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The Future Panel on Public Health Genomics – Lessons Learned and Future Perspectives

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Abstract: Krom et al. give an in-depth account of a methodological experiment carried out in the PACITA project, namely the application in a cross-European context of the Future Panel method. Focusing on the complex issue of genomics and its potential use in public health care, parliamentarians from different countries were gathered to learn about and debate this far-reaching field of research in order to create a foundation for proactive policy formulation. The authors analyse and evaluate the project setup and argue that while further development and institutional is necessary to make similar future projects reach their full potential, the project nevertheless exemplifies the practicability and value of applying previously nationally contained TA methods in a cross-European setting.

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Technology constantly pushes the bounds of what medical care can achieve and at what cost. Although medical care is a highly expert-driven field, parliamentarians and government decision makers nevertheless become involved in shaping medical innovation through funding decisions and framework regulations. If such interventions are to be both legitimate and effective, they must be made on the basis both of sound evidence and of open dialogue regarding possible pathways. Designing processes to ensure such quality in policy making is a key example of the role that technology assessment (TA) institutions can play as mediators between science and policy. To exemplify this role to European policy makers, PACITA carried out an experiment in cross-national policy dialogue on Public Health Genomics (PHG).

PHG is often understood as the responsible and effective translation of genome-based information and technologies (GBITs) into health-care practices. It is regarded as a central future perspective for the medical system. According to some experts, PHG will make health care truly personalized, predictive, preventive and participatory. However, there is still a high degree of scientific uncertainty about what PHG can actually deliver. There are also far-reaching ethical, legal and socioeconomic questions related to GBITs. Therefore, an in-depth societal and political debate on PHG is of fundamental importance for the future health-care system.

TA has already played an important role in the public and political discourse in many countries, by systematically collecting inter- and trans-disciplinary knowledge and by stimulating and organizing debate between different stakeholders. Given the rapid scientific progress and many challenges for policy making in the foreseeable future connected to PHG, an expert-based methodology – the Future Panel – was chosen. The central idea behind the Future Panel method is to connect the scientific and the political discourse in a new and constructive way. In general, the method is well suited to far-reaching topics that require central political initiatives and action and where there is a desire to act proactively. The method had originally been developed and applied in a national context. In this project, the Future Panel (FP) was formed by parliamentarians from different European member states and the European Parliament with a specific responsibility for health policy. This was a methodological experiment because the FP method had to be adapted to a cross-national context.

As an *example* project, the FP on PHG succeeded in contributing to the central aim of PACITA – to induce mutual learning on setting

up support platforms for knowledge-based decision making among the European countries involved. The project also managed to provide relevant input for policies on Public Health Genomics in terms of an overview of state of affairs and policy options. Developments in PHG hold the promise to be beneficial for individuals and to promote public health. However, given a range of uncertainties and ambiguities related to GBITs, the responsible introduction of GBITs in health-care systems requires an incremental approach.

As a methodological *experiment*, the project did not meet all of its objectives, including the aim to connect the scientific and political discourse on Public Health Genomics in a new and constructive way. Due to the complexity of the topic and the specific restriction of time and resources, detailed discussions of options for policy intervention and regulation of existing practices and regulatory stipulations for different fields of application were not possible. Through its broad approach, however, the project and its documented outcomes are useful to raise sensitivities for problems to be expected and thus can serve as a starting point for a more detailed evaluation of single GBIT applications and health-care practices on the European level and the national level.

Background

The aims of the demonstration project were to provide a concrete and policy-relevant example on EU-level coordinated parliamentary TA by:

- ▶ giving input to policy making on policies on Public Health Genomics, in terms of an overview of state of affairs and policy options;¹
- ▶ establishing a national/regional-level and EU-level experience with a coordinated expert-based TA method that involves parliamentarians;
- ▶ doing this in cooperation with decision makers on the national/regional level and the EU-level, in order to create experience on, and thereby mobilization around, the use of such methods among the main users;
- ▶ doing this in cooperation with the scientific community on Public Health Genomics in order to create learning and mobilization on the potential of expert-based policy making facilitated by TA specialists; and

- ▶ involving countries that have not established such institutions and methods directly in their work, in order to build capacity, create learning and mobilize the actors.

The idea of installing a panel of parliamentarians to discuss long-term political issues related to developments in science and technology was not new. An example of an earlier and comparable initiative is the Finish Committee for the Future. Based on parliamentary proposals going back to 1986, a Committee for the Future was appointed in 1993 on a temporary basis. In the year 2000, the Committee received permanent status.² Building on the Finish experience, the Danish Board of Technology developed the Future Panel method. This method involves a temporary panel, typically for a period of 1½–2 years, the activities of which revolve around intensive collaboration between the Future Panel and invited experts from relevant practices related to the topic at hand.

Like the Danish Future Panel method, the PACITA Future Panel involved a temporary panel of parliamentarians and the collaboration of the Future Panel and invited experts. Important differences were that the project on Public Health Genomics involved a *cross-national* Future Panel, that the interaction between the Future Panel and the invited experts was less extensive and that there was *no institutional link* between the project and the respective parliaments of the FP members: they were invited as individual members of parliament. This meant that the method had to be adapted for use in a cross-national context. In a sense, then, the ‘Future Panel on Public Health Genomics’ was a methodological experiment.

The Future Panel project: process, participants and outcomes

The Future Panel project on Public Health Genomics consisted of three stages. In the first stage, the precise scope of the project was defined during a kick-off meeting that involved the Future Panel, which resulted in a list of policy issues that were identified as most relevant for further investigation. During the second and main stage of the project, which took a full year, policy issues and options for public health genomics were discussed and elaborated in different expert working groups (EWGs) and in a policy options workshop. The final stage was a Policy

Hearing in which the Future Panel discussed the main outcomes of the project with invited experts.

The main target group of the project was the Future Panel, consisting of parliamentarians with a specific responsibility for health policy. The panel had four members, who represented different parties in the political spectrum, including one member of the European Parliament and three members of national parliaments (Denmark, Portugal and Switzerland). The main role of the FP was to co-define a research and policy agenda at the start of the project and to discuss, during the final Policy Hearing, the issues and options articulated by a range of experts on different aspects of PHG who were involved in the course of the project.

The project was carried out by a *task team* of TA practitioners from the four countries involved in the PACITA consortium.³ As in all subprojects of PACITA, partners were from both countries with and countries without established institutes for (parliamentary) technology assessment (see Table 6.1). A group of five external experts on different aspects of public health genomics was involved as a *steering group* to assure the high quality of all project activities. Four international *expert working groups* were responsible for the investigation and articulation of policy issues and options for public health genomics in a year-long process of collaboration with the task team and the expert steering group.

Stage 1: defining an evidence-based policy agenda

As an expert-based methodology, the Future Panel on Public Health Genomics was based on the assumption that policies relating to future developments in this field should be evidence based. ‘Evidence’ should be taken in a broad sense here: the issues raised by the introduction of genome-based information and technologies in future health care involve not only complex scientific questions but also a history of controversial ethical, social and legal debate concerning highly sensitive areas of medical care, such as prenatal diagnosis and genetic screening. Four international EWGs were composed of experts on precisely these issues. The Future Panel had a pivotal role at the start of the project in identifying the issues that would require further research, deliberation and political action: to ensure the political relevance of the expert-based analysis and policy options to be deliberated in the final policy hearing. During the kick-off meeting of the project, these issues were defined in a discussion with the steering group and task team, resulting in a research

and policy agenda that raised questions that could serve as input for the ensuing investigations in the four expert working groups.

Stage 2: Exploring the field

With this research and policy agenda as a starting point, the evidence produced by the expert working groups during the second stage of the project covered not only technical state-of-the-art scientific knowledge but also a broad range of other relevant issues raised by developments in the field of public health genomics. The task of the working groups was to produce twenty-page reviews of: (1) the state of human genome research and its prospects for future medical applications in public health genomics; (2) issues of quality assessment relating to the clinical validity and utility of genome-based medical applications and practical experience in public health genomics; (3) the possible economic and structural effects of public health genomics on the public health system; and (4) the ethical, social and legal aspects of public health genomics. In reviewing these different topics, the expert working groups not only engaged themselves with the Future Panel policy agenda in more or less direct ways but also *reframed* this agenda by putting the issues in a broader context of current and potential future developments and challenges in the field of public health genomics. Based on this review, the role of the EWGs further included the articulation of policy options suggesting different ways in which policy makers might deal with the issues raised by future prospects in public health genomics.⁴

The efforts of the expert working groups were coordinated by the task team members, who also had the responsibility to summarize the four working group reports in an expert paper that described in a concise and accessible way the challenges and policy issues that were identified by the experts as most salient and urgent.⁵ The expert paper was the central input for the policy options workshop.

The policy options workshop brought together experts from the four working groups and members of the expert steering group and task team, allowing the project participants to further increase the focus of their main findings and to ‘translate’ into policy options the rather divergent perspectives on public health genomics represented in the project. The results were integrated in a policy brief that served as the main input for the concluding policy hearing.⁶

TABLE 6.1 *Items highlighted in Policy Brief on Public Health Genomics*

<i>Issues related to medical genomics research</i>
Data sharing and intellectual property
'Big data' security and privacy
Quality assessment
<i>From research to clinical practice</i>
What to screen for and when
Patients' rights and professional responsibilities
Informed consent and service provision
<i>Governance in public health genomics</i>
Need for an incremental and programmatic approach

Stage 3: a new policy agenda?

During the final policy hearing, the Future Panel again played a pivotal role. The hearing was organized as a public meeting in which the Future Panel had the opportunity to discuss with three panels of experts the main items highlighted in the policy brief (see Table 6.1). The aim of the policy hearing was to provide more fine-grained clarifications and suggestions related to the policy questions and issues that were formulated by the FP members at the start of the project. In this way, the FP members would gain a better understanding of the issues involved. Providing information that takes into account the different views on public health genomics would support the FP members in their work in parliament.

The Future Panel as a TA demonstration project – main achievements and implications

As a TA demonstration project, the Future Panel on Public Health Genomics did quite well. To start with, it successfully contributed to the central aim of PACITA, which is to induce mutual learning in support of the establishment of platforms for knowledge-based decision making among the involved European countries (in this case Germany, Lithuania, Portugal and the Netherlands). One example of this has already been mentioned, namely the fact that at the start of the project none of the task team partners had prior experience with the Future Panel method. Over the course of the project, all partners gained experience not only in

actually applying the method but also in adapting the method and applying it in an entirely new context: a clear example of *mutual* learning. Another example is the fact that the Portuguese partner Instituto de Tecnologia Quimica e Biologica (ITQB), who got involved in PACITA as a so-called non-PTA country, is now a participant in another TA project that relate to public health genomics, focusing on the 'genetics clinic of the future'.

The project also provided relevant input for policies on public health genomics in terms of an overview of the state of affairs and policy options. It succeeded in involving a broad range of European genomics experts as members of the Working Groups. For instance, interim results of the project have been presented during a satellite meeting of the 2013 conference of the European Society for Human Genetics.⁷ Policy makers and practitioners from the countries that were involved were provided with the best available expert knowledge on GBITs and could gain practical experience with TA as a practice of democratic and transparent knowledge-based policy consulting. The complete interactive exercise of Expert Working Groups, Policy Options Workshop and stakeholder consultation support the notion that developments in public health genomics hold the promise to be beneficial for individuals and to promote public health. However, a crucial insight from this process is also that, given a range of uncertainties and ambiguities, the responsible introduction of GBITs in health-care systems requires a careful step-by-step approach that involves a broad societal and political debate about the direction in which health-care systems should develop.

The Future Panel process highlighted two major shifts connected to developments in public health genomics that challenge traditional boundaries in health care. First, the introduction of GBIT in health-care systems challenges the boundary between research and clinical care. It entails complex data flows that raise a number of issues relating to infrastructure demands, intellectual property, data security, tensions between the needs of research and the needs of the individual, patient rights and professional responsibilities, and the potential feedback of (re) analysed data. Second, the introduction of GBIT in health-care systems challenges the boundary between clinical care (particularly diagnostics) and screening. Both diagnostics and screening generate potentially large amounts of information about an individual's genome and raise new and challenging issues concerning quality assessment and how to deal with unsolicited information that might result from these tests. These issues could arise in a variety of health-care settings as whole genome

sequencing tests find further application in established and new practices of screening. Consequently, the responsible introduction of GBITs in the health-care system requires an early dialogue in which these stakeholders are actively involved.

The ambition of the project was to deal with the full scope of possible future applications of GBITs, such as pre-implantation and prenatal genetic diagnostics, new-born and adult screening programmes, and whole genome sequencing for general medical services. This broad scope was indispensable for an evidence-based evaluation of the pros and cons. The timespan of the project, however, did not allow for detailed discussions of options for policy intervention and regulation or of existing practices and regulatory stipulations for each of the fields of application. Also, a more in-depth analysis of the state of practice in the different countries involved was not possible. Through its broad approach, however, the project has helped to increase stakeholders' sensitivity to foreseeable problems and thus can serve as a starting point for more detailed evaluations of single applications of GBITs and health-care practices on the European level as well as on the national level.

The Future Panel on PHG as a methodological experiment

Up until the PACITA project, the Future Panel method had been used twice by the Danish Board of Technology (DBT).⁸ Methodologically, there were clear similarities between the design of the 'original' Future Panel (OFP) as developed by the DBT and the PACITA Future Panel (PFP). Both the OFP and the PFP lasted approximately 1½ to 2 years and started with an introductory seminar in which the Steering Group and Future Panel met for the first time to jointly determine the focus of the project. Like the OFP, the PFP aimed to gather existing knowledge on the central theme in connection with debate and assessment, to create an overview and elucidate the political tasks connected to the theme. Again, like the OFP, the PFP relied heavily on the input of experts to feed into the policy-making process.

However, there were also important differences between the original Future Panel and the PACITA variant. For the purposes of this chapter, we will mention five of them that contributed to the project being a methodological experiment.⁹

- ▶ First, while the OFP was developed for and applied in a national context, the PFP involved adjusting this method to and applying it in a cross-national context. It was in this cross-national context that the TA demonstration had to contribute to the broader aims of PACITA: by establishing a national/regional-level and EU-level experience with a coordinated expert-based TA method that involved parliamentarians; by doing this in cooperation with decision makers on the national/regional level and the EU-level, in order to create experience on, and mobilization around, the use of such methods among the main users; by doing this in cooperation with the scientific community on public health genomics in order to create learning and mobilization on the potential of expert-based policy making facilitated by TA specialists; and by involving countries that have not established such institutions and methods directly in their work, in order to build capacity, create learning and mobilize the actors.
- ▶ A second important difference between the OFP and PFP was that in the OFP panel members were *appointed* by parliament, thereby forging a strong institutional link between parliament and the project. In the PFP, on the other hand, individual members of parliament were invited by the PACITA consortium. In other words, in the OFP, there was no institutional link between the respective parliaments of the Future Panel members and the project.
- ▶ As a result, and this is the third important difference, the work done by the PFP worked at a greater distance from actual political committee work compared to the OFP. Typically, work done by the OFP can be regarded as provisional political committee work.
- ▶ Fourth, the OFP and the PFP differed with regard to the political representation in the Future Panel, both with regard to the political spectrum and the parliamentary committees involved. In the OFP, all political parties were represented, as well as a wide range of political committees. This was not the case in the PFP. There was some political diversity, but not all political parties (from all participating countries) were involved. In addition, members of the PFP were all connected to a parliamentary committee with a special responsibility for health-care policy.¹⁰
- ▶ Finally, there was an important difference between the OFP and the PFP concerning the number of public hearings that were

organized as part of the project. Whereas the OFP typically involved four public hearings, the PFP involved one public hearing, complemented by the possibility of consulting the FP members on an ad hoc basis.

Lessons learned and future perspectives

Based on our experiences with the project, we will now present a number of lessons learned about the Future Panel method as a model for evidence-based and anticipatory TA in a broad international context. With these lessons, we would like to address first of all policy makers and civil servants wanting to support cross-European TA.

Lesson 1: Establish a connection with parliaments and/or ministries, in addition to their respective individual members

Contrary to the standard model, Future Panel members in the project on public health genomics were not appointed by parliament(s) but invited by the PACITA consortium. More specifically, the members were (primarily) invited as individual members of parliament based on their particular individual expertise. In addition, the experimental character of the project entailed that the project activities were not directly tied to an explicit mission by a policy-making body. This meant that the work of the Future Panel and the expert working groups started at a greater distance from parliament compared to the standard model. One of the positive outcomes of doing cross-European TA is to provide an opportunity to debate specific issues which are not on the front line of national political discourses but which are in need of urgent consideration and reflection in a European context. As noted, the members of the Future Panel indicated that a possible action following the final policy hearing would be to present the issues discussed in their respective parliaments. Thus, the function of establishing more direct links to national parliaments would be to attain a more clear ‘mandate’ to offer policy options – not to individual members of different parliaments only, but to their respective parliaments as well.

Parliaments may have less policy-making power in some countries than they do in other countries. Moreover, experience with evidence-based policy making may be concentrated not in parliament, but in the government or the ministries. If the aim of a project is to promote and

to mobilize experience with evidence-based policy making on a certain topic, then at least with regard to these countries, we would recommend not to focus exclusively on parliamentarians but to invite policy makers from the government and/or ministries as well.

Lesson 2: Establishing a solid evidence base for policy making requires an iterative process that involves direct contact between all actors directly involved in the project

By organizing multiple public hearings, the standard model automatically allows for an iterative process that involves direct communication between the Future Panel and the experts, and between the Future Panel and the steering group. At the start of the PACITA Future Panel, it was indicated that the panel could be consulted during the process on an ad hoc basis. Such consultation was done once, allowing the steering group and the expert working groups to receive feedback on the draft reports of EWGs 1 and 2. However, organizing the contact in this ad hoc way meant that this round of consultation was positioned as something extra, not as an integral part of the process. Moreover, apart from the concluding policy hearing, communication between the FP and the experts in the PACITA project was always mediated by members of the task team. As a result, the project allowed for relatively few opportunities to check whether there was an adequate match between the policy issues and questions raised by the Future Panel, on the one hand, and the findings from the expert working groups, the expert paper and the policy brief, on the other.

Explicitly building an iterative process into the project design would also increase the possibilities to map and to manage mutual expectations. For instance, feedback from the Future Panel after the policy hearing made clear that some members would have expected more practical answers to the questions and issues that the panel formulated at the start of the project. On the other hand, evaluation of the expert working groups showed that not having a clear mandate to offer policy-making solutions raised questions pertaining to the role of the EWG's and may have affected the motivation of individual EWG members to articulate and reflect on particular policy options.

We highly recommend, therefore, to include in the project design of the Future Panel method, an iterative process that involves direct contact between all involved in the project: (1) between the Future Panel and the experts involved; (2) between the Future Panel and the steering

group; (3) between the members of the Future Panel; and (4) between the experts from the different expert working groups. Especially in the context of cross-European TA, this will require considerably more time and a larger budget than was available for the PACITA demonstration project.

Lesson 3: Different experience of EU countries with evidence-based policy making are a challenge.

An important aspect of the project 'Future Panel on Public Health Genomics' was cooperation between PTA and non-PTA countries. One respect in which these countries may differ is in terms of the extent to which they have experience with evidence-based policy making. In Lithuania, for example, which is one of the non-PTA partners, links between policy making, on the one hand, and the scientific community or society, on the other hand, are weak. This presents a challenge in general but particularly with respect to long-term policy making on relatively advanced technologies, such as GBITs in health care. Part of that challenge is that some of the non-PTA countries struggle with a lack of basic research and clinical capacities at medical facilities. There may be a clear need in this respect for mutual learning on evidence-based policy making. But it also presents quite a challenge for attaining a clear focus of the policy debate when a participating country is struggling to cover basic needs that need to be met in the short term while the TA debate is focused on long-term visionary goals that involve high-tech such as GBITs. One of the main challenges is the capacity to translate the outcomes of cross-European TA at the national level, taking into account the differences in health-care systems in Europe, technological developments, and financial investments being made into research.

One way of meeting that challenge would be to discuss the potential introduction of GBITs in the context of the sustainability of a diversity of health-care systems in different countries. In other words, for a more relevant and significant impact, cross-European TA should have a clear aim of having a European, national and local integration of results. In the case of the Future Panel on Public Health Genomics, it would thus have been important for small studies to be produced, where the main conclusions of the activity would be analysed considering different national contexts. This would allow the possibility of integrating global and local perspectives, highlighting the main issues of concern, including issues of consensus as well as issues of dissidence. However, this was

not defined as part of the activity, and therefore, there was no time and budget allocated to it.

Lesson 4: Concerning the role of TA experts, maintain a constructive balance between the role as secretariat and the capacity needed to function as TA specialists

One of the aims of the project was to create learning and mobilization on the potential of expert-based policy making facilitated by TA specialists. In this context, cross-European TA provides unique opportunities to support the development of a collaborative framework between countries with a long experience in doing TA and countries currently initiating TA activities. In practice, however, and mainly due to time and budget constraints, the TA experts involved in the PACITA Future Panel project had to function predominantly as the secretariat of the project. This left insufficient time to properly exchange experiences and expertise between the PTA and non-PTA partners when bringing together the rich and diverse results from the expert working groups in a systematic, constructive and policy-relevant way. One of the ways in which this could be countered would be to more directly involve experienced TA experts from PTA countries in the EWG activities that were led by the non-PTA countries. The fourth lesson learned from the Future Panel on Public Health Genomics, then, is that concerning the role of TA experts, a constructive balance must be maintained between the role as secretariat and the capacity needed to properly function as TA specialists. This lesson also underlines the crucial importance of TA capacity building in non-PTA countries.

Notes

- 1 These were the aims of the project as specified beforehand (the ‘theory’). At several points, there were (small) differences between theory and practice. See A. Krom and D. Stemerding (2014).
- 2 See <http://web.eduskunta.fi/Resource.phx/parliament/committees/future.htx?lng=en>.
- 3 Not long after the start of the project work package (WP), leader IST (Institute Society and Technology) from Belgium was discontinued. The Rathenau Instituut, not previously involved in this WP, took over the role of WP leader.
- 4 See Expert Working Groups on Public Health Genomics (2013).

- 5 See D. Stermerding and A. Krom (eds) (2013).
- 6 See D. Stermerding and A. Krom (2014).
- 7 'Why should policy-makers care about public health genomics? Towards a policy agenda' (Paris, 9 June), <https://www.eshg.org/satmeetings2013.o.html>.
- 8 In the year 2000, the method was used in a project on the ageing population and in 2005 in a project on Denmark's future energy system. See e.g. Hennen et al. (2004).
- 9 For a more elaborate comparison, see A. Krom and D. Stermerding (2014).
- 10 Early on in the project the relative low number of Future Panel members was identified as a potential risk to the project. Subsequently, extensive attempts were made to further expand the panel.



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The Future of Ageing – Stakeholder Involvement on the Future of Care

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Abstract: *Barland et al. describe an example project showcasing the strengths of technology assessment methodology in structuring stakeholder dialogues in a cross-European context. The authors provide an in-depth account of the method design choices made and their underlying rationale. Beyond the buzzword, well-structured and transparent stakeholder dialogue can help to balance difficult issues of policy priority – in this case by balancing the contributions of technological innovation against social reorganization as a means of securing sustainable future health-care service for senior citizens. The article shows the added value of multi-site dialogues based in national debates but linked to the European policy development process.*

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Figuring out how we can cope with ageing societies is one of the grand challenges identified in the Lund Declaration. The demographic composition of the world is changing, and projections show that in the next 35 years the number of people over 60 years will double, while those aged 80 or older will quadruple. At the same time, the available workforce in the care sector will decrease to a point where the need for care will surpass the available resources. This development challenges existing health-care systems in Europe, and in order to have a sustainable system in the future, one needs to rethink policies related to health care.

The European Commission's 'Digital Agenda for Europe' pointed to technology as part of the solution for addressing the challenges raised by ageing society. The strategy states that new information and communication technology (ICT) capabilities could support ageing citizens, revolutionize health care and provide better public service. But barring the way to any easy technological fix are critical issues, which must be tackled to ensure a sustainable health-care system. Technology will likely be an integral part of such a system, but there will also be a need for substantial social and organizational change to reorganize health-care services in Europe.

To illustrate the value of stakeholder dialogues structured through TA methodology, PACITA organized a cross-European assessment experiment aimed at investigating how technological innovation along with social reorganization could contribute to creating sustainable health-care services for European seniors in the different societal situations of member states.

The project's goal was twofold: (1) to identify opportunities, challenges and barriers as well as policy options for the use of technology in the health-care sector and (2) to train and exchange knowledge on the method of scenario workshops among the project partners and, hence, to increase the national knowledge base for policy making. The result of the project was a series of policy options and recommendations.

Framing the issue of technology and policy in Europe

How or if technology is implemented in the care sector varies greatly among the European countries represented in PACITA,¹ alongside a varied approach from policy makers. In order to map the terrain, the first tasks of the PACITA project on ageing societies were therefore to produce a policy status overview (Fitzgerald, 2014), presenting and comparing the different strategies put forward by policy makers in

country. In the same way, a technology overview (Meidert and Becker, 2013) was made in order to map the technologies that are used in the European care sector today and to anticipate which technologies may play a role in the future of (health) care for senior citizens.

The technology overview showed that a variety of devices and technology are used in European health-care services today. However, implementation varies from country to country, and the range of technologies is increasing as their market potential is increasingly recognized by developers and investors. Most of the technology, which has already been implemented, belongs to what we may call 'first-generation telecare', such as alarm buttons and sensors. Some countries have already started using more complex technology, which includes the measurement of vital signs or two-way digital communication between patient and doctor to reduce the need for home visits or hospital appointments.

The variation of technologies is reflected at the policy level. Although all countries are facing the same challenges, they respond in quite different ways. Analysis of policy documents from the different countries involved in PACITA shows that the use of technology in care is starting to be recognized in some countries. However, there are large national differences in the way that it is interpreted as well as the perceived level of urgency in designing, addressing and implementing such policies. The analysis of policy documents also shows that there are a number of definitions used to describe telecare and home-based telemedicine. The differences are not only between countries but also within countries – for example, between official governmental reports and national stakeholders.

Technological developments are always difficult to predict, but the technology overview highlights some trends that probably will influence the distribution and implementation of technology in the health-care sector. Among these trends are smartphone and mobile solutions that would enable easier data collection and communication. Together with an increasing use of monitoring devices, digital assistants and a wide selection of apps, mobile health may become a reality in the near future. Data collection and big data analysis will increase and can be used for prediction and preventive work.

Just as important as technological development is the development of regional, national and European policies that address the various ways in which technologies could be integrated in health-care systems. Whether health authorities choose to encourage implementation or to stay passive will strongly affect future use. Private actors and industry will also play

an important role as the potential of a flourishing market for health-care technology will affect policy making all over Europe. One of the overall conclusions reached in this mapping exercise is thus that long-term policies and strategies will be necessary in order to implement technology in a productive and responsible way.

Engaging stakeholders in policy discussions

There will always be actors that are affected positively or negatively by research, technological development and policy decisions. But often, actors that have a stake in the issues are not automatically consulted or included in the decision-making process, even though they are the ones that will live with the consequences of these decisions. This produces a risk that inappropriate technology may be developed or ineffective policy implemented. In order to avoid this situation, the PACITA project on ageing societies aimed at involving a diverse group of stakeholders to open the discussion to a variety of voices, different kinds of knowledge, perspectives, values and dilemmas.

The underlying argument that supports stakeholder involvement is that it can lead to better-informed policy decisions and more critical discussions about the topic at hand. Typical policy consultations often involve homogenous groups of experts that think along the same lines. Such homogeneity of opinion can weaken the democratic aspect of policy making because the discussion often will evolve around a limited view of the topic. Involving a broader and more balanced spectrum of actors makes the process more diverse and enables the creation of more multi-dimensional and resilient solutions. Additionally, when the concerned actors are included in the process, it can lead to an easier implementation of policy decisions as the involvement facilitates a stronger ownership of the decision-making process among the stakeholders, therefore allowing more robust decisions to be made.

A broadly recruited, heterogeneous group of stakeholders will have very different backgrounds and experiences with a given topic. We therefore developed future-oriented scenarios to give the stakeholders a common starting point for discussion. Using the scenario workshop method, the stakeholders engaged in forward-looking discussions and identified policy options on a given topic. The purpose of the scenarios is to make the participants more conscious of future developments and

choices related to technology in society and to inspire critical reflection. Through such discussions, stakeholders may contribute to the development and identification of new visions and policy options based on their first-hand experience with the topic at hand.

Creating scenarios for the future of ageing and new technology

Society and policy makers are faced with many collective choices, and the latter need to handle sometimes conflicting priorities when developing their policies. The outcome and the implications of their choices may be difficult to anticipate. Our scenarios on ageing did not try to predict the future and did not purport to encompass all aspects of a possible future. Instead, they presented sharply distinct alternative futures that one might expect to arise from discrete policy choices, highlighting the challenges, dilemmas and conflicts that could occur in order to spur discussion.

It is a challenge to write up scenarios that are considered relevant for a broad group of countries and regions because of how diverse the reality of health-care systems and use of technology are. Immigration, distribution of technology and digital literacy are generally perceived

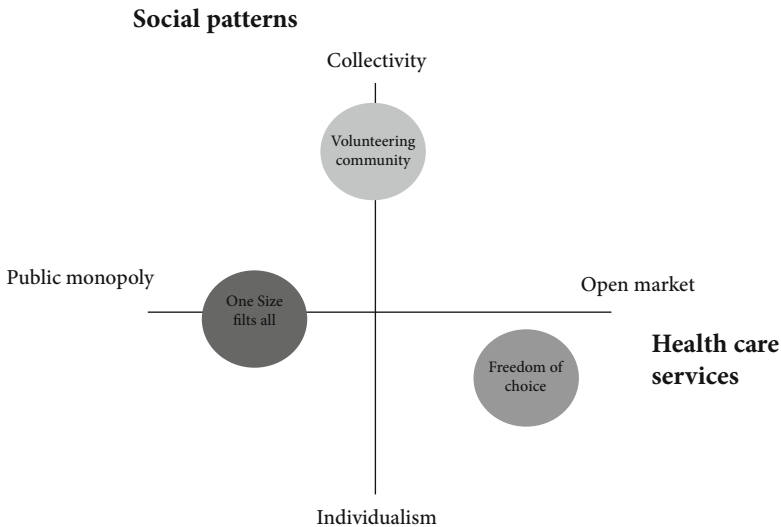


FIGURE 7.1 *The PACITA scenarios for the future of ageing*

TABLE 7.1 *Content of scenarios on the future of ageing*

The PACITA scenarios on the future of ageing

One size fits all is based on the assumption of lack of labour in the future, and it describes a large-scale governmental initiative that uses technologies to make people more self-reliant. Everyone in need of care is offered a standard ‘care kit’ that consists of different assistive technologies. Seniors are encouraged to live at home as long as possible.

Freedom of choice is based on a new political system where incentives for care go directly to the user. This scenario furthermore describes a society where you can buy a great variety of health-care services and technology from the open market. Everyone in need of care is entitled to incentives and financial support depending on their individual health condition.

Volunteering community is based on utilizing volunteers as the key resource for the community and for each other. This community could include the senior citizens themselves, their relatives, organizations, neighbours, school kids and so on. The authorities’ main responsibility is to mobilize the coordination of the volunteers.

very differently in different countries. Therefore, instead of dealing with concrete technological solutions, we structured ours along two axes of ‘social patterns’ and ‘organization of health-care services.’ This more generic approach ensured that all countries could recognize parts of their own reality, but at the same time the scenarios told stories that stirred debate among the stakeholders.

The three scenarios, ‘One size fits all’, ‘Freedom of choice’ and ‘Volunteering community’ describe futures where health-care services are organized and financed in different ways and where health-care service may be affected by increased government control, a stronger private sector or a better organized volunteer community.

Designing national scenario workshops

The main activity in the PACITA project on ageing was ten national scenario workshops organized by the project partners. They all followed the same method:² critiquing, discussing and giving feedback on the three scenarios, and in the end formulating visions and recommendations for policy makers. The participants at the workshops were broad groups of stakeholders from academia, the health-care sector, policy makers, public administration, industry and senior organizations.

The results from the workshops were collected in national reports that describe the response to the scenarios and the future recommendations.³

While all countries agreed that there is potential in using technology in the health-care sector, several differences became obvious when it came to describing possible barriers and challenges related to implementation and use. These national peculiarities reflected cultural and social aspects in the respective countries and regions and also reflected to what degree the debate about technology and ageing had been prominent or not. In this way, the differences across countries reflected different values and worldviews with regard to the use of technology in health care and social innovations. In many countries, there were no established arenas beforehand where stakeholders could come together and discuss current and future policy developments. In this way, our experiment was very successful in terms of facilitating dialogue and knowledge exchange between stakeholders that were otherwise unconnected.

Recommendations for future sustainable health-care services

The policy report is structured by five policy issues that were recognized as particularly important at the national workshops, with related policy options and recommendations (summarized in Table 7.2 below).

Technology is considered an important element in future health care by many actors, such as the EU and national or regional authorities all over Europe. The stakeholders involved in the PACITA project support this, but they stressed the importance of broadening the debate and to also look at social and organizational innovation.

Broadening the knowledge base for policy making

Societal challenges that involve new technology can often be perceived as complex and difficult to grasp. The experience from the PACITA project on ageing clearly shows that involving a broad group of stakeholders in discussions can help identifying opportunities, challenges and barriers related to the future of health care and the implementation of new technology. The stakeholders' hands-on knowledge and diverse areas of expertise provided important insights that would not necessarily have been identified by the homogenous expert groups traditionally involved in policy-making processes.

TABLE 7.2 *Policy recommendations produced by participating stakeholders*

Policy issues	Policy options and recommendations
Support individual needs, self-determination and autonomy	<ul style="list-style-type: none"> • Enable seniors to live independently and securely at home. • Promote informed decisions. • Improve ageing literacy: prepare seniors for ageing well. • Introduce a system for assessing individual needs.
Provide basic care for everyone	<ul style="list-style-type: none"> • Develop long-term strategies that responsibly introduce technology and ensure basic care. • Create arenas and networks for knowledge exchange. • Introduce means for prevention of unacceptable consequences, such as loneliness and isolation.
Participation in society and voluntary work	<ul style="list-style-type: none"> • Establish a mentality and culture for volunteering. • Define tasks and establish trust for participation in care. • Provide incentives for volunteering. • Mobilize senior citizens as active contributors.
Public-private collaboration	<ul style="list-style-type: none"> • Stimulate service innovation, research and development of telecare and telehealth. • Define infrastructural means and standards. • Require universal design in all services and products. • Stimulate and ensure user-participation in R&I.
Organization, regulation and education	<ul style="list-style-type: none"> • Protect privacy. • Include technology in education and training of health-care personnel. • Open up for new roles in the health sector. • Focus on dialogue and transparency.

Involvement of carefully selected diverse stakeholder groups is also a way to make policy decisions more democratic, robust and socially acceptable. Involving relevant stakeholders in the process can give them ownership of the process and increases the chances for both adapted policy prescriptions and the development of relevant products actually meeting users' needs. This in turn can make implementation processes easier.

Cross-European stakeholder involvement

The method of scenario workshops has until now mainly been used in national contexts. Using the method in a cross-European manner proved challenging to some degree, but it was also beneficial to the project results and the embedded potential of the method.

In the preparation of the scenarios, it proved challenging to write scenarios that were both general enough to feel relevant for all participating countries and at the same time specific enough to provoke discussion.

Scenarios that are too general would not have contributed to the desired discussion, while making them too specific would have made it difficult to relate to the range of ethical and social dilemmas to be dealt with. But the cross-European approach proved to give significant added value compared with the more common alternative, which is a series of isolated, national debates taken without much synchronicity. The scenarios created discussion that had the same starting point but that moved in different directions based on national differences in experience, organization and financing of health-care services and national/regional culture, policy preferences and worldviews. The national reports describe dilemmas, barriers and solutions that are grounded in a specific national or regional context but that are highly relevant for policy makers all over Europe.

Realizing that all countries face the same challenge, learning from each other, exchanging experiences and identifying European examples of best practices are starting points for the future of knowledge-based policy making within and across Europe. The method of scenario workshops proved suitable to a cross-European context, and the format of separate national activities that were linked by taking the scenarios as a common starting point for discussion created a common frame for the dialogues which ensured the comparability of the results that were collected at the regional or national level. The PACITA workshops produced important insights for national and regional, as well as European, policy making. But it also highlighted the importance of independent and diverse policy advice, an opinion that was emphasized by all the involved participants. The coming together of stakeholders facilitates not only a knowledge exchange but also knowledge production for the future.

Notes

- 1 The involved partners represented Austria, Bulgaria, Catalonia (Spain), the Czech Republic, Denmark, Hungary, Ireland, Norway, Switzerland and Wallonia (Belgium).
- 2 Barland (2013).
- 3 Country reports are available at www.pacitaproject.eu.



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OPEN

8

Europe Wide Views on Sustainable Consumption

Marie-Louise Jørgensen, Ventseslav Kozarev and Kathrine Lindegaard Juul

► **Abstract:** *Jørgensen, Kozarev and Lindegaard Juul lay out the rationale and methodology for a multi-site citizen participation exercise carried out within the larger framework of the PACITA project. The exercise gathered more than 1,000 citizens at parallel citizens' summits in eleven European countries, exemplifying the practicability of orchestrating public engagement in connected national arenas across Europe. The authors argue that not only did the events themselves provide comparable samples of informed and deliberated opinions, but also the cross-national collaboration to prepare the events, which involved both central stakeholders and policymakers, served as a vehicle for consensus building among these actors. Based on the response of participants and political recipients, a call is made for further capacity building for cross-European citizen participation.*

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The infamous democratic deficit of European institutions has spurred a range of different initiatives that aim to close down the persisting gap between decision makers and citizens. Once a buzzword, public engagement has become a staple of European policy discourse on account of this remaining deficit. By way of realizing the potential of public engagement, procedures have been developed with and in some cases embedded in institutional procedures. But recent cases show that great dissatisfaction among citizens remains with regard to their ability to influence policy.

One promising avenue of development is that of deliberative forms of citizens' engagement at relatively early stages of European policy formation. Such formats have been tested on several occasions by European research projects (CIVISTI, VOICES and others; see also Olsen and Trenz, 2010) and show great promise. These projects have shown the ability of deliberative processes to qualify citizens' opinions based on information and mutual learning as well as to establish through dialogue a democratic rather than merely private mind-set among citizens. This means that while such 'mini-publics' are rarely representative in a statistical sense, they manage nevertheless to give a trustworthy picture of the differences of opinion that may emerge through public debates on policy matters. Furthermore, these experiments have thoroughly debunked the myth that citizens will not be able to grasp the complexity of policy matters. The opposite in fact seems true: citizens quickly home in on the most crucial issues once the knowledge base that is available to decision makers is presented to them.

One reservation remains, however, that prevents Europe from wholeheartedly embracing deliberative public engagement, namely the concern whether citizens are in fact able to adopt a 'European perspective' without the intervention of overly costly procedures of lingual and cultural translation. To address this reservation, the third example project of PACITA adapted a multi-site citizens' participation method developed in the TA community. We wanted to show that the dichotomy between one European policy and several national polities is a false one: national publics are already 'de facto' cosmopolitan publics (Beck and Grande, 2007), and with regard to issues of systemic risks shared across border, coordinating public engagement across European member states in fact produces a genuinely European *vox populi*.

On 25 October 2014, more than 1,000 ordinary citizens participated in this cross-national citizen consultation entitled Europe Wide Views on Sustainable Consumption.¹ The day-long event took place simultaneously

in eleven EU member states (see below). The substantial aim of the consultation was to bring the reflected views of citizens to policy makers and thus influence concrete policies in the years ahead. Sustainable consumption is one of the grand challenges faced by European society, and one in which the range of policy options is closely linked to public opinion. And policy makers generally hesitate to consider policies aimed at private consumption for fear of intervening too much in the private sphere. With this consultation, we wanted to restructure the debate on policies on sustainable consumption by allowing citizens to redraw from their own perspectives the line between acceptable and intrusive interventions in private consumption patterns. As we shall see below, this public engagement exercise became a process through which not only citizens, but also supporting stakeholders and policy makers came to revisit basic policy assumptions – precisely from a European perspective.

Background

The European citizens' consultation on sustainable consumption was based on a previous method design developed by a core of TA partners, namely the World Wide Views method. This method was originally designed to provide a platform for citizen participation in the UN COP negotiations on climate and biodiversity (Rask, Worthington and Lammi, 2012), but with a few modifications, it proved to be fully adaptable to the European context, producing the 'Europe Wide Views' (EWViews) approach. The method combines simultaneous national face-to-face citizen consultations with a web-based transnational comparison of national results.² At each national site, roughly 100 citizens deliberated in small groups on the basis of the same information material and voted anonymously on the same questions which made it possible to make transnational comparisons.

The issue of European policy development for sustainable consumption presents four characteristics, which makes the EWViews method particularly appropriate. First, patterns of production and consumption are intrinsically part of every citizen's daily life, and policies to affect these patterns therefore affect citizens directly. This is the basic criterion for situations in which citizens' participation should be considered a right. Second, the issue is one in which there is knowledge that concerns patterns and options readily available and relatively uncontroversial.

This means that informing citizens thoroughly and correctly prior to the consultation is possible and that deliberation can start from a platform of evidence. Third, sustainable consumption is an issue field in which political action is necessary at both the European and the member-state level. Market failures produce waiting games in which political intervention at multiple levels of governance is needed to create forward momentum. And lastly, sustainable consumption is an area in which choosing between policy options is an obviously normative, rather than merely technical, issue. The complex interdependencies involved in changing patterns of production and consumption mean that policy choices will have deep ethical, social and distributional effects. This makes the voices of diverse groups of citizens highly relevant since their input will likely foreshadow the reactions of the public at large.

Throughout the process of designing, organizing and carrying out the citizen consultation, politicians, policy makers and stakeholders have continuously been involved in identifying issues for deliberation and balancing sources of knowledge for the information material that was to be distributed to participating citizens. The process was thus supported by MPs, MEPs, Commission staff, NGOs with green and consumer agendas, researchers in the various fields, and interest organization representatives in retail and industry. The immediate purpose of this extensive pre-consultation involvement has been to ensure the direct policy relevance and overall soundness of the citizen consultations and their outputs. But the preparation process in itself has also served as a vehicle of informal dialogue across sectors and has contributed in many small ways to the formation of a common understanding and a common sense of urgency among diverse stakeholder groups. The willingness of politicians and policy-makers to open many of the meetings showed the political interest, which this process generated. The expressed interest of these end users of the citizen consultation made it clear to the participating citizens that the consultation was in fact much more than an academic exercise.

Consultation results

During the citizen consultation, data was collected in two ways. First, at the end of each thematic session, the citizens voted on a set of questions related to the strategies which they had touched upon in their

TABLE 8.1 *Europe Wide Views in numbers*

Participating countries	11
	Austria, Bulgaria, Catalonia (Spain), the Czech Republic, Denmark, Hungary, Ireland, Lithuania, the Netherlands, Portugal and Wallonia (Belgium)
Participating citizens	1035

deliberations. Second, at randomly selected tables, minute takers reported the views which citizens presented during deliberation.³

Generally, the outcomes of the consultation show that the citizens of Europe Wide Views accept the possibility of policy measures aimed at private consumption. Actually, they are strongly in favour of policy makers' taking ambitious steps in order to encourage more sustainable consumption in society. But it's not only policy makers who should take action; citizens also want to be involved in the process of striving towards a higher degree of sustainability in consumption.

Based on a thorough analysis of the quantitative as well as qualitative data, the EWViews partners have agreed on nine policy recommendations. Eight of the recommendations are directly linked to the citizens' views on how policy makers should act in order to achieve more sustainable consumption, while the last one has to do with the future use of citizen engagement in the EU. The nine policy recommendations are presented below in a random order:

- ▶ Set an ambitious European agenda to achieve more sustainable consumption.
- ▶ Perceive citizens as collaborators in striving towards sustainable consumption.
- ▶ Do not leave sustainable consumption solely to the market.
- ▶ Make sustainable consumption cheap and easy.
- ▶ Use financial policy instruments to foster sustainable consumption.
- ▶ Provide better eco-efficient alternatives to conventional car transport.
- ▶ Ensure longer durability of products.
- ▶ Raise awareness and educate citizens on how to consume sustainably.
- ▶ Engage European citizens in dialogue processes in the future.

The recommendations can be studied in greater detail in the policy report.⁴

Consulting citizens across Europe: a double question of trust and capacity

As already mentioned, the overall aim of the EWViews experiment went beyond the production of input for the concrete case of European sustainable consumption policy. The exercise was meant also to help build trust in such exercises in general and to spark capacity building among practitioners in the different European member states. The motivation has to do with the state-citizen interaction in Europe. The participation of citizens in policy- and decision-making is increasingly seen as a necessary component of modern democratic societies. Still, EU member states differ in motivations for engagement, in traditions for doing so, in the degree of interest among policy makers and in the perceived legitimacy of such exercises at the policy level. Thus, even if public engagement is a commonly hailed value across Europe, participation exercises do not always succeed in building social trust. This poses a challenge to organizers and champions of participatory processes. Designing successful citizens' participation processes requires thorough and transparent preparation, continuous communication, and mechanisms for follow-up monitoring and control.

Countries handle this challenge very differently. In some countries, public engagement has traditionally been strong and both policy makers and decision makers have frequently based decisions informed by citizens' consultation processes. A few, such as Austria, have frequently relied on referenda, rather than on separate institutions, to encourage the public's involvement in making the decisions themselves. In others, such as Denmark, public engagement traditions have been embedded in the way that specific public institutions are designed, and these traditions are evident in their missions and mandates. Such institutions have been successful in bridging scientific expertise, public deliberations and public opinions and in raising awareness of pending societal challenges, thus contributing to an enhanced policy process on complex and controversial issues.

As a rule, however, in countries without well-organized civil societies and where a closed political culture persists, citizens are only sporadically involved in isolated events and participation is dominated by conflicting reactions rather than proactive dialogue with stakeholders. In these more closed decision-making traditions, decision makers rarely rely on wider public input or simply mirror the demands of disorganized, anonymous

publics, without real dialogue, analysis or attention to possible impacts. Regrettably, this often translates into the feeling that citizens are being neglected by decision makers and are generally not welcome in the decision-making processes.⁵ This is where the build-up of trust in open deliberative processes through concrete experiences is most important and where the hands-on training of practitioners may provide the most value.

For Europe at large, even though traditions and situations vary among countries, seeking larger-scale citizens' involvement with issues that are highly controversial and often not fully understood by decision makers might help reduce complexity and at least help elaborate policy options that can be pursued with a realistic expectation of public acceptance. Organizing such exercises in a manner which coordinates national dialogues to form a European citizens' forum could be viewed as a necessary 'soft' reform of European institutional interaction and a step towards reducing the democratic deficit of the EU.

Lessons learned from EWViews

The consultation was successful across the countries that participated. Participating citizens demonstrated a high degree of support for deliberation and involvement in consulting decision makers. A large majority reported that they would like to see more consultations like the Europe Wide Views in the future, and they expressed that they would also take part in them if they received an invitation. These sentiments were echoed across Europe.

What is of special interest to the agenda of expanding TA is that in those countries without established TA institutions, the national events managed to stir up debate and create a focus on citizen engagement. Furthermore, the perceived legitimacy of the events was high due to the transparent process of consultation, which was perceived as trustworthy by participants and recipients alike. Most of the participating citizens reported that they for once felt included, and they were therefore pleased to express their opinion, as they knew it would be considered by policy makers.⁶

The EWViews method proved to travel well. Citizens' engagement in national deliberations was very lively in all countries. In part, this was due to the presence of skilful moderators, but to a much higher extent

to the fact that the participating citizens felt that they had a voice to be heard. They could, and often did, relate to their own experiences, and they provided numerous examples to support their arguments. All deliberations were markedly based on dialogue and respect, which contributed to the sense of accomplishment at the end of the day.

In terms of preparation, the greatest challenge turned out to be the recruitment of participants. Citizens in some countries remain very reluctant to share their opinions in public. Even among those who agreed to participate, some were hesitant at the beginning. The moderators, however, were prepared for such a challenge and helped create a very positive atmosphere at each table, helping citizens overcome their hesitation. Over time, the best remedy for this hesitancy will likely be further experiments that expose growing numbers of citizens to the participation experience, which would help to increase capacities and create a virtuous circle of growing trust among citizens in such processes.

Future perspectives and conclusions

The citizens' evaluation demonstrated that the consultation was successful. The overwhelming support for engaging citizens more in decision-making processes was equally present in countries with extensive as well as little experience with citizen-participation processes. A Walloon citizen expressed his support for more citizen engagement in the EU, in the following way:

Envision more frequent consultations of active citizens, of people wanting to take part in debates. Citizen dynamics such as this summit should be systematized.

Furthermore, the citizen consultation was also a success from a public-policy point of view. It has produced a set of very clear policy recommendations on how citizens think that policy makers should act in order to achieve a higher degree of sustainability in consumption. We hope that policy makers will make use of the unique insights into the views of ordinary citizens and will carefully consider them when formulating future policies that relate to sustainable consumption.

Additionally, the fact that the citizen consultation took place *simultaneously* in the eleven countries helped to give participants a sense of

being part of something bigger, that went far beyond the walls of their respective national meetings: a truly European event. Therefore, Europe Wide Views is also a way to emotionally minimize the distance between citizens across EU member states and hereby strengthen the European community.

To harvest these fruits, a more systematic use of similar methods for participation in the future could help build capacities and pave the way for both the formal and the informal acceptance of citizens' engagement within the governance institutions of Europe and its member states. Such systematic development would provide evidently added value from a European perspective.

Notes

- 1 National holidays meant that Czech and Hungarian meetings were held one week earlier.
- 2 For more information, visit <http://www.wvviews.org/>.
- 3 Minutes were taken in national languages and qualitative reports translated to English.
- 4 Policy report with results comparison functionality are available at www.citizenconsultation.pacitaproject.eu.
- 5 An opinion strongly expressed in Bulgaria, the Czech Republic and Hungary during the national EWViews consultation on 25 October 2014.
- 6 This was particularly evident in Hungary and Bulgaria.



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Part III

Building Capacities for Cross-European TA



OPEN

9

Making Technology Assessment Accessible to New Players

*Pierre Delvenne, Benedikt Roskamp,
Ciara Fitzgerald and Frédéric Adam*

► **Abstract:** *Delvenne et al. present theoretical considerations about the pedagogy of technology assessment (TA) in general and the summer school format in particular, which was chosen as a platform for teaching TA in the PACITA project. The PACITA summer school programme was designed to encourage the uptake and use of TA rationale and methods by various types of professionals involved in science, technology or innovation policy. The recruitment strategies, the format of the presentations, and so on of the two summer schools are presented. The authors argue that as the ‘responsible innovation’ agenda gains traction among policy makers, societal actors and academics, education initiatives such as the TA summer school can have an important role to play in shaping understandings of this new form of governance.*

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This chapter reports on the two PACITA summers schools, which were aimed at teaching TA as well as enhancing mutual-learning activities. The first summer school concentrated on ‘Renewable Energy Systems’ role and use of PTA’ and it was held in Liège, Belgium, in June 2012. The second summer school addressed the topic of ‘Ageing and Technology’ and was held in Cork in June 2014. We describe the rationale and format of the summer school in order to present a comprehensive account of how it introduced TA, both its rationale and its methods, to a new audience. We argue that as the responsible innovation agenda continues to gain traction among policy makers, societal actors and academics, education initiatives such as TA summer schools can have an important role to play in the future of the governance of science, technology and innovation.

Background and rationale

Training and learning activities in TA encompass a great variety of approaches, including embedding TA-like courses into engineering and natural scientific curricula or TA practitioners training. In the former case, the objective is to raise students’ awareness of social and ethical dimensions relative to technology development and implementation. But in the latter case the objective is to exchange best practices and, by doing so, constituting a community of practitioners and even a scientific (inter)discipline that goes beyond the established community of TA practitioners. However, along these already existing activities, which are organized and implemented in a number of ways in European countries, the PACITA project stressed that in a context in which knowledge-based policy making is increasingly needed, very few TA training activities *directly* target policy makers. This creates two major difficulties. First, a broad set of policy makers and innovation actors from countries where TA institutions are already established, when they are aware of what TA is, might not be conscious that they could use already existing TA knowledge to address the policy-making issues that they are confronted with. Second, in countries where TA practices are not institutionalized as such, policy makers may fail to support the need to further establish such activities, more by lack of knowledge about TA rather than by lack of enthusiasm. This calls for a need to provide them with convincing evidence that TA knowledge is of valuable potential for their daily work.

In what follows, we argue that the further development of training activities such as TA summer schools is a relevant tool for doing so.

In PACITA, the rationale of TA summer schools was to broadly consider potential *users of TA knowledge*, such as policy makers, civil society organizations, scientists, science communicators and journalists, as well as civil servants, and to sensitize them to the role and added value of TA to their working practices and organizations' objectives. In line with PACITA's aim to expand the TA landscape in European countries which do not count institutionalized TA bodies, summer schools explicitly (though not exclusively) targeted new players in such countries – for example, Belgium, Lithuania, Bulgaria, Portugal, Ireland, Hungary or the Czech Republic. Furthermore, the summer schools also engaged participants from countries with established TA institutions who do not always recognize their TA activities because they believe they do not appear as the main addressee of TA activities. Lastly, the summer schools offered an opportunity to open up and sensitize TA and knowledge-based policy making beyond the fifteen countries and regions represented in the PACITA consortium. The events attracted participants from EU-28, Africa, Australia, South-America and Asia.

Overview of the two summer schools

The two summer schools' topics were centred on two 'grand challenges for Europe', particularly suitable to technology assessment approaches and methods. In Liège 2012, the topic was renewable energy systems, while in Cork 2012, the summer school there focused on ageing societies and new technologies. The complexity of these grand challenges and the great transitions that they necessitate appeared to be adequate backgrounds to call for new modes of interaction and exchange with and among 'new players' in technology assessment.

The first summer school¹ was organized at the University of Liège, Belgium (25–28 June 2012). As a transnational concern and growing grand challenge for policy, economy and society worldwide, the topic of 'renewable energy systems' was chosen as an entry point for learning about TA. This challenge refers to the interplay of actors, technologies, policies, worldviews and institutions engaged in the field of energy debates, policies and production. Technologies play an important role in coping with such issues. At the same time, technologies can also be part of the problem. Participants at

the summer schools were taught balanced, encompassing approaches and relevant TA methods to address the most pressing energy issues.

The second summer school was organized at the University College Cork, Ireland (17–20 June 2014). The topic chosen was ‘challenges and opportunities of the ageing society: exploring the role of technology’. The event consisted of training sessions, practical exercises, mutual reflection, and networking. Figuring out how to cope with ageing societies is one of the grand challenges pointed out in the Lund Declaration, and health-care technologies can be increasingly important for society to offer health and care services at a quantity and quality that mirrors the expectations of the European population. The summer school participants debated how best we can use new technology in care services and what type of policy options policy makers are faced with.

Summer school format

Summer schools were a combination of lectures and interactive workshops. Lectures combined elements of the different phases of a TA project (problem definition and research design, methodology, communication and impact) with concrete examples or applications to the issue at stake. After each lecture, during the workshops the participants would have the chance to relate what they had learned in hands-on, problem-driven simulation and role-play exercises. The workshops’ objective was to produce a coherent draft for a TA project. A facilitator helped participants with a ‘script’ that included minimal contextual information (such as the context in which a TA project was needed or the explicit demand from a politician’s commissioning a study) and suggestions for sub-tasks (identifying the needed knowledge base, mapping relevant stakeholders, listing technological options, scrutinizing social issues as well as more practical tasks such as project management and communication).

Participants were split into two groups, and they were assigned different roles within the workshops, as happens in real TA institutions (e.g. researchers, project managers and communication officers). Before they started working, each group was given different variables such as the addresses of the project, the framing of the issue, the available budget, the timeframe for decisions to be made, the technologies involved, the existing expertise, the mapping of stakeholders or the socio-political context. Both groups were also given different assignments. This could for instance

be a study that originated from a member of European Parliament's demand or from setting up a new project on a city level to then present it to TA's addressees. This resulted in the two groups presenting contrasting approaches, project management's choices and expected results. To finalize the training, the groups presented their work to each other in order to exemplify the diversity of possible TA approaches on a complex issue.

Main results

The summer schools can be considered as a first step in the construction and consolidation of an international *TA community extended beyond the TA practitioners themselves*. Numerous participants have kept in touch and established collaborations. Furthermore, once participants were introduced to the concept of technology assessment, they also attended other events in the TA community and particularly within the PACITA project, such as the Prague Conference or the practitioners training activities. In addition, the TA simulation exercises facilitated a common understanding and shared interest in TA, thus indirectly strengthening the support base for establishing TA in other European countries. Summer schools also confronted TA practitioners with various ontologies of technology assessment.

Lastly, for participants and TA practitioners alike, summer schools provided a platform for mutual learning, not only about technology and grand challenges but also about the views of various societal actors on TA. This continuous iterative learning approach is especially relevant in the context of expanding the TA landscape, as it helps provide the traditional TA players with a feedback mechanism from the new players who are sensitized to what TA is and what it can deliver.

Future agenda for TA education in the context of 'responsible innovation'

Today, with the discourse of addressing grand challenges (especially in the European Union; cf. Lund Declaration or Horizon 2020), the promises of and strategies for technology are not yet very specific. At the same time, it has become widely acknowledged that governing grand challenges is a complex issue that requires knowledge-based policy-making solutions.

These evolutions call for recognition of the importance of governance, the broadening of government and the inclusion of more actors in collective choices that involve science and technology. Governance is actually distributed between a number of actors, which some definitions acknowledge: governance can be discussed as the coordination and control of autonomous but interdependent actors either by an external authority or by internal mechanisms of self-regulation or self-control (Mayntz and Scharpf, 1995, Benz, 2007), including *de facto* governance arrangements that emerge and become forceful when institutionalized (Kooiman, 2003). With such a notion of governance, it becomes understandable how the trend of grand challenges impinges on the governance of science, technology and innovation and how anticipating future developments and relating them to policy making has become a crucially important task for technology assessment.

In a first attempt at discussing the anticipatory governance of science and technology, Barben et al. characterized anticipatory governance as evoking a distributed capacity for learning and interaction stimulated into present action by reflection on imagined present and future socio-technical outcomes (Barben et al., 2008: 993). On these grounds, summer schools can be taken as practical instances of anticipatory governance because they emphasized broadening the community of TA users and enhancing a distributed capacity to frame cutting-edge issues in terms coherent with TA frameworks and tools. An important lesson learned has been that TA knowledge is not produced by one actor in isolation before it is transferred to other actors deemed to use the subsequent insights. Rather, TA knowledge is co-produced by a range of actors who contribute in order to collectively generate knowledge resources, partly already informed by governance issues.

Recently, there has been increasing attention to that idea in connection with policy discourse on the concept of Responsible Research and Innovation (RRI). One influential definition of this concept combines good intentions with anticipation and mates it with attempts at anticipatory governance (Owen, Bessant and Heintz, 2013). In this definition responsibility has a prospective element (it is more than accountability) and 'responsible development' is a multi-actor distributed process. Therefore this type of governance qualifies as anticipatory governance. There are bottom-up dynamics, but at the moment, the policy discourse is most visible. More should be done in order for the policy discourse to be more firmly and systematically entrenched in bottom-up innovative

practices. Training new practitioners and potential users of TA, like it was done in the summer schools, adds a practical dimension to the debate and contributes to the European strive for ensuring societally responsible research and innovation.

Note

- 1 See also the article by Pascale Messer in the VolTA magazine: <http://volta.pacitaproject.eu/pacita-summer-school-2012/>.



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10

Training TA Professionals

*Danielle Bütschi, Zoya Damaniova,
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Abstract: *Researchers, project managers and communication officers involved in TA projects are faced with a variety of context-dependent challenges which necessitate that TA practitioners constantly reflect upon their practices, innovate and strengthen their skills, making knowledge sharing essential. In the light of this, Bütschi et al. investigate the needs for and possibilities in practitioners' meetings and debates the different needs from established and newcomer TA organizations. The authors convey lessons learned from four PACITA practitioners meetings about principles of knowledge sharing useful for practitioners' training in the future. And they argue for the necessity for TA institutions and their supporters in European policy to use future implementations of similar formats as a way of building human capacities for TA.*

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In this chapter, we discuss the needs for TA professionals' training, taking into consideration both the needs of established TA organizations, as well as those of organizations trying to develop TA activities in their countries. Based on concrete experiences, we shall draw some conclusions on the contribution that training TA professionals has in strengthening and expanding the TA landscape in Europe.

The attainment of an open, inclusive and transparent governance, as well as evidence-based policy making in Europe, requires the development and further enhancement of capacities for providing insight into the opportunities and consequences related to science and technology, by facilitating democratic processes of debate and awareness building and by formulating policy options in the field of science, technology and innovation (STI). Various organizations in Europe undertake activities that are included in the concept of TA. Yet, TA is still performed by relatively small and mostly nationally/regionally focused institutions, which do not have the needed resources and/or the mandate to make the necessary effort to expand the capacity and use of knowledge-based policy making in Europe. In addition, there is a growing tendency in the field of science and technology to move decision making upwards (from the national to the European level), which entails a common effort and a consolidation of expertise from across Europe in doing European-level TA. Furthermore, considering that in many countries there is no institutionalized approach to doing TA, training professionals from those countries is needed in order to strengthen national capacities for evidence-based policy making. These were among the major motivations to form the PACITA consortium and include TA practitioners' training seminars as an integral part of the work programme of the project.

The PACITA training seminars aimed to stir the communication and mutual learning among TA practitioners. They were designed so that researchers, project managers and communication specialists could learn from each other by sharing their knowledge and best practices. Considering the large variety of TA settings in Europe, the training seminars were conceptualized so that participants who aspire the establishment of TA in their own country could learn about the challenges and solutions related to the different settings of TA institutions; they could thus enhance their understanding of TA approaches and methods and increase their capacities in providing knowledge-based policy

advice on science- and technology-related issues. For the professionals who work in established TA institutions, the PACITA training seminars offered an opportunity to broaden their practical knowledge as they could become inspired by the work of their colleagues and share best practices.

Shared knowledge for a strong and innovative TA community

The way of doing TA is strongly related to the specific cultural and political environment of a country – as well as to other institutional aspects, such as whether there is a formal link to the parliament, the available funding, its source and so on. This is reflected in the various approaches and methods used within the TA community. This diversity of practices makes technology assessment an innovative and dynamic community, to which many professionals and scientists contribute. But for TA to be more than an experimenting field and for it to become a community that shares a common vision and relies on specific tools, it is important that TA professionals draw on a shared knowledge of what technology assessment is, how it works and what it can achieve. All these aspects are actually covered by extensive literature on technology assessment (see for example Vig and Paschen, 2000, Decker and Ladikas, 2004, Grunwald, 2009 and Enzing et al., 20112), which provides the core elements for the daily practices of TA professionals. However, TA project managers, researchers or communication officers are often confronted with very concrete issues which are not (or are only partially) covered by the literature. What they need is very practical advice related to TA project management: how they should design and frame a concrete project, which methods they should select and how they should implement them, how they should deal with the political and societal environment and how they should communicate their results. For the TA community to further develop and adapt to the ongoing technological and policy changes, it is essential to develop European-wide training platforms, wherein TA professionals will get the opportunity to learn from each other and to work in a systematized and integrative way. This is necessary to ensure a high and uniform level of quality for TA across Europe.

The PACITA practitioners training seminars

The need for an integrative and systematized training of TA professionals has been recognized some fifteen years ago by the European Parliamentary Technology Assessment (EPTA) network. Since the end of the 1990s, EPTA organizes TA practitioners' meetings once in every two years. Each workshop is hosted and organized by a different EPTA member. Themes address common aspects of TA work, such as determining TA-relevant issues, defining TA projects, communicating TA results, and so on.

The PACITA project continued this tradition by organizing four practitioners' training seminars, which took place between September 2012 and September 2014. Each seminar lasted three days and gathered about 30 TA professionals from all over Europe. The seminars were open to all institutes that perform (or that intend to perform) TA, regardless of whether they are involved in the PACITA project. PACITA covered the costs of the host, as well as travel and accommodation expenses of PACITA partners (others had to pay from their own funds).

The trainings were designed to address the four main stages and the major challenges that project managers face when they run TA projects:

- ▶ The first essential challenge that TA practitioners have to deal with is the identification and framing of the issue to be addressed. TA projects have to be based on a prior monitoring process of science and technology innovations and of their societal implications; the social and political context has to be clarified as well. During the first training seminar, participants worked on case studies and shared experiences on how they select and define TA-relevant issues.
- ▶ A second challenge lies in the selection of a relevant method or relevant methods for meeting the project's goals. This issue was addressed during the second training seminar as participants worked through fictive (but reality-inspired) case studies that featured a contentious TA topic and that demonstrated the complex linkages between societal challenges, technology options and policy solutions. Specific application strategies, complementarities of different TA methods, methodological planning and project designs were then explored in greater depth.
- ▶ During the course of TA projects, various stakeholders need to be involved, which is a challenging task for TA professionals. The third

training seminar focused on questions: Which actors need to be involved in TA? Why and how are these actors important? What is their role? What are the main challenges for engaging them?

- ▶ And last but not least, as TA aims at advising policy making on technological and scientific issues, TA practitioners have to communicate the results of their projects. Communication strategies and tools for communicating the results of a TA project were the central theme of the fourth practitioners' meeting.

All the trainings involved intensive group work, plenary presentations and plenary discussions. This proved to be a particularly inspiring experience for newcomers in the TA community, as they could gain insights into the practicalities of doing TA and integrating science and technology into social discourses, public policies and decision making. More experienced TA professionals also could gain practical knowledge for their daily work and extend the professional network they can rely on for future activities. When the participants were asked about the benefits of such trainings, two thirds of them indicated that they had gained new knowledge on TA and half of them indicated that they had learned new TA skills. Most of the participants said that they extended their professional network and found inspiration and new ideas for their work. On average, respondents rated the usefulness of such meetings 5 on a scale from 1 to 6.

Expanding the TA landscape through training

In many countries where no institutionalized approach to TA exists, we can find organizations implementing TA-like activities such as foresight projects and inter- or trans-disciplinary researches or participating in European initiatives that involve the use of technology assessment methods. Yet, in order to be able to lay the groundwork for knowledge-based policy making in these countries, it is important for these organizations to increase their understanding of how TA is done in different political settings so that they can support the process of expanding TA in their own countries.

The PACITA practitioners' training seminars proved to be very helpful in this respect. Interacting with professionals from already established TA institutions and listening to their experiences in TA during the

training sessions was a great learning opportunity for ‘newcomers’ in the field. They could get to know the criteria used to select and frame the issue under scrutiny, different approaches for selecting relevant TA methods, the available input and needed outcomes and various other factors. The participants could also learn about when and how to involve stakeholders, civil society and policy makers in the TA processes and how to communicate the achieved results. Some of the major insights in this respect concern the role of actors, which is liable to change over time and over the different project phases; the potential conflict between evidence-based policy making and the political agenda of policy makers; the importance of making the policy cycle transparent to the stakeholders who were involved; and the difficulties in initiating dialogue among the stakeholders and the importance of using appropriate language for communicating with politicians and citizens. In this respect, practitioners’ meetings proved to be especially fruitful to those who are looking for national proponents of TA within their own countries and attempting to demonstrate the relevance of TA in their national contexts. Not only could partners from countries with no TA traditions learn first-hand from the experienced partners, but also they could expand their network and thus strengthen the foundation for successfully establishing and implementing TA in their country.

Review and perspectives

When we look back at PACITA TA training seminars (as well at the past EPTA practitioners’ meetings), such events bear significance for both established TA institutes and organizations that are developing TA activities in their country or region. However, organizing such trainings implies the availability of funds not only for the organizers but also for the participating organizations. Whereas established institutes may have the resources to organize practitioners’ training seminars and finance the participation of their staffers, the situation is more problematic for institutes which have scarce resources. The fact that the European Commission provided funds to the PACITA consortium to organize such a series of events was clearly an advantage, as all member institutes of the consortium could send their staffers regardless of their financial situation. Supporting the organization of training events that help with building specialized and policy-relevant knowledge and skills, such

as TA, could be prioritized in the European research and innovation programmes. By this, the European Commission will stimulate continuing collaboration among diverse organizational partners and will also include a larger set of practitioners. Not least, however, such a high-level programming commitment will additionally legitimize the application of TA methods in support of policy design and development regarding science, technology and innovation.

For the future, it might also be worthwhile to look for new tools for knowledge transfer that complement the training seminars. Such tools would be important to make the topics presented and discussed during the training seminars accessible to a wide audience of professionals, and also to deepening their knowledge on certain aspects of TA or specific TA methods. In that respect, a series of manuals or best-practice reports could be initiated. New online tools may also be developed.

The issues to be addressed in training, be they in the form of seminars or of written tools, are manifold. The idea of covering the major steps of a TA project in the four PACITA training seminars has been considered by the participants as a meaningful approach. However, participants suggested additional topics of interest, such as determining which are the most pressing issues to which TA could contribute (technology scanning), presenting current TA projects and different TA organizational settings, discussing the specificities of TA project management, exploring possible ways of collaboration between TA institutions and assessing the role of TA contributions for the governance of science and technology. Some participants also suggested integrating better the needs and expectations of the decision makers, who are the end-users of the TA activities. There is obviously a need for TA professionals not only to learn about and share what technology assessment is and how to do it but also to meet with and learn from their addressees. Similarly, the idea of inviting journalists has been raised; their presence would provide an 'insider' perspective on ways to go public or, in some cases, to enable journalists to understand better the communication aspects of a TA project.

The PACITA practitioners' meetings had the particularity of being practice-oriented: concrete TA projects were presented in terms of good practices, and activities were proposed to participants. When asked about this format, three thirds of the participants of the PACITA training seminars wished that future practitioners' trainings would dedicate more time to theoretical aspects of TA or the topic at hand, and more than three quarters would like to have more time for the discussion of case

studies in terms of best practices. This demand for more theoretical and case study presentations actually calls for complementing the practitioners' meetings with written material that presents theoretical aspects of TA-as-a-practice as well as case studies and best practices in a comprehensive and accessible way. Thus, TA-relevant knowledge would persist and could be utilized in subsequent projects.



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11

Building Community – Or Why We Need an Ongoing Conference Platform for TA

*Constanze Scherz, Lenka Hebáková,
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and Stefanie B. Seitz*

Abstract: *As a background for current outlooks towards strengthening the technology assessment (TA) community, Scherz et al. give a historical overview of efforts to establish international fora for communication among professionals and researchers in TA. Against this background, the article conveys experiences from the first two bi-annual TA conferences, arranged in the context of the PACITA project. The authors describe experiences of mutual learning across national boundaries and communicate a renewed understanding of the necessity for supporting TA capacities at the national level through professional community building. Ultimately, Scherz et al. argue that a European TA platform is necessary for establishing a common language for TA and for supporting the spread of TA across borders.*

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Conferences are a promising format to include an extended range of European, national and regional stakeholders – especially with a focus on widening the debate of TA in Europe. Therefore, they are important under several aspects: for scientists from several disciplines in order to discuss inter- and trans-disciplinary approaches and projects as well as for TA researchers to get in contact with their target audiences, such as citizens, policy makers or scientists from other disciplines.

This chapter deals with the question of how conferences can encourage mobilizing stakeholders to establish TA capacities while creating awareness regarding the benefits of cross-European TA throughout Europe. Thus, it reflects on the format of TA conferences as such and gives brief insights into two international conferences, which took place in Prague (2013) and Berlin (2015). Our main argument is that TA can act as a ‘knowledge broker’ between scientists and policy makers (Riedlinger, 2013). In our experiences, TA and its conferences can provide unique spaces for ‘discourse.’ Yet at the same time, these discourses need continuity and ongoing activities, which include already established networks as well as new contents, methods and people.

It is in these spaces for discourse that the conceptual basis of TA is reflected upon and further developed. Being a problem-oriented approach, TA needs areas of exchange to enable ‘identity-shaping’ and adaptation to current challenges. Especially in contexts where its institutionalization is still under development, TA requires formats, which enable mutual learning and critical self-reflection. With recent concepts such as Responsible Research and Innovation emerging, TA has to reflect on how it can contribute and/or offer its wide experiences in various contexts. Further, the format of conferences also offers a useful and inspiring atmosphere for younger researchers and practitioners who are working in the field of TA to present themselves and their questions and to engage in exchange with the wider TA community.

The ambitious goals of the two conferences within the PACITA project were to address the grand transitions and grand challenges that define our societies as a whole. This frame set the scene for presenting and discussing TA research at the conferences and at the same time for offering fruitful spaces of encounter to further strengthen and foster TA as a concept and approach by including all its significant actors (e.g. researchers, practitioners and policy makers). For this, it also seems important to reflect on the experiences already made with international

TA conferences within the community in order to guarantee a high quality of conferences' input, integrative formats and inspiring topics.

Making it work – the context of the two European TA conferences

As a mobilization and mutual learning project, PACITA aims to bring together established TA institutions and new actors. Consequently, scientific conferences are at the very heart of the project's mission: they intensify the debate on TA and have the potential to expand the landscape of TA in Europe. There is a special focus on the methods and activities in which citizens and policy makers are directly involved in debates and discussions. 'Such "interactive" methodology has proven to be a specific trademark for Technology Assessment and is of special interest today when the focus of research and innovation is turned towards the Grand Challenges of our societies' (Klüver, 2014: 12). Further, conferences provide a platform for scientists with practical experiences as a result of doing TA and for politicians that are addressees of TA research and its results. The two PACITA conferences, held in 2013 and 2015, were the first European TA conferences in more than two decades. In general, the feedback from the conference attendees showed clearly the need for further continuous exchange, networking, discussions and documentation. 'Technology Assessment has shown to be a practice still in the making and continuously expanding its reach and borders, which gives hope for a future with a larger and more branched-out professional community' (Klüver, 2014: 12).

These two major European TA conferences fostered and enhanced the scientific debate about TA as well as the exchange of TA experiences on a European level. The main aim of these and PACITA's ongoing activities is to establish a European network of institutions and persons from the academic world, from scientific policy advice and from policy making. The conferences present an important context for this. With an informative and interactive format, the conferences aimed to bring together several different disciplinary communities. Adopting a broad understanding of what qualifies as 'TA' allowed the conferences to address TA practitioners, academics, scientists, policy-makers, and CSO representatives together. In retrospect, the conferences succeeded in delivering a two benefits

ways. On the one hand they offered a broad platform for presenting and reflecting on project results, its outcomes and new insights. On the other hand, they helped to set the stage for current and future thinking about TA and its role in tackling the societal challenges ahead.

No future without a past

In order to reflect on the necessity of an ongoing conference platform, it is helpful to have a brief look at the historical development of the TA community in Europe. The major strands of development show that there is a shift from national activities to cross-European and international activities. Also there is an interest in widening the disciplinary community to inter- and trans-disciplinary work. The first meeting of the European TA community under the label of 'European Congresses of Technology Assessment' dates back to October 1982 when the Ministry of the Interior of the Federal Republic of Germany hosted a conference in Bonn that attracted some 60 experts from eleven countries – among them were representatives of the US Office of Technology Assessment. Congresses on TA later held in Amsterdam (1987), Milan (1990) and Copenhagen (1992) contributed significantly to the conceptualization, philosophy as well as institutionalization of TA. These conferences made clear that the European debate on TA took place on several levels – between international groups of scholars, experts, and officials who held a series of meetings during which methods of TA, the utility of its results and the possibilities and problems of institutionalizing TA agencies were discussed.

Another ongoing activity is the institutionalization of networks. During the last ten years, the institutionalization of the German-speaking 'Network Technology Assessment' (NTA) can be seen as a forerunner. Founded in November 2004 in Berlin, NTA aims to identify joint research and advisory responsibilities, to initiate methodological developments, to support the exchange of information and to strengthen the role of technology assessment in science and society. Today, ten years after this first meeting, there have been six scientific NTA conferences, ten annual member meetings and several meetings of the Network's working groups. The primary mission of NTA remains: to provide a platform for information and communication among scientists, experts and practitioners who work in the wide range of TA-relevant topics.¹ The NTA conferences are the central format of exchange among the

German-speaking TA community. With decades of experience, the three main organizations of the Network for Technology Assessment (NTA) – the Institute of Technology Assessment and Systems Analysis (ITAS) in Karlsruhe, Germany; the Institute of Technology Assessment (ITA) in Vienna, Austria; and the Center for Technology Assessment (TA Swiss) in Berne, Switzerland – also brought their expertise to the PACITA project. Also, other PACITA partners, such as the Danish Board of Technology, the Norwegian Board of Technology, the Advisory Board of the Parliament of Catalonia for Science and Technology and the Rathenau Institute from the Netherlands have worked intensely and enduringly to realize TA in and for parliaments. Together with institutions from Finland, France, Greece, Italy, Sweden and the United Kingdom, they are organized in the European Parliamentary Technology Assessment Network (EPTA), which was established in 1990 by the president of the European Parliament.²

In general, the two PACITA conferences benefitted greatly from these traditions. The conferences of the 1980s and 1990s gave first insights into which topics were relevant for research and policy advice. They also showed how important it is to invite both the scientific community as well as practitioners and policy makers to one and the same event, enabling networking and cooperation on an international level. The EPTA network in particular was and still is exceptionally important to bringing up TA-relevant research topics to national parliaments. For the two PACITA conferences, these contacts are crucial to continuously strengthen the European TA community and to bring together interested researchers, stakeholders and politicians from all over the world. In the days of globalized problems like climate change or world-wide trade networks, this internationalization aspect is of special importance.

Overcoming challenges – making cross-European TA conferences

Generally, doing TA in Europe still remains a challenge. The broad variety of the topics and the positive resonance to the conference show that there was a great necessity to revive the tradition of European TA conferences. It is a substantial gain that TA practitioners and policy makers from countries with established TA practices were able to get involved in discussions with colleagues from countries where TA is still in its beginnings, not only to give advice but also to reflect on their own traditions and established



TA practices. Besides the national perspectives, cross-European TA must, among other obstacles, face the tension that may arise between the different levels of decision-making structures: European ones versus national and local ones. Which TA topics will be important and popular during the coming years? What can scientists learn from their experiences of working together with stakeholders and politicians?

The two conferences, namely in Prague (2013) and Berlin (2015), clearly showed that there is a strong European TA community interested in joint work and scientific exchange – in spite of sometimes significant differences in the TA approaches that they respectively follow. In Germany, for example, TA institutions work closely with policy makers and politicians. In Denmark, TA institutions strive to fulfil the politicians' needs with a more service-oriented approach. On the other hand, in the Netherlands, there is a certain distance between them. In the so-called TA-emerging countries, technology assessment is yet to be institutionalized. There are many ongoing TA-like activities in countries such as the Czech Republic and Poland – research and development mainly focus on forward-looking studies and methods. But also experiences from beyond Europe are valid contributions. For example, in Japan, as a result of the Fukushima nuclear accident in 2011, the government is trying to recover the lost public trust, by launching an innovative education and research programme that includes TA, which was introduced for the first time in history. These various situations show the challenges and specific situations that TA faces (Michalek et al., 2014). Moreover, spreading the TA community eastwards brings up yet another challenge of finding a 'common language' (Nierling et al., 2013: 105). Due to the fact that TA as such is not institutionalized in the TA-emerging countries, the practices and relevance of such an approach are still being understood differently: 'The processes of institutionalisation of TA infrastructures are always embedded in the understanding of democracy and the role of (national) parliaments' (Nierling et al., 2013: 102).

The PACITA conferences were especially important for TA researchers, in order to get closer to their clients – be it citizens, policy makers or scientists. As David Cope summarizes,

'like any congregation of specialists, the TA "community" can sometimes seem a little introspective, self-regarding and indeed perhaps almost presumptuous about its existence, activities and importance. A good antidote to any such tendencies is for TA practitioners to ask, among contacts in the world outside TA, what these contacts understand is meant by "Technology Assessment". It

TABLE 11.1 2nd PACITA Conference programme

<h1>Fact sheet</h1>				
		Date	13–15 March 2013	25–27 February 2015
Place		National Technical Library, Prague, the Czech Republic	Umweltforum Auferstehungskirche, Berlin, Germany	
Participants	Participants	245	349	
	Speakers	155	230	
	Countries	31	33	
	5 Most Represented European countries	Germany – 59 The Czech Rep. – 53 The Netherlands – 26 Austria – 14 Belgium – 10	Germany – 150 Austria – 22 The Netherlands – 21 United Kingdom – 20 Denmark – 15	
	5 Most Represented Non-European countries	Japan – 7 Australia – 4 Rep. of Korea – 4 USA – 3 Turkey – 2	Japan – 8 USA – 5 Russia – 3 China – 3 Australia – 3	
	Sessions	Sessions:	22	42
		Keynote speakers	Wiebe Bijker Stefan Bösch Rut Bizková	Naomi Oreskes Roger Pielke, Jr
		The most discussed topics (As per sessions)	Governance and Participation Technology Assessment Methods Evidence-Based Policy Making Emerging Technologies Ageing and Health Care Big Data and Privacy Sustainable Development Robotics and Synthetic Biology	Responsible Research and Innovation Technology Assessment Methods Governance and Participation Evidence-Based Policy Making Robotics and Synthetic Biology Ageing and Health Care Big Data and Privacy Energy
		Special formats	Panel Discussion/Round Table Politicians’ and Researchers’ Views on Joint Projects TA Meets Young Talents Author Meets Critics	PACITA Workshop Panel Discussion/Round Table Film Presentation World Café Seminar

Continued

TABLE 11.1 *Continued*

Outcomes	Web page	pacita.strast.cz/en/conference	berlinconference. pacitaproject.eu
	Social media	Twitter@PACITAPROJECT #paciTA13	Twitter @PACITAPROJECT #paciTA15
	Outcomes	Facebook, YouTube Book of Abstracts Conference Proceedings	Facebook, YouTube Book of Abstracts Conference Proceedings

invariably becomes clear that we operate in a rather restricted space, whose recognition by wider society is limited. TA is immanently in a supplicatory relationship with wider society. It has legitimacy, indeed an existential claim, *only if it is seen as having utility by that wider society.*' (Cope, 2014: 376).

Notes

- 1 All agendas and conference topics can be downloaded here: <http://www.openta.net/nta-tagungen> (in German).
- 2 See also <http://eptanetwork.org/about.php>.



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OPEN

12

E-Infrastructure for Technology Assessment

M. Nentwich

Abstract: *Nentwich gives an in-depth account of developments within the TA community towards a common e-infrastructure for technology assessment (TA). The author argues that while technology development is genuinely international, there are too few endeavours to address technology assessment (TA) issues internationally; likewise, there are no sustainable online platforms for knowledge sharing, dissemination and public debate as yet. The PACITA project partners therefore worked to establish such an infrastructure by means which the article details. Creating and sustaining a strong, interactive e-infrastructure for cross-European TA is both greatly challenging and worthwhile as it would ultimately help to nuance and possibly even democratize European science, technology and innovation policy. Nentwich therefore argues for the continuation of these efforts by central actors in and supporters of TA.*

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While technology development is genuinely international, there are only few endeavours to address technology assessment (TA) issues internationally; likewise, there are no sustainable online platforms for knowledge sharing, dissemination and public debate as yet. Creating and sustaining a strong, interactive e-infrastructure for cross-European TA is both greatly challenging and worthwhile as it would ultimately help to nuance and possibly even democratize European science, technology and innovation policy.

Recently, the international TA community started facing this challenge and increasingly produces digital infrastructures for daily work and communication as well as for outreach. This chapter presents elements of current e-infrastructures and practices. A particular focus is on the new TA Portal launched by the PACITA consortium in 2012. This portal has the potential to become a one-stop service and exchange platform for both TA practitioners and those interested in technology policy and TA in general. However, in order to reach and sustain its full potential, this core e-infrastructure for TA needs to become more than a database with interesting and potentially useful content. The article argues that the portal should turn into a dynamic and interactive platform.

We distinguish the following main elements of TA e-infrastructures as they exist today: the EPTA website and project database; videoconferencing tools as used in international projects; outreach activities of TA on social network sites such as Facebook and others; a few TA-related tools and databases; the Network for Technology Assessment's web portal openTA; and the PACITA TA Portal. The core of the latter is a database that covers TA publications, projects, experts, and organizations. Furthermore, the Portal recommends selected TA-related Internet resources and offers a list of the latest TA news on the homepage. The TA Portal is a work in progress; plans to enhance its functionality, described in the following, are being implemented.

By devising the TA Portal, by coordinating the joint international effort to filling the database, and by reflecting the usability and usefulness for future activities, we learned that it is both an enormous challenge in technical, conceptual, and organizational terms, and it is a promising opportunity. While putting in place a schema and (semi-)automatic procedure to fill a database with useful information was (and is) a big effort, it still is only half the story. Turning the Portal into a lively platform that serves

the TA community and that connects it to its addresses and interested actors across Europe demands a far greater effort. Such a platform would be not only a technical tool but also a social enterprise. In order to activate its content, editing staff is needed with a mandate not only to disseminate results but also to advocate the balanced results reached by TA methods for incorporation into the European debate.

Reaching the full potential of the TA e-infrastructure in the making and scaling it up needs:

- ▶ An electronic infrastructure for TA practitioners that can also serve as a platform for debate and policy support demands financial resources and time to incorporate lessons learned on a continuous basis.
- ▶ A permanent cross-European TA network with a sustainable budget to support editorial or facilitating functions.

Introduction

Technology development and diffusion has no borders, nor have impacts, chances, and risks of new technologies. Despite this obvious fact, there are only a few endeavours to address technology assessment issues at the international level (in particular in a series of common EU projects,¹ such as PACITA), but most TA takes place in the national arena. The main reason for this is that technology governance, so far, is to a large extent national; furthermore, assessment is culturally bound and also dependent on local circumstances. Nonetheless, TA practice is increasingly international in the sense that it relies on a network that provides for the exchange of methods and personnel, as well as for mutual stimulation and enrichment when it comes to watching and assessing technology trends. The backbone of this network consists of regular conferences (EPTA, PACITA, NTA, and ITA series), journals, and two associations (EPTA and NTA). In line with, but following with some delay, the global trend towards cyber-science (Nentwich, 2003) and open science (e.g. Bartling and Friesike, 2013), the international TA community increasingly uses digital infrastructures for daily work and communication.

The earliest elements of this evolving e-infrastructure for technology assessment date from the late 1980s and 1990s (cf. Nentwich and Riehm, 2012; Nentwich, 2010). Most prominently, the German ‘TA-Databank’,

operated by the ITAS in Karlsruhe from 1987 to 1998 (Berg and Bücken-Gärtner, 1988), was an encompassing online database (still available on CD-ROM). By 1999 it contained datasets of over 570 institutions, approximately 3.400 projects and 7.000 publications.² From 1997 to 2013 the ITA in Vienna took care of the virtual library ‘TA in the WWW’, containing some 270 links.³ A first attempt to establish a social network for TA practitioners on the basis of the Ning platform in 2008 by the NBT in Oslo attracted only a small proportion of the community (approximately 75 members in 2010; cf. Nentwich, 2010) and never showed much activity (it has been offline since 2013). Furthermore, the German TA network experimented from 2006 to 2012 on its previous website with a meta-search engine (on the basis of Google Custom Search) covering the content of the NTA member organizations’ websites. In addition, some EU-funded projects resulted in web platforms offering specific TA- and foresight-related tools and databases (listed in the section below). In the meantime, in particular in the framework of the PACITA project and the NTA network, new developments are under way.

The remainder of this chapter gives an overview of how digital means, mainly via the Internet, are used and needed both inside the TA community and vis-à-vis its addressees in politics and in society today. In the next section, the elements of this infrastructure are briefly described, followed by a longer section on the international TA Portal designed and implemented by the PACITA project team and by a concluding section with an outlook on the development of the e-infrastructure for TA. We argue that an increased online presence of the cross-European TA community would benefit European policy making.

The main elements of the current TA e-infrastructure

From around 2010, actors in the TA community have started new initiatives to build up a modern digital infrastructure. The main fora of these activities are the German TA network (NTA),⁴ the European Parliamentary TA network (EPTA),⁵ and the EU-funded project Parliaments and Citizens in TA (PACITA).⁶ In 2014 the e-infrastructure of the TA community included the following elements:

EPTA website and project database: For more than ten years the website of EPTA features an online project database, now containing almost 900 datasets with titles, keywords, project life spans, contact persons,

descriptions, and links to further information.⁷ The content of the database is provided by the member institutions by more or less regularly filling an online form; the site and database is currently operated by the DBT in Copenhagen – in the future by ITA in Vienna, after a re-launch scheduled for 2015.

Videoconferencing: TA projects are often carried out by dispersed teams with staff from several organizations across Europe. Although TA practitioners also use face-to-face meetings, they have followed the general trend of international professionals by increasingly using videoconferencing tools, such as WebEx (e.g. in PACITA) and most frequently Skype, to meet. While these meetings are considered indispensable for specific purposes or occasions and best practices have evolved over time, experiences with network stability and technical quality of the services are still mixed.

TA on social network sites: As TA has an important interface with the general public alongside the political and the academic spheres, all TA organizations have public websites that communicate their identities and work. Many but not all TA organizations are now also present on the main social network sites, such as Facebook and Twitter. Many also contribute to TA-related topics on Wikipedia (Nentwich, 2010). For most organizations, however, this work takes place with limited success and resources. EPTA and NTA as well as some TA projects like PACITA are also operating Facebook pages. Except for some individuals, Twitter is still used only sparingly by TA organizations or practitioners (cf. König, 2015).

TA-related tools: A few EU-funded projects resulted in databases of platforms serving specific purposes of the TA community. One such example is Doing Foresight,⁸ a support instrument for activities/projects on future-oriented policy analysis. Another is the Decision support on security investment (DESSI) Tool,⁹ giving insight into the pros and cons of specific security investments. A third is the European Foresight Platform (EFP), providing briefs of foresight processes carried out in Europe.¹⁰ The main problem with these tools and databases is, that after the end of project-related funding, they tend to be forgotten and not updated anymore. Furthermore, the international publications' repository, in particular the one for economic research papers (RePEc), provide the opportunity to organize TA resources on the Internet (cf. Moniz, 2015).¹¹

NTA Fachportal openTA: In the framework of NTA, funded by the German research fund DFG and carried out by ITAS and

ITAS' partners, the openTA portal is the latest newcomer of the e-infrastructure of TA, which launched in 2014.¹² The main elements of openTA currently are: an NTA members' (individual and organizational) database; a news aggregator, fed by the NTA member organizations; a common calendar of TA-related events (conferences, calls, teaching, lectures, etc.), also fuelled by NTA members; a TA blog; and an encompassing TA publication database that covers publications not only of the member organizations but well beyond the TA community, which is also fuelled by the German national library and other databases. The openTA portal is not intended to be a technology-oriented database project, but rather an 'innovation project for the TA community' (Nentwich and Riehm, 2012, Riehm and Nentwich, 2014).

PACITA TA Portal: Since 2011 one of the tasks of the EU-funded project PACITA was the establishment of a comprehensive portal for TA-related information in Europe and beyond. The task leader was ITA in Vienna. On 22 October 2012, the first version of the new service had been launched at the EPTA Council meeting in Barcelona.¹³ The portal cooperates with the openTA initiative with a view to avoid duplication and exploit synergies.

The PACITA TA Portal

The core of this web platform is a database that covers four types of TA-related information: publications, projects, experts, and organizations. The users interact with the database via either simple or more detailed search forms. The results are presented in tabs and as a hypertext, allowing for browsing in the lists of results – for example, by jumping from a publication to its authors or from there to their home organization or to the related project. The users may also directly retrieve a list of the latest updates of the database (recent publications and more). See the following screenshot for an impression of the look and feel of the website.

The datasets are provided in a decentralized way by the participating TA organizations, harvested and stored centrally by the portal. Some of the data providers use automated scripts to transform the content of their local databases into the format prescribed by the portal; others do it manually.

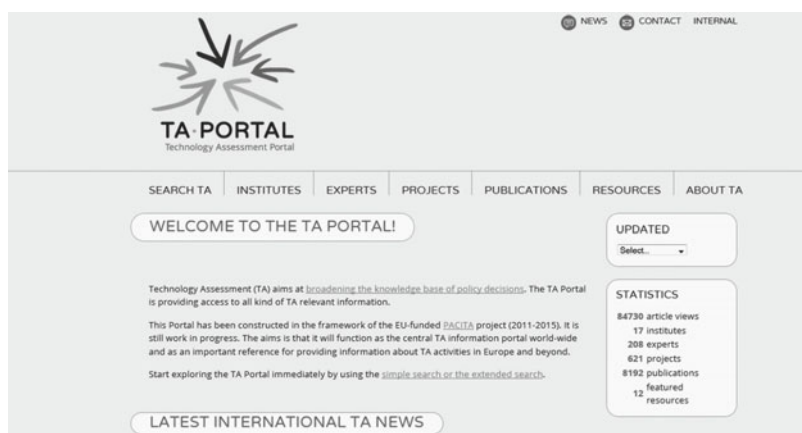


FIGURE 12.1 *Homepage of the TA Portal (screenshot taken on 30 April 2015)*

At the time of writing, the database includes datasets from 17 organizations, over 200 experts, 621 projects, and roughly 8200 publications. While the portal includes data from all PACITA member organizations and two other TA units (the US GAO and the German TAB), it is intended to have global reach, including relevant information from any organization that works in the field of technology assessment. As an obvious next step, further EPTA members (some are already part of the PACITA project and hence of the Portal) shall be included. Furthermore, a (two-way) bridge between the openTA and PACITA portals should be established to include data from further NTA members (some are already part of the PACITA project and hence of the Portal). Aiming to attract more content providers, PACITA has adopted a policy document that sets out in a transparent way the criteria for membership in the Portal. These include a definition of TA and of eligible TA organizations (individual persons cannot directly contribute content to the Portal).¹⁴

Beyond these core functionalities, the TA Portal has two further features: First, it recommends a few special Internet resources (currently ten, including the PACITA VolTA magazine and PACITA deliverable 2.2 on the comparison of existing PTA organizations). Second, on the homepage, a list of the latest TA news is presented. This is the first outcome of the cooperation between the TA Portal and openTA, as the latter provides a so-called widget to include the aggregated news on any

website. The portal team currently negotiates with both the openTA team and other EPTA members to provide their news as a feed in English that contributes to the openTA news aggregator and consequently to a broader coverage of the TA news feed on the TA Portal.

In the mid-term, the TA Portal should be relaunched in version 2, including a number of additional features: a global TA calendar is on the agenda as well as an improved search engine that will allow one to find, for instance, particular types of publications (e.g. policy briefs) or of publications in specified languages. Furthermore, an interactive TA questions and answers forum could be included to make the site even more attractive. Users should be able to subscribe to an update service, sending emails to them on a regular basis with information about the latest TA publications or projects. Finally, there is a plan to set up (and include in the search) an open access TA repository for TA-related publications that are not included in one of the member organizations' websites. This would enable researchers affiliated with non-TA organizations, but publishing relevant articles, to include them in the TA Portal.

The way ahead

There is no doubt that broadening the knowledge-base of political decision making is urgent due to the complexity of the grand challenges that our societies face. As argued in the introduction to this volume, TA in its various forms, from providing well-balanced expertise to involving stakeholders and citizens, contributes in effective and well-established ways to future-oriented policy activities. Given the intrinsic cross-border nature of technology development, the need for a strong cross-European foundation of TA is evident. To induce dynamic cooperation, open debate, and knowledge sharing on these highly salient issues the TA community and its addressees will greatly benefit from a state-of-the-art e-infrastructure.

Our brief description of the current digital infrastructure available for technology assessment shows that with the PACITA TA Portal (along with the openTA platform) the TA community is about to reach a next level. The current platform has the potential to become a one-stop service for TA, especially if it is developed further both in terms of the types and quality of services offered and the scope of resources included. The

PACITA TA Portal in particular could serve as the background infrastructure for the EPTA website.

An Internet portal can be regarded as an infrastructure in two ways. First, it is an internal service that is intended to help TA practitioners to do what they have to do: to stay up to date about the TA literature; to know whom to approach for specific expertise; to build on projects done by others; to stay informed about the current activities of fellow TA units; to be aware of TA events; to stay tuned with current trends; and so on. Furthermore, such an infrastructure may potentially offer a communicative space for exchange, be it written (blogs and discussion fora), spoken (videoconferencing), and possibly even social network functions. So far, the current infrastructure focuses on mainly the internal aspect, while there is still a long way to offer an ideal environment for online collaboration.

The second way to look at such a portal is with the eyes of the customers of TA – that is, actors in both the political and the public spheres who are interested in technology policy and assessment. To turn the existent portal into an information platform that presents TA-related information in a format that is attractive to laypersons in general and to decision makers in particular is, however, a much greater challenge. This would mean adding a public relations side to the sober database; it would mean having an editorial team that selects and presenting the latest TA results in a catchy way; and it would mean making the platform interactive and communicative, which possibly includes having a presence on the popular social network sites. All this needs to be thought and structured as a long-term, sustainable enterprise.

Both aims, the internal and the external one, are worthwhile to invest in, be it in terms of ideas, time or, ultimately, financial resources. The latter will have come to an end with the conclusion of the PACITA project in spring 2015, so the future of the TA Portal and hence the backbone of the current international e-infrastructure for TA is in limbo. Keeping the platform alive will be possible for some time on the basis of contributions made in kind by the leading TA organizations. Expanding it, improving it, and turning it into the envisaged one-stop service and communicative platform for TA, however, can be done only with an additional financial effort and a certain element of (cyber-) entrepreneurship. The TA community is called to make its own modern infrastructure a prime concern. And it needs continuous societal support.

Notes

- 1 See Chapter 5.
- 2 Cf. http://www.itas.kit.edu/1999_008.php.
- 3 In 2014 this link collection is still available via the EPTA website at <http://www-97.oew.ac.at/cgi-usr/ita1/tawww.pl?site=epta>.
- 4 <http://www.openta.net/netzwerk-ta>.
- 5 <http://eptanetwork.org>.
- 6 <http://www.pacitaproject.eu>.
- 7 <http://eptanetwork.org/projects.php>.
- 8 <http://www.doingforesight.org>.
- 9 <http://securitydecisions.org/decision-support-tool>.
- 10 <http://www.foresight-platform.eu/briefs-resources>.
- 11 <http://biblio.repec.org/entry/oca.html>.
- 12 <http://www.openta.net>.
- 13 <http://technology-assessment.info>.
- 14 http://technology-assessment.info/images/TA-Portal-Policy_v260313.pdf.



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