The distinction between single vs. multi thematic and abstract vs. concrete visions is formal and does not indicate the content of visions. (The mere use of this distinction is to support further analysis and treatment of the visions.) Therefore, the second **step (1.2)** in the clustering process is to *analyse the thematic content and variation of the visions*. The primary purpose of this clustering is to create an overview of the overall content of the 70 visions to ease to following qualitative analysis. For single theme visions (if there are any) clustering should be relatively easy through a qualitative content analysis of those visions.[14] For multi-thematic visions, a breakdown of the different themes included in the visions is necessary.

The thematic content analysis of the visions should be conducted in a way that it covers the two aspects of visions included in the CIVISTI approach: the dreams and hopes of the citizens as well as their concerns and fears. Therefore, the two guiding questions of the thematic content analysis should be:

Q1: *On what issues do people dream about in their visions? What do they value most in their visions?*

Q2: *What issues people identify as future threats? What specifically makes them fearsome of those issues?*

The way to answer these questions is by studying the content of each of the 70 visions individually. It is expected that the various needs and concerns expressed in each single vision can be (coded and) clustered under some 1-10 different themes. To give validity to such analysis, there should be more than one person analysing the same data. An efficient way to conduct such an analysis would be for the person responsible for the overall analysis to do an independent thematic content analysis and prepare a first draft. The persons responsible for organising national CCs review the draft of thematic content analysis of their country data (thus adding also contextual understanding to the analysis) and add comments or make suggestions. On the way to finding a common coding system, all partners will be asked to see if they can find relevant (codes or) categories of needs and concerns in a check list that is based on themes repeatedly analysed in recent foresight studies [see e.g. 29; 36] (Table 1).[15]

	Positive visions	Negative visions
Citizen's role		
Communication		
Crime		
Demographics		
Distribution of wealth and opportunities		
Education		
Economic situation		
Energy and natural resources		
Ethics		
Family		
Food		
Fresh water		
Gender roles		
Globalisation and democracy		
Health		
Geopolitical developments		
Leisure and time consumption		
Migration		
Piece and conflict		
Sustainable development and climate change		
Scientific and technological development		
Transport		
Welfare		
Work practices		
Other, please add…		

Table 1 List of repeated themes analysed in recent foresight studies

The thematic content analysis of the visions, firstly, results in a quantitative overview of the frequencies of different themes in the visions. On the basis of the quantitative information, a *vision scoreboard* will be created. The scoreboard indicates the frequencies of different themes and the share of positively and negatively coloured visions. Secondly, the thematic content analysis results in qualitative information on the content of the visions. On the basis of the coded visions, a *pool of thematically organised visions* will be created. The pool will provide examples of visions under different thematic areas, and serve as a basis for further elaboration in the expert-stakeholder workshop.

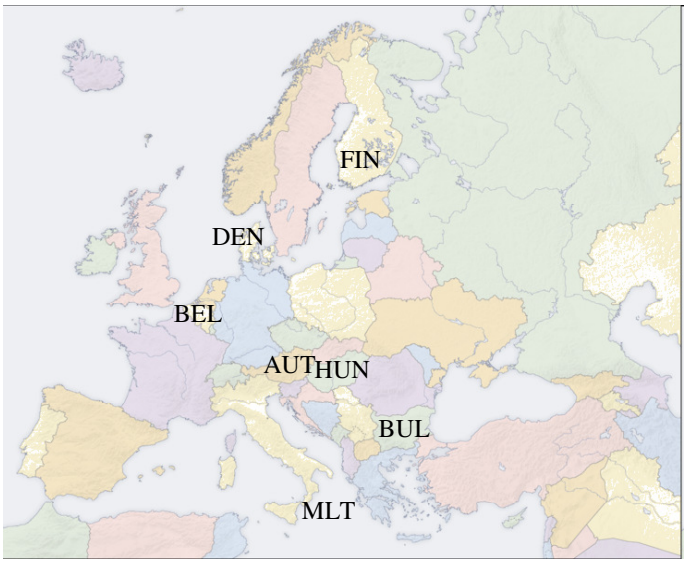
The second function of the analytical model is **comparison of the visions (2.)**. The first **step (2.1)** is to compare the frequencies of the different themes at the general (aggregate) level:

- A high frequency of some particular theme(s) indicates the *general trend* in terms of which future issues people pay most attention to. It may be an issue for policy makers to think about whether adequate attention is paid to such issues in current S&T policies.
- A moderate frequency of certain theme(s) may indicate that some segments of society find it an important issue, while others do not. It may be an issue for policy makers to think about whether it is enough to adopt a *business-as-usual approach* with such issues.
- A low frequency of some theme(s) indicates that a low level of attention is paid by citizens to such future issues. Low frequency issues can be interpreted as "below the radar" issues (especially, if they are not among the business-as-usual themes listed in Table 1), since they are acknowledged only by a small fragment of citizens, and may therefore provide interesting *weak signals* for policy makers of potentially new issues.
- Zero frequency issues can only be registered for business-as-usual foresight themes. If citizens' visions do not cover some of these issues, it may be an *early warning signal* for policy makers of an inadequate level of science-society communication and dialogue with such issues.

In sum, the thematic frequencies of visions, in Step 2.1, will be used as a basis for generating some hypotheses of what issues may be interpreted as "below the radar" and what S&T issues may need further consideration in terms of foresight or S&T policy design.

The second **step (2.2)** in the comparative analysis is to focus on cross-country differences. As it can be seen in the map the map of CIVISTI partner countries (Figure 2), the seven countries involved in the project provide a wide representation over the European area.

Figure 2 Map of CIVISTI partner countries (map source: Wikimedia Commons)



Evident is that there will be different visions of future due to the highly different geographical, cultural and politico-economic histories of the countries involved in the project. Considering the demand for common framework programmes for European research, it will be of utmost importance to try to understand what specific national needs and concerns there are that either facilitate or delimit the success of common programmes. Therefore the research question for national comparisons should be:

> Q3: "*What are the similarities and differences between the future visions of citizens in different CIVISTI countries?*"

The analysis of cross-country differences will be done by comparing the national profiles of visions through the vision scoreboard. Such a comparison will provide an overview of the commonly shared themes of the visions and indicate issues that are more particular to specific nations. In order to provide information about most evident contextual and cultural background, all the national partners of the CIVISTI project will provide a short reflection of their respective country profiles.[16] Since there already exist some international comparative studies of the values and concerns of citizens, e.g., through Eurobarometers and value surveys[17], the specific contribution of CIVISTI will be in its open ended and futuristic focus. Of particular interests therefore is, what new themes and from where, emerge from the CIVISTI consultations.

If clustering and comparison of visions are analytical functions that relate to the full thematic scope of the visions, the third function of the analytical model will be the **distillation of the S&T components of the visions (3.)**. Even though all visions can be relevant for the design of future S&T policies, it is useful to make a distinction between directly and indirectly relevant S&T issues. It is suggested here that issues of direct relevance to S&T include, firstly, specific proposals for new knowledge, policies, resources, skills, as documented in the visions, and secondly, specific issues of risk concerns, as expressed by the citizens consulted. Directly relevant issues should be distinguished from the more general (an indirectly relevant) issues that will be identified in Step 1 of the analytical process.

To identify *proposals for new knowledge, policies, resources and skills* (**Step 3.1**), a similar content analysis of the visions is needed than in Step 1, however, with the difference that now the focus is more selective. Specificity (or "concreteness") is the key criterion by which such proposals can be distinguished from the more general objectives of the visions.[18] The new ideas for S&T provided by the citizens will form a *pool of proposals*, in which the proposals are clustered and illustrated with examples. The experts and stakeholders will later be asked to evaluate the novelty of the proposals, as well as to elaborate them toward relevant S&T policy issues.

The *identification of the specific risk issues* (**Step 3.2**) emerging from citizen consultations can be conducted largely in a similar manner than Step 3.1.[19] Again, the risk issues identified will form a *pool of risk concerns*,[20] to further be evaluated and elaborated by science and technology policy experts and stakeholders in a workshop, the approach of which is described in the next section of this paper (also presenting still a new function of the analytical model).

4. How experts and stakeholders can identify future S&T issues on the basis of citizen consultations

It is the tenet of the CIVISTI project not just to make citizens envision future but also make such envisioning useful in the design of S&T policies, especially, in the context of the EU research framework programmes. Needless to say, this is a challenging goal for any kind of project. A main tool of the CIVISTI project in the transformation of the future visions of citizens to relevant S&T policy issues is a two day expert-stakeholder workshop, in which specialists in the field of foresight and S&T policy will participate.[21] The analytical model will provide a framework for the work and deliberation by the experts and stakeholders.

To provide a framework for speculation of new S&T policy options emerging from citizen visions, this paper builds on Kingdon's [37] *streams model*[22] (of policy agenda setting), which is a widely applied approach in policy analysis [see 38; 39]. The model assumes that a successful design of policies relates to the bringing together of three kinds of elements: problems, solutions and political contexts. The streams model, translated into the vocabulary of the CIVISTI, proposes that policy design should consider how the new visions and proposals, as well as risk concerns raised by citizens, can be transferred to relevant policy contexts and dealt with in a productive way. This will also be the guiding idea, on the basis of which the work of the expert-stakeholder workshop will be organized.

It is therefore the fourth function of the analytical model to **structure the design of S&T options (4.)** in the expert-stakeholder workshop. The first stage of the designing process is an *assessment of citizen visions* (**Step 4.1**). One objective of the assessment is that the experts and stakeholders *familiarize* themselves with the content of visions by examining the material available: the vision catalogue, a clustering report and the analytical model. The vision assessment will be carried out in small groups of experts and stakeholders. The assessment should cover both general thematic issues (including high, medium, low and zero frequency issues from the vision scoreboard) and more specific issues from the pools of proposals and risk concerns. Another objective is that the experts and stakeholders *prioritize* the visions in terms of their *novelty* (in regard to established S&T policies) and *urgency* (in terms of indicating which of the new issues need most prompt policy attention and action). The criterion of novelty is chosen, because it is CIVISTI's main function to identify new and "below the radar" issues for S&T policy. The criterion of urgency is selected to focus and motivate further working by the experts and stakeholders with the most novel and urgent issues.

The second stage of the policy design process consists of an *identification of relevant S&T policy context* to the prioritized issues (**Step 4.2**). At this stage, the experts and stakeholders should first analyse which policy areas are implicated by the issues at focus, and second, consider what implications there are for S&T policy agenda setting and prioritization. The step 4.2 should be oriented toward a creative identification of new areas of activity.

The third and final step in the policy design process consists of the *formulation of policy options* for the priority issues in relevant contexts of S&T policy (**Step 4.3**). The options should be reported in

a catalogue of new S&T policy options. The options should provide alternatives to new R&D directions or other measures such as new interdisciplinary programmes or sub-programmes of research [cf. 37]. It will also be important that suggestions for the development of participatory S&T policy assessment will be included in the catalogue.

5. How citizens will validate the work of experts and stakeholders

According to the CIVISTI method, it will finally be the task of citizens to validate and prioritise the new S&T agendas and options. This will be organised in another round of citizen consultations (CC2 in **Box 6.** in Figure 1). In the second round of citizen consultations the citizens consolidate the results by adding their comments, and accepting or rejecting the suggested policies, priorities and processes. The final result will be a set of S&T issues and recommendations, which citizens find most important for their future (see **Box 7.** in Figure 1), and which can provide input into the processes of defining the Framework Programme 8 and future EU policies more generally.[23]

6. Conclusions

This paper started by reviewing some of the driving forces and rationales (democracy, social acceptance and effectiveness of decision making) that call for an increased integration of long term thinking with citizen participation. In the European context, the challenges related to steadily decreasing voting activity (e.g. according to the latest Eurobarometer on the EP elections [40], voting probability in Europe is 34 %) and societal adaptation toward carbon neutral societies put flesh on the bones of the abstract rationales. Against this background, the objectives and analytical model of the CIVISTI project were introduced. We conclude this paper by returning to our argument, presented in the beginning of this paper, that some of the difficulties related to deliberative practices can be overcome, or at least mitigated, through a mixed citizen-expert-stakeholder process, which is based on a solid theoretical understanding of deliberative theories and linked to the real life context of decision-making.

The first difficulty that we identified in the beginning of this paper was related to the selection and competences of the participants, or, as in our case, the citizens. The issue of ‘fair’ representation is to some extent irrelevant, since the CIVISTI project neither aims to achieve popular representation nor compete with quantitative surveys which can provide better overviews of the attitudes and ideas within the nations. The CIVISTI project is basically a qualitative exercise, based on an intense face-to-face exchange and development of opinions in deliberative panels. This is not to say that there

are alternative ways of selecting the members of citizen panels. In the CIVISTI project, the participants have been selected from random (or quasi random) samples of citizens on the bases of socio-demographic criteria (sex, age, education, occupation and residence). Some deliberative theorists [e.g. 41] have criticised the socio-economic approach as a rough way to select panels, and have proposed some other ways, such as the "Q method" (which entails selecting participants to represent particular arguments through a study of discourses) as more appropriate. Due to the sweeping futuristic focus of the CIVISTI however, we do not envisage an ideal method to provide discursive representation. Unlike certain ongoing conflicts, stabilised arguments and ideas on long term future issues hardly exist.

The question of whether panellists had an adequate level of competence was another issue that was raised. In the case of the CIVISTI, the question is highly linked with the topic of the exercise. As any futurist knows, futures thinking is open to all possible perspectives and interpretations, and the real methodological challenge is to create a balance between variety (all perspectives and domains of expertise are equal) and convergence (the need to effectively achieve reasonable products, which entails focusing of perspectives and selection of expertise) [see, 42]. The CIVISTI project acknowledges this dilemma, and solves it by providing some basic information to the citizen panellists through an information magazine that gives a multi-perspective account of futures studies as well as interviews with futurists, scientists and cultural persons, who have been actively engaged in futures visioning. The members of the citizen panel, in other words, will not be educated as futurists, but their work is facilitated by professional facilitators, who have the responsibility for maintaining a futuristic focus in the vision exercise and help the citizens to formulate their visions.

The second concern identified related to questions of productivity, efficiency and transparency of the deliberative process. Regulatory imprecision is a repeated concern linked to the quality of participatory exercises [e.g. 43]. In CIVISTI, the starting point for methodological design is the need to produce relevant input to EU policy making. The main mechanisms supporting relevant regulatory input include: the analytical model and its function as an orienting tool to S&T relevant issues; the two day expert-stakeholder workshop; the advisory panel and steering group of the project consisting of authoritative persons in the field of futures research and S&T policy; the broad scale dissemination activities and a final policy workshop which support dialogue between the project and policy makers. The deliberation, in other words, is neither a privilege of nor limited to the citizen panels but extended to multiple actors, who can help increase the policy relevance of the CIVISTI. Assuming that CIVISTI and other similar approaches will become additional elements of

EU policy making, it will be certain that they will momentarily increase the complexity of early stage preparation of policies. As compensation, however, there is the prospect that decisions and policies can become more easily adopted in the long run. This point is also related to another procedural feature of CIVISTI. Instead of focusing only on politically correct issues, CIVISTI has the function of identifying – and treating timely enough – issues that are just emerging. We can expect that there are also tenuous issues (such as related to the prevention of crime, control of immigration and racial issues) that will need to be treated as transparently as possible within the limits of the legislation.

The third concern raised was related to the scepticism over the novelty and policy relevance of results based on laymen's deliberation. Since the CIVISTI project is still under way, it is impossible to answer this question. However, bearing in mind the purpose, methodological design and realisation, as well as the ambitious aim of tackling emerging future issues as they are being expressed by the citizens of the European Union, there is a high prospect for breaking the ice and introducing a new method that can provide high quality policy advice based on the farsighted visions of citizens.

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[1] The roots of the deliberative paradigm can be identified e.g. in Habermasian discourse ethical philosophy and recent work with the participatory practice; references to both theoretical studies and empirical examples are provided in Section 1 of this paper.

[2] Such as for example the 'Meetings of Minds' project under the Science and Society Action Plan of FP6, and the PRISE project of the PASR programme of FP7.

[3] See, http://www.wwviews.org/.

[4] Some of the available and well tested methods are the Consensus Conference; Planning Cell; Future Lab; Deliberative Polling; Citizen Summit; Voting Conference; Interview Meetings; Scenario Workshop; Citizen Jury.

[5] The European Foresight Sharing Platform has established monitoring, a web-based training and information tool (For-Learn), and has generally promoted foresight in the framework programmes and the EU member states http://cordis.europa.eu/foresight/platform3.htm

[6] The ForSociety ERA-net has established benchmarking and evaluation procedures, methodology assessments, etc., and has networked 16 EU member states around the idea of foresight. www.eranet-forsociety.net
[7] See www.eranet-forsociety.net
[8] A prominent example is the French Agora 2020, executed by the Directorate of science, research and technology DRAST 200-2006.
[9] E.g. Eggermont S., Vandebosch H., Steyaert S., Towards the desired future of the elderly and ICt: policy recommendations based on a dialogue with senior citizens. In : Poësis & Praxis, 2006, Springer-Verlag, Berlin. The project was made by CIVISTI partner 3 IST.
[10] E.g. Future of the Hospitals – Large-scale citizen participation in the Region of Southern Denmark. (In Danish). www.regionsyddanmark.dk/wm217661. The project was made by partner CIVISTI partner 1 DBT.
[11] For further information, see http://www.civisti.org/.
[12] **Denmark (1)**: The Danish Board of Technology; **Finland (2)**: National Consumer Research Centre; **Belgium (3)**: IST, Instituut Samenleving en Technologie; **Malta (4)**: Malta Council for Science and Technology; **Bulgaria (5)**: Applied Research and Communication Fund,ARC; **Hungary (6)**: Medián Opinion and Market Research Institute; **Austria (7)**: Austrian Academy of Sciences, Institute of Technology Assessment, OeAW-ITA.
[13] The web-based tool is also an important element of developing a cost-effective citizen consultation method, since it considerably lowers the need for trans-national face-to-face content coordination in the consortium.
[14] Examples of single theme visions could be titled, e.g., "plastic free society", "no private cars", "clean air", "lots of water".
[15] The table will be calibrated on the basis of the first round of content analysis of the CC1 visions.
[16] Our intention is not in the provision of theoretically inspired cultural interpretations, but sooner, in the provision of a background that helps dispel misunderstandings. For example, recent school shooting incidents in Finland could be mentioned in a case that the national future visions were focused on the security of schools.
[17] There is a strong connection between the study of visions and study of values. The latter has been a focus of continued research interest by social scientists for several decades, and the results of CIVISTI could with some extra investments be compared with e.g. the results of Inglehart et al. Wolrd Value surveys. The main value distinction of the World Value Survey is between *survival vs. self-expressive* and *traditional vs. secular-rational values*. The needs and concerns expressed in CIVISTI citizen consultation could theoretically be located in a similar value matrix.
[18] Most of the proposals will be found in a specific section of the CIVISTI vision description template. To increase the validity of the analysis, again at least two independent analysts will be used to identify the proposals.
[19] Unlike the ideas for new S&T, however, the issues of risk and concern will be more distributed over the vision descriptions. The thematic content analysis in Step 1 (focusing on the concerns) can be taken as starting point, and risk issues distinguished from them on the basis of their higher level of specificity.
[20] Depending on the resources available for the conduct of analysis, a particularly interesting test would be to locate the emerging risk issues into the classic model of different risk types developed by Slovick [16]. The model proposes a useful distinction between dread (vs. controllable) and unknown (vs. known/ familiar) risk issues. The model also provides a "policy alarm hypothesizes" by claiming that with risk issues of higher dread and unknown values, the higher the demand for strict regulation by the public. The concerns raised in CIVISTI consultations could be located in such a map, with a potential of developing an anticipatory tool of emerging risk issues.
[21] The size of the expert-stakeholder workshop will be c. 30 participants. "Stakeholders" include e.g., national and EU level policy makers, who through their professions have stakes in the design of S&T policies; "experts" include specialists in foresight, futures studies and other relevant research fields. The composition and expertise of the workshop will be finally decided on the basis of the issues emerging from the CC1 consultations.
[22] "In the policy stream, proposals, alternatives, and solutions float about, being discussed, revised, and discussed again. In contrast to a problem-solving model, in which people become aware of a problem and consider alternative solutions, solutions float around in and near government, searching for problems to which to become attached or political events that increase their likelihood of adoption. These proposals are constantly in the policy stream, but then suddenly they become elevated on the governmental agenda because they can be seen as solutions to a pressing problem or because politicians find their sponsorship expedient." (Kingdon 1995, p. 172.)
[23] The second round of citizen consultation (CC2) will take place some 15 months after CC1. The structure of this consultation will be later specified on the basis of CC1 and expert –stakeholder workshop results.