Project: The Landscape and Isobars of European Values in Relation to Science and New Technology (Value Isobars)

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Analysis of difficulties of value based governance of S&T Work package: 6

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Analysis synthesis of end-user feedback:
social values in EU

1. Introduction
In November 2009 possible end-users received an invitation to participate the project. In the end 16 end-users accepted to be an important part of Value Isobars. The end-users represent several different professions and institutions; scientists/academics, delegates from EU Commission, OECD and Ethics committee.

The first of three communications was sent by email to the end-users 10. June 2010. Unfortunately this was a delay from the originally scheduled date because the work with setting up the end-user panel turned out to be more time-consuming than expected. During the process two end-users left their participation in the project because of lack of time and/or they felt they could not respond to the questions.

WP6 received feedback from 10 end-users. Despite reminding feedback from 5 end-users was not forthcoming. In this document we present a brief characteristic from the reactions. We also include reactions from the project team to some of the basic issues addressed by the end-users. The updated list of end-users and the feedbacks from the end-users are published at http://www.value-isobars.no/

2. Feedback from the end-users
The first communication was structured into 5 chapters, with contribution from all WPs. The end-users were invited to respond to 18 questions.

Terms and definitions
This project is based on a specific conception of what it means to discuss values in relation to science and technology. In the first communication we presented a list of different terms; norms, institution, governance and participation, principle, value, social value, and different aspects of values as well. In their presentation WP1 discussed the issue of European values. The end-users were asked in what way they understand the term values. Further, they were also asked; did they agree with the conception of the basic problems of a good S&T policy?

Ethics and values
The terms ethics and values, are obviously central terms into the project. In the communication several terms were introduced and the end-users were asked how they did understand values. Several found the definition of values in the communication satisfactory and values were seen as both personal and common. However, aspects of values were seen as a bit confusing. It was also mentioned that it is necessary to find a better balance between philosophical discussions and specific definitions of the terms. One end-user points out the need of ranking values: Do we focus on the negative side rather than on the positive side of a value?

The feedbacks indicate that several of the end-users would like to see a more specific definition of "ethics". The responses identifies a need to clarify the term "ethics", i.e. a clearer

sense of how we differentiate between "values" and "ethics" , which also might extend to the separation between the terms "ethics" versus "moral".

Isobars

Since the landscape of European values is assumedly complex there is a need for instruments that allow policy makers to map social values, to detect significant changes in them, and to relate these to current and emerging attitudes to science and technology. The project has therefore proposed to introduce the concept of ethical value "isobars", a term borrowed from meteorology. Isobars in their common weather forecast meaning are line drawn between points of common atmospheric pressures. The reaction to the term "isobars" have not been many, but one end-user mentioned it is a need to explain more specific the use and the meaning of "isobars" in the project. The use of the term "isobars" forces the project to explain how the mapping of values is conceived in the project and provide a justification for this.

Participatory methods

How is one to stage dialogues about value issues? There are several ways to see how values are addressed by people and how these may change. Concepts of good governance are typically built on involvement of stakeholders and the idea of deliberative democracy involves dialogue which necessitates broad participation. In the first communication WP3 represented five methods of participating: The Charrette, consensus conference, scenario workshops, Neo-Socratic Dialogue (NSD) and round table.

The end-users were asked if they where familiar with some of these methods. The reactions show that some end-users have experience with some of the methods. Delphi studies and scenario-analysis are two other methods which are used by several end-users. On-line survey, focus groups, consensus conference, "Publiforum[1]", open fora and round tables are also mentioned in the feedbacks. However, there were few who felt comfortable to give any specific recommendations in regard to the representation of the methods. One end-user shared his experience of the scenario method:

"The scenario method can be highly useful in triggering open, forward-looking discussions. The scenarios could be elaborated by the project group, with the help of a professional facilitator. Subsequently, the scenarios could be used to elicit responses from a broader public (specialists, citizens, etc.). One possibility is to conduct a Delphi study, using an internet platform. The Delphi method is interesting in this context, as it allows the collection of views from a high number of people".

According to an end-user, the round tables method can be very fruitful and this format of open discussion can lead to some interesting directions that the organizer would not have been able to foresee with a motivated group. Another end-user, who had experience with scenario building and round table exercises, pointed out that the public(s) were playing a relatively minor role while the experts and policy makers dominated. The "voice of the people" has always been important in the political decision-making process in a democratic society. Laypeople or non-experts are important components of the collective representations of viewpoints. Expert knowledge is often strictly limited to one specific subject and ordinary citizens have a different approach to technology because they tend to see it from the perspective of their own life: "how could this possibly affect my work situation, my health and the life of my family?"(Andersen & Jæger, 1999).

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[1] A kind of concensus conference.

Science and technology case studies

In the first communication two case technologies areas were introduced by WP5; one on possible dual-use issues in pathogen research, and the other on biometrics technologies. The ethical assessment of the technologies is dependent on the values that are pertinent in and for society. They bring forward questions such as: does one value the freedom of scientific research more than the safety in respect to possible misuses? Do these two necessarily exclude each other? Should a risk to dual-use lead to a closed mentality in scientific research or can openness of scientific research also be a means to solve these issues? The two case areas are to serve as test-cases for the blueprint of value-informed governance and policy making.

The overall impression of the reactions shows that there is a general opinion among the end-users that those two cases indeed raise several ethical questions. Even those of the end-users who did not have specific experience with these kinds of questions in their professions, underlined that the chosen examples are highly relevant.

Several of the end-users had experience in handling questions about ethics/values in their work. When asked to what extent the end-users knew of mechanisms to deal with the ethical questions, several of the end-users pointed out that these issues are taken care of by the appropriate internal bodies within the research institution where the research takes place. Other end-users were of the opinion that discussions with other researchers outside the institutions/projects and publications on these problems are important tools to handle ethical issues. Ethical committees were mentioned as a further mechanism. One end-user describes her experience like this: *"In the biobanking field these are the major issues (particularly if one extends biometrics to the ultimate identified, DNA sequence). Biobanking as such is based in dual use (or extended use of existing biological samples beyond what was originally planned). Here values, ethics and legislation sometimes result in serious conflicts".*

Eurobarometer and surveys

In the communication WP2 described the difference between attitudes and values. Values can be thought of as more general concerns, or 'organizing principles', that give structure to various attitudes. The end-users were asked if they ever made use of, or studied out of professional interest surveys of the kind described in the communication. And if so; how useful did the end-users think these studies are at present? The responses of those two questions were mixed. Several of the end-users have used those kinds of surveys in their work. Those of the end-users who had used the Eurobarometer found them useful to pinpoint where further information directed towards the public is needed. As such, values might be understood as a latent dimension underlying attitudes. Eurobarometers have usually been a tool to survey and compare peoples' attitudes and opinions on different topics in Europe, and cover a series of surveys regularly performed on behalf of the European Commission since 1973. The Eurobarometer is a way to track and analyze public opinion in all European Member States and to improve the information and communication policy of European decision-makers (www.wikipedia.org 14.09.2010). One did underline that these studies are indeed useful to provide context to research topics in S&T. Someone also pointed out that these kinds of surveys reflected varied approaches and challenges and are useful for education and training. One end-user responded like this: *"They (surveyss) are necessary and helpful. My impression is that they are often too general to be used directly in policy-making, but they can serve as sign-posts, alerting policy makers to important sensitivities".*

There is a need for more reliable information about publics' values, and these values need then to be transformed into some kind of a map. It is this effort of providing good and reliable value maps which seems to be central for value-based governance.

European values in relation to S&T

WP1 took up the issue of European values. Some values are clearly not limited to Europe itself, and many are often claimed to have universal validity. This could mean that Europeans are united by something that they do not see as restricted to Europe. In what sense European values could be seen as authoritative and binding for EU citizens and policies, was taken up in the communication. The end-users were asked if they shared the view that European values should to some extent guide among others European policies on S&T. The responses among the end-users were mixed. Several agreed or were very positive about this view. However, it was pointed out by one end-user that only those who hold strong views on specific values which they felt are being threatened are likely to make themselves heard. Others underlined that if these values are universally acceptable, ethically justified, then they must be normative beyond European boundaries. To some end-users the term "commonly held values" seemed to raise several problematic issues.

Legal instruments

The communication asked how decision makers design their strategies and/or policies, and in particular how the use of the various mechanisms of law are instrumentalized. What legal instruments relate to value issues; regulation, law, institutional efforts like ethics committees, guidelines or what? Instruments are needed to allow policy makers to map social values, to detect significant changes in them and to relate these to current and emerging attitudes to science and technology. Legal, regulatory and other mechanisms, including soft-law (like guidelines), are to be reviewed and critically discussed in the project.

It was mentioned by some end-users that values often are too general to be used directly in policy-making, but that they can serve as sign-posts, alerting policy-makers to important sensitivities. There is a need to be aware of the efforts of various politicians, and not just at the "top end" level of the European Commission and Parliament, but right down to national governments and local authorities. It was pointed out that values are important in relation to S&T policies because they assist in determining the contours of the limits/boundaries of S&T developments and identify ideological approaches to them. One end-user stressed that there is a body of European thought and values that binds us together, as human beings, citizens and Europeans. European values have a normative dimension, and they should be at the core of European policy in any area, not just in S&T policy. One end-user specifies the relation between values and S&T like this;

"*With regard to S&T policy there are several levels of relevance: the general political role of values as a basis of ideologies determining politics, the relevance of values as governing "good" policy in the sense of generally accepted standards (see above), the relevance for the S&T field in terms of distribution of burden and benefit or choice of options to suit whichever interest, etc. With regard to S&T themselves values are important because they govern choices and providing means for different scientific fields or fields of technology development. In addition, they frame the way how members of the public cope with new technologies on the basis of their everyday knowledge and experience*".

It was stressed that it will be crucial how the project plans to disseminate its findings to policy makers. Furthermore, it is underlined that values become a key component of the policy or/and law making process in issues which have not as yet received legislative attention, but

are e.g. acting as a barrier to certain lines of medical research. Law as an overarching normative framework in this area is essentially shaped by values.

One end-user pointed out that an analysis of the future socio-economic environment in which Europe and its values will exist, could be useful. This, he writes, could give a clearer view of future difficulties in policy-making. A discussion of the role of religion in policy making and relatinb to deep seated value questions might strengthen the project. How may the changing religious landscapes in Europe influence the formation of commonly held, social values in the future? Another end-user underlined that some of the most fundamental issues of our time, for instance sustainable development and climate change, probably need an strong injection of ethics in order to make progress.

A mapping of social values is needed if the various platforms of debate on science and technology in Europe are to lead to sustainable innovation. Values are one of the key and unexplored parameters responsible for changing attitudes to science and technology. Since values can be seen as important drivers that create identity and social cohesion, it is necessary that we pay attention to them. Values can be understood as more basic and therefore not so easily subjected to change compared to attitudes, trends and opinions. People do not change values as often as they change attitudes. In this respect, a survey depicting peoples' values would make it easier to indicate a long-term perspective and provide more information to foresee people's preferences and inform long term governance and policy. Values are recognized as drivers of important attitudes that one need to address in European policy and that should therefore be integrated into a deliberative democratic culture.

The end-users were asked to what extent they thought accompanying ELSA (*ethical, legal, and social aspects research)* research is a good solution to address these issues and to plan for a robust S&T policy. Among the end-users the responses and experiences were mixed. Some found it definitely useful and informative to include ELSA research in devising robust S&T policy. One reaction pointed out that ELSA research is indeed vital, and it is most useful as a source of reflection and as a kind of "early warning" system. However, another end-user underlines that a robust S&T policy requires much more than ELSA research, which, at best, could only supplement other policy measures even if funds would considerably increase:
"This is a two-sided sword. Sometimes I feel that ethical research is focusing on identification of issues/problems (that they can study) without providing practical solutions. In real life, we need solutions to make the entire S&T field go forward. That is why I really appreciate the current value-based approach that you have taken. This does not mean that I am against research on ELSI/ELSA issues, but I am getting skeptical about the usefulness of this research for practical purposes".

3 Conclusion
In the end of the first communication the end-users were given an opportunity to give general feedback of the project. Several of the end-users remarked that they now have an impression of what the project is all about, even if some are unclear about the project's more specific aims. All in all, the main impression is that most of the end-users found the first communication stimulating reading interesting and are positively inclined towards the project.

The feedbacks and reactions have provided a practical contribution to the further work within the project. Some questions were raised that the project needs to relate to. The partners found the challenges brought back to the project work highly interesting and stimulating.

At the end of this document we include specific reactions to some of the central issues raised by the end-users in the first communication.

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WP1 on Enduser's immediate questions to first communication

End-users have asked for clarification on ethics and moral(s). The critical relationship of values and ethics in policy-making also needed further explanation.

Moral(s) and Ethics

By moral or morals (the plural already indicating heterogeneity and plurality), we understand the total of convictions held in a community on the evaluative good and the normative right. This means that morals contain both ideas of a good life and individual happiness as well as norms and principles that claim universal (or at least societal or group) validity. Moral has to be distinguished from pure conventions of behaviour on the one hand and law as a codified set of norms and rules on the other.

Being part of practical philosophy, ethics is the discipline that philosophically reflects on morals. This reflection can take different forms: (1) Descriptive ethics records and describes which values and norms can be found in history, in cultural communities or groups. This task is related to other disciplines such as moral psychology, social anthropology or history. (2) Normative ethics aims at critically evaluating and by the same token justifying moral norms; it is thereby instructing justified forms of action and good life. If one finds reference to "ethics" without any further attribution, usually normative ethics is meant – but in public discourse also simply moral(s) is addressed, not moral philosophy. In normative ethics, one can distinguish two main perspectives: virtue ethics and deontological ethics. Virtue ethics focuses on the individual and deals with questions how s/he can reach the aims of his or her quest for self-fulfilment (philosophy of happiness). Deontological ethics is more interested in social coexistence and asks for general, universalisable moral rules (moral philosophy in the strict sense). (3) Meta-ethics can be understood as epistemology of ethics. It analyses basic terms, moral language and methodical procedures of justification in normative ethics.

In short: Ethics is the philosophical reflection on and argument-based foundation of morals

Ethics vs. Values?

In the first communication for the endusers, we expressed our hypothesis "that in European Commission (EC) and its S&T governance, a shift to concepts of enabling and positive values is accompanied by a side-lining of ethics. The latter might be seen as a restrictive and permanent trouble-maker. As ethics amongst other things is about analysing and criticising actions and institutions with regard to their moral rightness or goodness, its judgements can indeed restrict and limit the range of possible actions."

With this, however, we do not claim an antagonism between ethics and values, to the contrary: Reflection on values and value conflicts is and has to be part of ethics.

Our hypothesis is more about a way of (mis)representing ethics in S&T discourses. Reference to values in policy-making might seem more attractive than dealing with "ethics" understood as a restricting institution. As the meaning of values and the way of trading values can be vague and opaque, several stakeholders might enjoy greater discretion in policies by referring to (common) values and leaving open conflicts and trade-offs. On the surface, a consensus is claimed where actually critical reflection of dissent would be necessary. Ethics, properly understood, aims at reflecting justified forms of action and living. Since that might lead to identifying some goals or means to achieve these goals as not justifiable, "ethics" could be seen by policy-makers as (more) restrictive and less attractive as reference to "our values". However, the turn to values in policy-making also appears as a response to the rise of ever more plural societies and a real interest in bringing policies more in line with values that a held in a society.

Notwithstanding and in short: (Also) value based policy needs ethical reflection and ethical tools to tackle diverse values and value conflicts.

Feedback on WP2 (value methods)

The responses show that there are clear differences between end-users: some have made use of surveys such as the Eurobarometer or more topic-specific surveys to inform their work, others have had a look at the results of such surveys, and others have rarely or never at all paid attention to them.

Aspects highlighted as of particular interest when it comes to the analysis of value-surveys are: the ranking of values (i.e. the relative importance of values); negative values (i.e. what is feared and should be avoided in contrast to what is valued); and the question what makes 'European' values (not only the difference to Non-European values, but also qualitative distinctions). The issues discussed in WP2 so far are considered as 'classic' challenges that also appear in evaluation research.

When it comes to the relationship between survey results and governance, most end-users say that surveys are useful and necessary, and some report that they have experienced that results have informed policy decisions. The usefulness of surveys is mostly seen in providing context information on specific S&T issues, and also in pinpointing public sentiments (and eventually disagreements with expert stances). They can also serve as alerts to policy makers about important sensitivities. However, there are a number of issues that need to be taken into account when it comes to using surveys for policy-making.

First, surveys often are too general to be used directly as an input to specific policy- and decision-making. Second, often the way survey results are presented (e.g. as country rankings) or used (e.g. taken at face value) is problematic. To increase their usefulness, careful analyses of the data are necessary (the data do not automatically speak for themselves). It is stressed that surveys need to be used with caution as they cannot give definitive answers to specific questions; they rather can be useful for getting at a general picture of a situation. Third, when it comes to values, surveys give insights on the distribution of moral beliefs and value-based views. They cannot, however, replace ethical analyses. Taking into account information on prevalence of views is important but cannot replace the question whether these beliefs are held rightly (this demands for ethical justification), and ultimately, what should be done. Finally, taking into account majority views may be important for ensuring acceptance for policy changes, especially when related to value differences. There is, however, the possibility of the 'tyranny of the many over the view', which needs to be taken into account as well.

What we take from the feedback for WP2 is that there is a need for detailed and careful analyses of data. Social sciences are called to play an important role not only in providing data, but also in terms of analyzing and presenting them in useful and relevant ways. Specifically, the challenge is to move away from question by question analyses to the analyses of patterns and insights on the 'bigger picture'. Segmentation also is an important issue (what should be considered: the majority view? The views of specific groups? Which ones?).

For the project as a whole, we take from the feedback that we must restrain from promising naive input that could directly influence policy-making. Rather, we must provide suggestions in what specific ways information stemming from surveys could be used (what questions could be asked about the data). Especially contrasting public majority or specific group views with expert views (both from EU and national policies, science and ethics) can provide useful

context information on what are important pressure zones. This is also connected to the question how to present data to policy makers – can the idea of 'mapping' be useful in this regard?

Feedback on WP4:

The responses from the end users regarding WP4 are summarised in the following points. They result from the reading both of the answers given directly to chapter 4.4 in the 1st communication and of the answers given to other chapters where a link with law was established.

The focus on values conflicts – legal conflicts can be deepened in connection with the idea of weighting values

One of the central ideas of WP4 is the conflict of values that lies beneath the balance between different rights and principles.
Since the protection of individual or groups' rights is carried out through principles and norms that are likely to limit or constrain scientific activities or the development or employment of technology, there is scope for conflict between the interests or rights of S&T developers and users and those of individuals or society. The EU legislator often seeks to balance these opposing interests and rights, namely, research and technological development understood as an interest of the EU and the rights of individuals or citizens. Often, this contradiction is presented as opposing ethical to market values. But the issue is more complex than that
As stated in the 1st communication, the conflicts between absolute protection versus balancing of rights, and the question why law treats some values as being on a par and others as being differentiated, will remain central issues of analysis along the project, as a legal materialization of the values in conflict.

Role of values in law

In the 1st communication it was stated that law is shaped by values, particularly with regard to principles and rights. The explicit reference to values is a novelty brought by the Treaty of Lisbon. Article 2 of the Treaty on European Union consolidated by the Treaty of Lisbon affirms that 'The Union is founded on the values of respect for human dignity, freedom, democracy, equality, the rule of law and respect for human rights...' Simultaneously the Treaty of Lisbon gave binding force to the Charter of Fundamental Rights. The presence of values, translated into principles and rights, seems to be stronger and several S&T policy documents mention values/ethical concerns. However, the legislative process does not necessarily keep up with this trend. The biometrics case is a good example of this double standard. Different EU bodies have pronounced themselves about biometrics, from the ethical perspective, the privacy and data protection perspective, and others, issuing opinions and working papers on the matter – some raising alert regarding possible rights violations, and some recurring also to the rights/values discourse to justify the enhancement of the technology. However, the legal document produced focuses on the technical aspects of biometrics, leaving aside the values/rights questions. This raises important questions concerning the effective role of values in law as opposed to a more 'rhetorical role'.

Definition of institutions / governance: the need for a more substantial definition was mentioned and can be addressed by WP4

The notion of institutions in the 1st communication relates primarily to organizations. As suggested in this communication, an institution can also be understood as involving the complex set of principles and norms that frame its structure and functioning.

The definition of governance is multifaceted and has been the object of a vast theoretical work. In the 1st communication governance is associated with the idea of participation and contribution to the decision making process. Broadly speaking, the concept of governance is closely related with the 'Value Isobars' project since it puts forward the idea that not only law, but also regulatory instruments, soft law instruments, codes of conduct, participatory processes and public action instruments can shape the normative and political framework2. The question raised of the 'tyranny of the many over the few' entails a set of interesting questions, although hard to address in this context3.

The ELSA approach

The ELSA approach has been seen as somewhat timid in creating positive outcomes. This was mentioned briefly in some of the end users comments. The implementation of ELSA, including not only legal aspects but also social and ethical ones, is directly linked with the whole project.
In the biometrics case, ELSA may play a role in the discussion of S&T policies, but does not seem to play a relevant part in the regulatory process.

Relation between participatory processes and law and ethics

As mentioned in the 1st communication, while assessing the translation of values into European law and regulation attention should be paid to the channels opened by law for stakeholders and civil society to have a say in the regulatory process and by this means expressing 'their' most-prized values and ultimately shaping the value system brought into law or regulation.
The relation between the perception of values in or by society and legal or regulatory instruments intermediated to some extent by participatory processes is also linked to the concept of governance.

There were other general aspects mentioned:

Better differentiation of values and ethics
The need for a stronger link between working packages (Palma, December)
The need for more specific outcomes (Palma, December)
Importance of economics (an important aspect that probably cannot be addressed at this point in the project)

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[2] Maria Eduarda Gonçalves, Pierre Guibentif (2008), *Novos Territórios do Direito, Europeização, Globalização e Transformação da Regulação Jurídica*, Lisboa: Principia, p. 10.
[3] Maura Hiney response, Re chapter 4.2.

Feedback on WP5:

We hereby address the issues raised in those end-user-responses that are relevant for WP5, as input for the second communication to the end users

The question in the first communication to the end users that dealt with both case scenarios was:

In your experience and at your work place, will planned research dealing with biometrics or involving dual-use raise questions about ethics / values?

Although not all end users responded to this question elaborately, most of them did agree these case scenarios were relevant examples in the context of a value based approach to governance. The areas are considered to cause frictions between values, ethics and legislation. Biometrics technologies, biometrics passports and retention of biometrics data are often subject of public controversy. They raise protests by civil liberty groups, arguing that the inclusion of extensive biometric data in passports would be an unacceptable intrusion on privacy. The use of codes of conduct was considered to be of specific relevance to biometrics technologies. There seems to be a lack of specific legislation on biometrics and on dual use issues in pathogen research.

The standard approach to ethical assessment of science and technology is ELSI-research and on that basis raising questions to policy makers, but this approach is not sufficient to co-steer innovation or to avoid issues of public/societal controversy. Political action is needed, not just at the 'top end' level of the European Commission and Parliament, but also from national governments to local authorities. It is they who are answerable to citizens The general public also need to take some responsibility for voicing their opinions and ensuring that they are heard by those with the 'power' – but in order to do this efficiently, they need to be aware of the research going on, which means better communication is required. A value-based approach to governance can facilitate this need for a proactive stance by the public/society.

For the project as a whole, we need to take a stance in whether our approach is or pragmatic. Do we want to give the public a stronger vote in innovation policies or do we want to solve/help avoid issues of (public/societal) controversy (unproblematic innovation being the target)? In other words, do we address the issue of public/societal concern as unjustified and irrational fears that should be circumvented in the innovation process, or do we address the issue of public/societal concern as a justified but often ignored criticism of science and technology. We could claim to do both, but either way, we would need to make this more articulate.

The responses show a need to identify the different stakeholders with regard to both case areas more in detail. These would include:

1) The researchers themselves
2) Internal body within the research institution
3) Legal courts (in case legislative frameworks exists already to deal with these questions)
4) If there is no legal framework: Independent governmental ethics committee to advise the legislator and the government
5) Politics
6) Legislation

Both case areas need to be elaborated with the specific values in mind that are relevant to them. To be able to do this, we suggest to either take more specific case scenarios or one specific policy line, or new legislation / regulatory framework.

Until now, we have focused on policy makers as our main target group. Maybe this should be extended to the scientific community itself since it is there that the innovation process starts.

In conclusion, an important issue in need of elaboration concerns the deficiencies in ELSI-research. To be able to defend our approach, we will need an account of existing forms of ethical assessment and their deficiencies. At the moment, these may include the problem of a check-list approach to ethics, the problem that 'professional ethical expertise' as such may not be sufficient justification for an exclusive applied-ethics approach to governance (the problem of justification), the problem of the possible non-transparent and non-democratic nature of current approaches of ethical assessment. ELSI-research was mentioned to be restricted to the consequences of certain innovations and their ethical acceptability, it does not aid in steering the innovation processes in a specific direction. A possible strength of our approach is that it explicitly articulates what direction innovation should take, from the perspective of the public/society.

It is necessary to demonstrate how an analysis of the applying values would aid in facilitating governance, and how our approach would be complementary to existing ethical assessment procedures. The case scenarios play a crucial role in the 'demo' of the project. To this aim, we will need more specific input on both case areas from the end users. To generate response, we suggest to give a hypothetical account how an analysis of the case areas will provide with a value-based approach to governance can better provide with solutions than standard ELSI-research, and for which types of dilemma in specific.