Report · Parliamentary TA Debate

Knowledge-based policy making

Report of the First Parliamentary TA Debate
held in Copenhagen on June 18, 2012

PACITA

Impressum

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held in Copenhagen on June 18, 2012

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Photographs: 123rf Stock Photos; page 4, Throne hall in Palais Bourbon, the seat of French National Assembly; page 6, statue of Sallustius in front of Austria parliament in Vienna; page 9, German Parliament in Berlin; page 13, lion in front of the Spanish Congreso de los diputados; page 14, Swiss Parliament; page 16, Dutch parliament buildings in The Hague.

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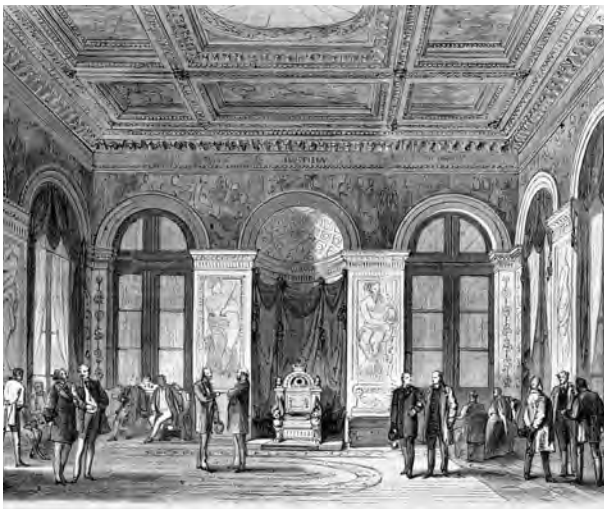
Knowledge-based policy making

How to ensure a stream of high-quality knowledge in the political decision making processes on innovation? What is the role of «knowledge brokers», such as the technology assessment institutions? Is there a special need for knowledge in respect of policy making on science, technology and innovation? How is national policy making embedded in global issues? Policy makers from all over Europe discussed these questions in Copenhagen on 18th June 2012, in the premises of the Folketing (Danish Parliament). They shared their opinions, practices and prospects on knowledge-based policy making through statements and during dialogue sessions.

This event was part of the EU-funded PACITA initiative (Parliaments and Society in Technology Assessment). It has been jointly organised by the Danish Board of Technology (DBT) and the Swiss Centre for Technology Assessment (TA-SWISS). It was the first of two «Parliamentary Debates on TA», which are expected to favour the dialogue between the Technology Assessment (TA) community and the policy sphere. More about the meeting (presentations of the keynote speakers, interviews with some participants) can be found at http://www.pacitaproject.eu/?page_id=1049.

Sergio Bellucci, director of TA-SWISS, opened the meeting by stressing the importance for the TA community of having an open and prospective dialogue with politicians on the contribution of technology assessment for policy making. For those countries where TA institutions have been set up by their parliaments, it is crucial that they constantly and critically reflect, together with policy makers, on their mission and practices so as to adapt to the needs of politics, science, society and economy. Such dialogue is also crucial for decision makers in countries with no TA institutions, as they may share with policy makers from other countries and TA specialists their practices and needs with respect to knowledge-based decision-making. Bellucci hopes that decision makers in countries without TA institutions may profit from existing experiences in order to find the best solution appropriate to their region or country.



Hanne Severinsen, former Member of the Danish Parliament and Chairman of Committee for Science, Technology and Higher Education, welcomed the participants to Copenhagen. She has worked for a long time with the Danish Board of Technology, and is convinced that Parliamentary Technology Assessment is a tool for reaching balanced and socially robust decisions. According to Severinsen, members of parliament are elected for their values and goals, but they need to rely on expert knowledge when taking decisions on science and technology, especially when the issues involved are controversial, such as stem cell research. Nevertheless, experts must not take decisions in place of policy makers. They have to provide politicians with background knowledge, so that decisions are based on sound arguments.

PACITA (Parliaments and Civil Society in Technology Assessment) is a four-year EU-financed Action Plan under the Science-in-society activities of FP7, which aims to increase the capacity of and to enhance the institutional foundation for knowledge-based policy making on issues involving science, technology and innovation. It is based on the diversity of practices in Parliamentary Technology Assessment (PTA) across Europe and is designed for mutual learning between policy makers, scientists and TA representatives (see http://www.pacitaproject.eu/). The ultimate aim of PACITA is to contribute to the institutionalisation of support platforms for knowledge-based decision making in all European countries.

1. When science and technology come into parliament

Parliaments have the image of dealing exclusively with political matters. This is however only partly true: while politicians do indeed evolve in the political sphere, they have to deal with many other areas, science and technology being neither the least nor the easiest one. For **David Cope,** Professor at Cambridge University and former director of the British Parliamentary Office of Science and Technology (POST), parliaments are especially challenged by science and technology in their work. This is not only because these are «serious» matters, but also because there is disagreement about consequences and about priorities in spending money. Accordingly, many parliaments around the world have recognised the need to establish an independent TA body to enable them to improve their interaction with science and technology. But many questions still remain open and require further reflection and discussion. It is the aim of the current meeting to discuss these with policy makers in order to establish platforms for knowledge-based decision making that is able to meet the challenges of policy making on many issues that have a science and technology dimension and suited to the needs of policy makers.

As an introduction to these reflections and discussions, **Wiebe Bijker,** Professor of Technology & Society at the University of Maastricht, stressed that science and technology are at the core of our societies, and there is a need for politics to both «own science and technology» and to «own up to it». For Bijker, our world is built by science and technology, but at the same time science and technology are shaped by society. Politicians are thus expected to make decisions about science and technology. However, the standard solution, that scientists provide facts, politicians add values and bureaucrats implement policies, doesn't work anymore. Societies are too complex for there to be a convenient dividing line between facts and values, and there are fundamental uncertainties in science and technology which make standard scientific advice inappropriate. Moreover, the plurality of values and of knowledge systems implies the identification of new modes of policy making, not to mention the different time scales between politics and science. According to Bijker, «we have to think of a way that will lead to science-based policy and to societally inspired science». And this is where Parliamentary Technology Assessment comes into play. It provides scientific evidence on facts, values and controversies, highlights the special character of modern science and technology (such as complexity, uncertainties and plurality), and helps to reinvent democracy in developing new forms of participation for citizens and stakeholders.

But technology assessment is no easy task. Firstly, the right timing has to be found. This is known as the Collingridge dilemma: do we do something in the early development stages of a technology but with little knowledge available, or later when more is known but when it may be too late to change the course of events? Secondly, the question of who should be involved in technology assessment has to be addressed. Bijker argues that in situations where risks are known, such as asbestos or radioactivity it is enough to invite scientists. But in many cases there are uncertainties about the risks. Here, in addition to scientists, we need stakeholders to find a balance between risks and benefits. Finally, there are situations where there is no clear picture of which direction society wishes to take and which risks we can accept and which we don't wish to (Bijker speaks of «ambiguous risks»). This is the case with human enhancement and implanted brain chips, for instance: while some people are keen to enhance their memory, others consider it as the most existential violation of God's creation. Policymaking for such ambiguous risks needs to integrate the views of citizens, for example by promoting public dialogue and participatory events.

Daniel Jositsch, Member of the Swiss Parliament, confirms the difficulties faced by politicians when discussing science and technology issues. This is especially the case in Switzerland, where the Parliament is composed of part-time politicians, most of them exercising their own profession alongside their political commitments. For Jositsch, «members of parliament have to rely on their own understanding of the issues at stake, as well as on the expertise of administration, industry, universities and NGOs». In Switzerland, parliamentary committees regularly invite scientific

There are situations where there is no clear picture of which direction society wishes to take, which risks we can accept and which we don't wish to.

experts and stakeholders before taking decisions on scientific and technology issues. Whenever possible, the Swiss Centre for Technology Assessment (TA-SWISS) is invited to present the results of its studies. For Jositsch, technology assessment contributes to reducing parliamentary dependency on the administration and lobbies. But in practice, technology assessment tools are not always compatible with the needs of policymakers: whereas technology assessment works towards the long term, politics tend to work from a short-term perspective. He would therefore encourage Parliamentary Technology Assessment to develop instruments able to provide knowledge to politicians at short notice. Jositsch also expects technology assessment to consider science and technology in their global dimension, looking beyond national borders and integrating future generations. National parliaments are challenged by the global character of many decisions they have to take, for example whether a country should accept or reject nuclear energy. He urges TA to «focus on the long-term effects of modern technologies and promote international dialogue, and then bring this information to the attention of national parliaments».

Ulla Burchardt, Member of the German Bundestag, considers that policy-making is currently challenged by the accelerated and globalised development of new technologies, with ambivalent consequences. Policy-making on science and technology has to be more than technology-push or promoting high-tech strategies. Following Professor Bijker, she urges active shaping and governance of technological changes by the policymakers. «Our objective must be to ensure that technology will solve existing problems rather than create new ones». For Burchardt, Parliamentary Technology Assessment is an indispensable element of responsible innovation policy, as it implies dealing with uncertainties with regard to possible risks and opportunities. TA must not only provide knowledge and know-how from the natural sciences, but also from the social sciences and humanities. Moreover, it should provide knowledge appropriate to the needs of members of parliament. Policymakers need scientifically sound and transdisciplinary knowledge produced by an independent source and presented in an easy-to-understand form. Based on her experience as Chair of the Committee on Education, Research and Technology Assessment in Germany, she pleads for continuous communication between TA institutions and members of parliament, so that the TA outcomes are connected to the demands of policy-making.

Gabriela Canavilhas, Member of the Portuguese Parliament, is also convinced that politics has a crucial role to play with regard to science and technology. «Politics can no longer overlook the increasing power of science», says Canavilhas. She describes the relationship between science and technology as ambiguous. Quoting Francis Bacon, she notes that «knowledge is power». And she goes a step further, suggesting to think about Bruno Latour's assertion that «science is politics by other means». There is a need for a regulative function of politics over science, which would result in a hierarchical control. «To legislate is to impose», says Canavilhas. But regulation is not the only way to deal with the impact of science and technology: the social responsibility of scientists and researchers is also of huge importance. Referring to the work of Helga Nowotny, she considers that scientific knowledge must not only be reliable but

also socially robust. There is thus a need to critically evaluate science and technology, taking into account risks, controversies and uncertainties. In Portugal, for instance, a national ethics committee was set up in the 1990s (one of the first in Europe) in order to evaluate the ethical aspects of biotechnologies. But according to Canavilhas, this is not enough to comprehensively address science and technology challenges. In Portugal, there is a need for permanent structures linking science and decision making arenas. Indeed, members of parliament regularly have to decide on issues of a highly scientific nature that are impacted by major political disputes such as renewable energies, BSE pandemics or genetics. In this respect, technology assessment, as a tool for a closer interaction between politics, science and stakeholders, would positively contribute to decision making on science and technology in Portugal.

There are many other countries, where policy-advice on science and technology is needed, but where TA organisations have not been set up. **Valéria Csépe,** explained that in Hungary, policy-advice on science and technology – among other things – is carried out by the Hungarian Academy of Sciences, where she serves as Deputy Secretary General. Like the other speakers, she stresses that policy-advice on science and technology has to deal with ambiguity, as «uncertainty is in the nature of science». And like Ulla Burchardt, she considers that counselling about science and technology needs to be based on reports and publications which are easy to understand and that can be used for discussion with politicians. Csépe is convinced that the policy-advice role of the Hungarian Academy of Sciences should be strengthened, so that the need for better interaction between politics and science is ensured. She would welcome hearings of experts from the Hungarian Academy of Science by parliamentary committees to be institutionalised. Efforts should also be focused on promoting science-society dialogues. This can be achieved by promoting proper education for everyone and lifelong learning, as well as by developing communication on science and setting up dialogue platforms on specific issues involving science, politics and society.

David Seich, Member of Parliament in the Czech Republic, presented instruments of policy-advice contributing to science and technology innovation in his country. As chairman of the Small and Medium Entrepreneurs Union, he stressed that «technology assessment may be a useful tool for some science and technology related issues, but not for all of them». The established system of regulatory impact assessment (RIA) helps Czech enterprises, for example, to set up the right administrative procedures in order to cope with European and national laws. There are also many institutions involved in advising on policy on science and innovation. For instance, the Czech Council for Research is advising the government on science and technology matters. And as in Hungary, the Academy of Sciences provides knowledge to policy makers. Also, technology agencies support Universities and research centres in transferring their findings and developments to business. All these tasks somehow relate to technology assessment. As a member of parliament and chairman of the Small and Medium Entrepreneurs Union, Seich expects from technology assessment advice on sustainable regulation for businesses, paths for better interconnections between companies and research, and broad communication about new regulations.

Mantas Adoménas, Member of the Lithuanian Parliament, presented the burdens his country is facing with respect to policy advice on science and technology. He stressed the fact that new EU member states such as Lithuania have to cope with complex interactions between the scientific community, policy makers and bureaucrats. Moreover, Lithuania is a very small country, with only limited scientific competencies in a series of areas. It is thus very difficult to find independent expertise in many science and technology domains. In order to overcome those difficulties inherent to small countries, Adoménas suggest building a kind of European TA cooperative initiative. He is convinced that Parliamentary Technology Assessment has a role to play in his country, and that solutions have to be found to overcome the burdens he outlined. In fact Adoménas is worried about the rise of new obscurantism

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and the decline of rational debate especially occurring in former Eastern European countries with the rise of so-called red-populism. «TA-inspired initiatives represent enlightenment values and are very important if we want to reinstate rational debate at the heart of democracy».

1.1. When complexity meets the world of politics

During the discussions, participants shared their views and experiences about policy making on science and technology, and their expectations of Parliamentary Technology Assessment. Participants confirmed what Professor Wiebe Bijker said in his keynote presentation. Issues that policy makers are addressing are of a very complex nature, as they refer to highly specialised scientific knowledge and are characterised by uncertainty and ambiguity. They are also convinced that facts have to be made understandable to policy makers, and that risks and values pertaining to innovations have to be made transparent. But based on their concrete experiences as policy makers, they stressed that complexity is very often not compatible with politics. What is expected from policy makers is to have clear-cut positions, such as shall we take this risk or not, shall we continue with this technology or not. It is thus a dilemma for technology assessment to meet the needs of policy makers for recommendations that are easy to understand and unambiguous, while taking into account the complexity of the knowledge and the values at stake. One way to deal with this dilemma is to recall that the mission of policy advice on science and technology is not to shape policies but to support policy making by providing transparency on the facts and values at stake. Science must deliver briefs for politicians, and also highlight disagreements on specific topics within society and the scientific community.

1.2. On the temporalities of science and politics

The issues policy makers have to decide upon may differ in terms of time span. In many cases, policy making deals with matters in a long-term perspective, such as decisions about innovation strategies or regulating emerging research fields. Science in general (and technology assessment in particular) is rather well equipped to provide policy advice to decision makers on such long-term issues. But matters also arrive without warning on the political agenda and policy makers are expected to react immediately. This may be due to society or media pressures, or to crisis situations requiring rapid decisions. Policy makers thus need quick and reliable advice, which is quite a challenge for technology assessment as it usually works on a longer-term perspective. For many participants, technology assessment needs to develop and implement innovative tools to meet the short-term needs of policy makers.

Another challenge policy makers have to face when considering science and technology innovation is the timing of their decisions. Should politicians decide in the early stages of science and technology innovation in order to steer it, even though there are many unknown and uncertain elements that need to be clarified? Or should they wait until the technology is more advanced and more evidence about possible consequences is available, with the risk that it may be too late to shape technologies? This is a challenge for both policy makers and Parliamentary Technology Assessment bodies. Nevertheless, in many cases policy makers have to take decisions even if science cannot provide full and comprehensive knowledge. For instance, with regard to the economic crisis, politicians have to document, understand and deal with the on-going crisis, even though there is no evidence about any better way to overcome the crisis. For participants, policy making needs advice from technology assessment or TA-like bodies even in situations where knowledge is incomplete.

Still with regard to temporality, participants noted that it is often a challenge for technology assessment to bring advice to policy makers at the right moment of the policy making process, because governments usually do not communicate about the different stages of legislative development. According to participants, there is a need for a much more open structure of legislative processes and a kind of early warning system for the scientific and technology assessment community (for instance a legislative schedule), enabling policy advice to deliver its outputs at the right moment.

1.3. The need for trust

Parliamentary Technology Assessment was developed some 25 years ago because of problems of trust that

had arisen between science, technology, society and governments. Considering the importance of technology for our societies, participants are aware that we cannot afford this kind of distrust. Parliaments need TA-like policy advice. Not only politics can benefit from TA, but society as a whole.

Creating trust between science, technology, politics and society requires transparency about the processes of knowledge production, about controversies, about uncertainties and about the stakeholders involved. Policy makers are expecting technology assessment to create such transparency on the issues they are dealing with. For TA institutions and other TA-like bodies this implies their being independent of industry and science, as well as of politics. While independence is a key feature of Parliamentary Technology Assessment, achieving it may create dilemmas for TA institutions and TA-like bodies. For instance, technology assessment is based on scientific expertise, but must at the same time be independent of science. How can that be achieved? Distancing itself from politics can also pose dilemmas for TA. How can it respond to the needs and questions of politicians while maintaining a certain distance from politics at the same time? Is it the role of TA to struggle into politics by providing specific recommendations or should TA distance itself more from concrete politics? These are challenges which technology assessment has to constantly reflect on.

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2. Responding to global challenges: the role of Technology Assessment

Knowledge-based policy making is increasingly challenged by the fact that science and technology are moving up to the global, or at least transnational level. For Lars Klüver, Director of the Danish Board of Technology, this trend has to be related to the globalisation of the economy, as technological innovation plays a crucial role in the competitiveness of industries and countries. Moreover, many science- and technology-related issues are of a cross-border nature, such as pollution, climate and resource management. This move towards the global level is challenging for policy making, and for technology assessment. It challenges policy making in that parliaments have to deal with the global dimension of science and technology while having to decide on a national or regional constituency. And it challenges technology assessment in that it has to reflect on new forms of policy advice able to serve policy making on global and cross-border issues. It is part of the PACITA initiative to think and experiment about this, explained Klüver. For instance, PACITA partners will implement three exemplary projects dealing with global issues (Public Health Genomics, the ageing society and sustainable consumption). He also mentioned the «World Wide Views on Global Warming», a large citizens consultation involving 38 countries around the world which took place in 2009. Even though the TA community already started to experiment transnational activities and methods, Klüver is convinced that «there are big challenges we have to talk about».

Ortwin Renn, Professor of Environmental Sociology and Technology Assessment at the University of Stuttgart, shares the opinion that policy making needs to deal with global challenges, which has implications for technology assessment. He sees three major global challenges to deal with. Firstly, the ecological crisis is the consequence of human intervention on the global cycles of the world's biosphere since the 1950s. Climate change, water scarcity and desertification, and biodiversity decrease are all affecting the whole planet. According to Renn, policy making can no longer rely on trial and error. «We need to anticipate, we cannot afford error». This is a fundamental change in the way societies deal with knowledge. «Knowledge-based policy making now needs to anticipate and simulate error in order not to experience it». The globalisation of the economy is a second major challenge for science and technology. Indeed, competitiveness means being faster in technology development and diffusion. Moreover, everything is interconnected in a globalised economy: a change in one area of the economy will have immediate repercussions on other areas, as well as on the social and political areas. In such a rapid and globalised world, there is a need to anticipate the impacts of emerging technologies while things can still be controlled. «TA needs to be there when technologies are emerging. It is too late when the technology is already there». However, TA needs to monitor existing technologies, as the global economy is based on adaptive management and new impacts may thus arise. Moreover, because everything is interconnected in a global economy, TA must adopt an interdisciplinary approach. The third and last challenge Renn mentioned was the transformation of societies. Social cohesion is eroding. The rich get richer and the poor get poorer. Simultaneously, there is an increase in pluralism. As a consequence, technology assessment needs to put a lot of emphasis on the social impact of technological changes and must be more sensitive to plurality of values and to tacit knowledge within societies. Moreover, technology assessment has to think beyond the systematic knowledge that science can provide in order to deliver orientation knowledge about where societies want to go and transformational knowledge about how to go from here to there. Renn is convinced that technology assessment is an appropriate and necessary tool for dealing with these three major challenges of a globalised world because «it provides orientation and instrumental knowledge for emerging issues that rely on scientific knowledge, practical experiences and diverse value judgments».

Following on Renn's statements, **Hans-Josef Fell,** of the German Bundestag, stressed the necessity of considering global challenges in their complexity and taking into consideration their interconnections. For instance, responses to global warming are related to both environmental and economic challenges. Solutions must be found in emissions reduction, energy efficiency and renewable energies, as well as in new economic models. The same is true of the financial crisis in the Eurozone: policy makers should not only address state and bank debts, but other elements intervening in the trade balance such as the dependency of European countries on fossil-based forms of energy. Based on his experience as a politician involved in energy issues, Fell regrets that those interconnections are not taken into consideration. He is expecting technology assessment to support policy makers by looking across the problems.

2.1 Thinking globally, acting locally

Many of the issues discussed by policy makers have global implications or are related to the «grand challenges» discussed at the European level, for instance. But participants stressed that national parliaments must take the local context into consideration, or simply decide on very local or national matters. Climate change, for instance, will be addressed differently across the world, as attitudes towards the environment or the economic situation of countries may differ. Other topics such as ageing society, which many countries are having to deal with, need specific country solutions, related to the national legal system and cultural characteristics. According to one participant «having global challenges doesn't necessarily mean that there is a need for global solutions». This is a dilemma for technology assessment, as developments in science and technology have to be considered in a global approach while the issues for which policy makers need advice are related to the national political agenda. Nevertheless, participants are convinced that Parliamentary Technology Assessment needs to have a global dimension. It helps policy makers to look beyond national borders, which is important not only for deciding on global issues but also on national topics. Moreover, by extensive pan-European collaboration, TA-like bodies may put global challenges into their national political agendas. This means that technology assessment will have to live with this dilemma, and it should be in its essence to combine a global approach to science and technology with an in-depth consideration of the national context and issues at stake.

2.2 Technology Assessment: a chance for Europe?

Whereas participants were mainly concerned with the needs of national parliaments in respect of technology assessment, they recognised the importance for European policy making of also incorporating the kind of knowledge technology assessment can provide. In fact, some global challenges need to be discussed at the European level, and this may increase in the future – even though some participants didn't regard this as a good thing. It is thus important for Europe to be in line with values within the various member states, as it needs to develop coherent and widely supported innovation policies in order to compete with other countries on the global markets and to make its voice heard on the international political scene. Pan-European projects such as those which will be initiated within the PACITA initiative may contribute to knowledge-based policy making at the European level, so that decisions will be based on common values. But TA alone cannot strive for more Europe-wide policies. There is, generally speaking, a need for more inter-parliamentary cooperation.

2.3 All for one, one for all

For small countries where the institutionalisation of technology assessment may encounter structural barriers due to the lack of expertise availability or financial resources, transnational collaboration may offer a pragmatic solution for knowledge-based policy making. Some participants suggested that reports published by TA institutions and TA-like bodies should be more systematically made available to other countries. This could be done by strengthening the EPTA Network and other TA databases. But each country would still have to adapt these reports to its national context. For instance, translating parts of the findings or formulating specific national recommendations appropriate to the needs and situation of the country concerned. Generally speaking, it appeared to the participants that cross-European projects might be good instruments to inform policy makers on scientific and technological developments and their possible impacts, but that national-based activities are more likely to support politicians on concrete policy options.

Global challenges do not necessarily imply a need for global solutions. This is a dilemma for technology assessment, as developments in science and technology have to be considered in a global approach while the issues for which policy makers need advice are related to the national political agenda.

3. Parliamentary TA: lessons learnt and future developments

The aim of the PACITA initiative is to enhance and expand the capacity for knowledge-based policy making. In other words, it is about improving existing Parliamentary Technology Assessment practices so that they better fit the policy making needs of a changing and globalised world. And it is about exploring the paths to establish Parliamentary Technology Assessment in countries where it doesn't exist yet – or exists only in informal settings. According to **Tore Tennøe,** Director of the Norwegian Board of Technology, things are changing in our societies, many of them because of technologies. Internet, Google, Facebook and co. are now shaping the way we live. There are also changes in the technology assessment community: some established TA organisations are going through important institutional changes, others are modifying their work programmes, and new TA initiatives are emerging. According to Tennøe, «we live in exciting times with TA». During the last session of the Parliamentary TA meeting, participants discussed the very basic – but to PACITA essential – questions: Where are we now? Where are we heading?

As an introduction for the following discussion, **Jurgen Ganzevles,** senior researcher at the Rathenau Institute in the Netherlands, presented the current map of Parliamentary TA in Europe, which is the result of the first task of the PACITA initiative. «For newcomers to the TA community and their institutionalisation, it is important to understand in a mutual learning process the dynamics of the existing TA institutions, how they were established, what their links are to parliament, how they select and then conduct their projects and finally how their results reach the politicians». The first remark about the TA landscape in Europe is the rich variety of doing TA in Europe. This means that there is not one unique way of institutionalising and doing TA, but many possibilities related to the national context of a country. Referring to the report of the Technopolis Group , existing TA organisations can be split into three types: the parliamentary committee type (France, Finland, Greece and Italy) mainly based on expert knowledge and, in the case of France, also involving the work of parliamentarians; the parliamentary office type (Germany, UK, Catalonia, Sweden and European Union) with some organisations exclusively involving experts and others involving both experts and stakeholders; and the independent organisation type (Denmark, Switzerland, the Netherlands, Belgium/Flanders, Austria and Norway) integrating experts, stakeholders and society at large in their TA practice. Existing parliamentary TA institutions may also vary in the way they interconnect to parliament, government, science and technology, and society as a whole. According to Ganzevles, technology assessment can be defined as a tool for building relationships between these four spheres. For instance, Parliamentary TA can shift the balance of power between parliament and government, or politicians need to take into consideration societal support in respect of certain technologies. The relationships between those four spheres play a role in the work of Parliamentary TA, and have to be taken into consideration when trying to establish TA in new countries or regions.

Elisabeth Kerschbaum, Member of the Austrian Parliament, explained that the Austrian government recently decided to reinforce the role of technology assessment for Parliament. Together with other speakers, she is convinced of the importance of acquiring a picture of the way TA is running in other countries beforehand. «Most members of parliament are not aware of the possible functions and organisational forms of TA». Her expectation of a TA institution would be to gather information in a form that is easily understandable by politicians and which can be further communicated to the people to whom politicians are accountable. TA should not deliver information for one specific committee in parliament, but to all committees as technological and scientific issues may concern different policy areas (e.g. agriculture, environment, etc.). As a member of the opposition, she also needs to obtain independent information that cannot be suspected of being linked to the government or the parliamentary majority. This implies transparency about who is financing research and who is involved.

Pedro Saraiva, Member of the Portuguese Parliament, considers that very often, policy makers address issues at a very superficial level. «We need a more in-depth view and in-depth discussions, for which TA can be of help». Looking back at the issues addressed in the last two years by the Portuguese Parliament, Saraiva is convinced that many of them could have been handled with proper TA analysis. There are now discussions going on in Portugal about the prospects of building a TA institution. Currently, TA occurs at a very informal level: committees regularly hear the views of experts before making decisions and, from very recently, scientists from a specific field are invited to «science coffee meetings» to present their work to members of parliament.

Joëlle Kapompolé, Member of the Wallonia Parliament in Belgium, has been involved in creating a TA office in her region. She is convinced that «TA is the best way to make better decisions for the next generations». A first tentative move to create a TA Office in Belgium/Wallonia was made in 1994, but it didn't work for various reasons. In 2008, Joëlle Kapompolé proposed a resolution to the Wallonia Parliament demanding the creation of a TA institution, which was unanimously adopted. But since then the process has slowed down and TA has not yet been institutionalised in Wallonia. Current discussions relate to the scope of competency of the new institutions, the question being whether it should only be related to the Wallonia region or also concern the Brussels community. Moreover, two ministries are involved in the creation of such a TA institution, which makes things even more difficult. But this situation is obviously not specific to Wallonia, as many other countries have also experienced delays in the creation of a TA institution. According to Kapompolé, it is worth the effort, because «TA helps to innovate democracy».

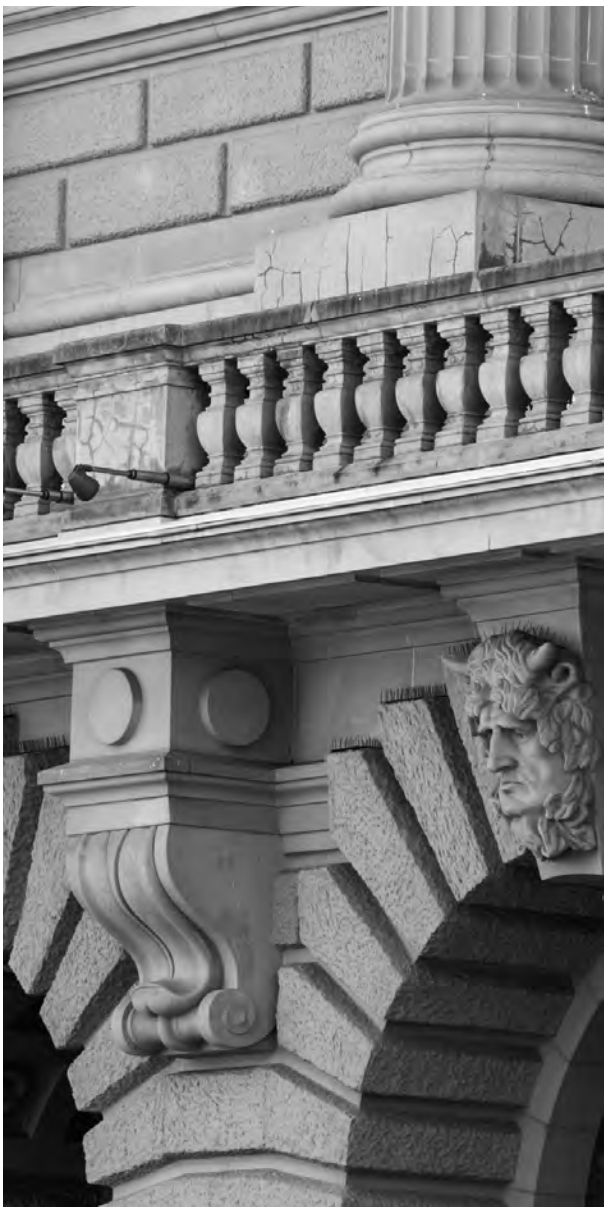
Martin Neumann, Member of the German Bundestag, was unable to attend the meeting but shared his views on technology assessment in writing. He views the activities of the Office of Technology Assessment at the German Bundestag (TAB) as very positive for policy making. He is convinced that «the work of TAB has steadily gained the acceptance of Parliament». However, he pleads for a thorough reflection on how technology assessment should develop in the future. There is a need for an «in-depth assessment of new technologies and developments at an increasingly faster pace, as well as recognising new situations at an early stage and exposing risks and potentials for both society and the economy». He also mentions the need to take into consideration the European and international perspective in scientific policy advice. He thus believes that technology assessment will have to build new structures and modes of cooperation in order to meet these needs. In this context, he suggests promoting synergies between the TA community and the science academies.

3.1 Building on an existing foundation

Participants were challenged to think about the future of technology assessment: «what should be the mission and function of Parliamentary TA for the next 20 years?» they were asked. Historically, Parliamentary Technology Assessment was created to give parliaments greater independence from governments in respect of scientific and technological options. This mission is still current, but the power issue between parliament and government is no longer the main driver for TA institutionalisation. Increasingly, TA acts as a facilitator between science and politics (politics

including parliament and government) and between science and society. Participants are convinced that this trend will continue for the future, with some countries stressing on the parliament-government relationship, and others stressing the parliament-science relationship or the parliament-society relationship.

Participants suggested various missions for Parliamentary Technology Assessment in the future, which could add up to the traditional mission of assessing scientific and technological options. For instance, TA could be considered as a «knowledge broker», bringing to parliaments all the knowledge that is produced in society. TA could also become a «facilitator», in the sense that it would open up the debate with various groups of people and various experts from different domains. Finally, some participants considered that technology assessment should strengthen its links with the scientific community (and especially with the national science academies), so as to facilitate communication between science and politics. Whatever the mission will be, participants agreed that TA should, as in the past, contribute to the innovation and development of democracy, work in the interests of future generations and improve collaboration between science, parliament, government and society.



3.2 Coping with changes in society and politics

Looking back at the past, it appears that TA evolved from a tool for assessing scientific and technological options (e.g. should we ban, limit or authorise a certain technology), into an instrument for providing information about emerging fields in order to advise policy makers on wider scientific and innovation policies. Parliamentary Technology Assessment started from a technology-oriented perspective and evolved to integrate problem-oriented questions. According to the participants, this should continue in the future, because there is a growing need by policy makers to get advice on setting priorities and on research and innovation policies. As one participant stated, «we need problem-oriented studies and systemic approaches». From a methodological point of view, TA should also evolve in order to cope with rapid changes in our societies. While thorough and complete insights on certain topics are still necessary, there is a need to speed up the TA processes for some hot issues. This implies filling the TA method toolbox with new instruments able to provide policy advice at short notice.

3.3 Strengthening TA through institutionalisation

TA-like activities are often performed by existing institutions. In Hungary, for example, the science academies conduct TA-like projects even though this is not at the core of their mission. Many national parliaments are accustomed to inviting experts when addressing

complex scientific or technological issues, but this is mostly done on an ad hoc basis. For the participants, there is a need to institutionalise Parliamentary Technology Assessment in order to define its mission and approach, and to allocate resources. Institutionalisation is also important for building sustainable TA, i.e. technology assessment based on trained personnel, consistent procedures and proven methods.
During the discussions, it appeared that creating a TA institution might not be enough for strengthening knowledge-based policy making. Many existing TA institutions have only limited resources, so that they may not provide policy advice on some important political issues. Some participants suggested that the European Union should establish a law saying that national governments cannot propose a new law to their Parliaments without providing a kind of societal impact assessment.

3.4 Looking beyond technology assessment

The future of technology assessment lies not only in the hands of governments and parliaments, but also depends on the way the technology assessment community reflects on its activities and relationships with other spheres. In fact, technology assessment is seen by many as a closed community. For the participants, TA needs to open up to other communities, e.g. science communication, risk assessment, risk communication and STS communities. Opening up to other communities will feed the TA reflection about its mission, activities and methods, as well as making its approach and value better known.

Moreover, some participants suggested that the term «technology assessment» may not be appropriate to describe what TA offices actually do. Today, TA bodies are undertaking more future-oriented studies and bringing up future strategies for policy makers. Moreover, the wording «technology assessment» may pose some problems from a gender point of view, as women may not feel interested or concerned, even though they are directly affected (as men are).

3.5 Parliament's needs and political context at the forefront

During the discussions, it appeared that the reflections and analysis done within the PACITA initiative give important insights on the present and future of Parliamentary Technology Assessment, but from the perspective of people who are doing TA. The needs of policy makers have to be more systematically incorporated, and especially what has been discussed at the Parliamentary TA Meeting. This is particularly important when looking at options for establishing new capacities in terms of knowledge-based policy making. For those countries where discussions about the institutionalisation of Parliamentary Technology Assessment are under way, trying to «import» one or another TA model may lead to failure. Options should stem from the specific national political system at large, taking into consideration the characteristics of the relationships between science, society and politics in the country concerned and the resulting needs of parliament with respect to policy making on science and technological innovation.

TA evolved from a tool for assessing scientific and technological options (e.g. should we ban, limit or authorise a certain technology), into an instrument for providing information about emerging fields in order to advise policy makers on wider scientific and innovation policies.

4. Conclusions for a Technology Assessment 2.0

Summing up the discussions, **Lars Klüver,** Director of the Danish Board of Technology and coordinator of the PACITA project, stressed the importance of thinking about the role of Parliamentary Technology Assessment. Our world is evolving, and this has to be integrated into the TA mission. Like other speakers, he noted that society is facing many strong interconnected challenges, referred in the EU vocabulary as «grand challenges». These are complex, and characterised by many uncertainties. And the knowledge that is needed to solve them is often contested (science contests science). There is a plurality of values and opinions about these challenges, leading to strong disagreements within society and power games between various interest groups.

In addition to that, challenges are connected to the global level. But for Klüver, although countries face common and global problems, there is no common system for solving them in a uniform way. Moreover, there is no global public that can discuss these challenges. One important issue technology assessment therefore has to reflect on is how to advise on policy at the global level. As some speakers and participants pointed out, the role of TA could be to link national parliaments with the global level, in delivering to national policy making insights on what is going on in other countries or at the global level. According to Klüver, this messenger function of TA requires coordination and structures. Who should do what and how it should be done are still open questions that need to be further discussed within the PACITA project and other platforms such as the EPTA network.

Klüver referred to many other issues for the technology assessment community and TA organisations to think about. The link of TA to parliaments is crucial, for instance: how to deliver products suited to the needs of policy makers, what is a good distance to keep from parliaments? These are long-standing questions and discussions that are still current and need constant reflection. Timeliness is another important issue for technology assessment to think about: how to reconcile the short-term perspective of politics with the longer-term perspective of TA, what is the right moment to provide scientific advice on science and technological issues? And, finally, is the term «Technology Assessment» appropriate to describe what TA is now and will be in the future?

Many questions for the PTA community to think about … and also for policy makers who are defining the mission and mandate of technology assessment in their country. However, Klüver stated, the call for knowledge-based decision-making and technology assessment has been clear today, as has the call for international engagement and collaboration. If we combine those calls then it seems obvious that we need technology assessment to be established in every nation. Which is the ultimate aim of the PACITA project.

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WHAT'S THE CONNECTION?

PACITA

Connecting Society and Technology

Our ways with technology have changed enormously since we used a pencil to rewind our favorite music tape. Today, the intensity and complexity of technological change challenges both individuals and societies. How can we best connect society and technology in the future?

Making informed decisions on what technological pathway to follow has never been more important. Political decisions we make on technology today will affect the social, moral and ecological dimensions of society tomorrow. As the number of lobbyists and interest groups grow, parliamentarians across Europe urgently need unbiased and balanced advice on the technological challenges ahead.

The PACITA initiative is a response to this challenge.

PACITA is a pan-European initiative that seeks to optimize our capacity to use technology in society. We put large emphasis on involving science, civil society, public and private sector in this process, ensuring that the advice given is informed and legitimate. We seek to help countries interested in becoming part of a European and global network of technology assessment institutions.

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