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Taking Stock of TA in Europe and Abroad

Introduction to the Thematic Focus

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The idea of analysing a societal problem in the most comprehensive way, i.e. taking into account all the relevant scientific and societal perspectives in order to allow for rational decision making for the common good, may well be said to be as old as the idea of modern democracy. Legitimate policy making, understood in a liberal sense, is rooted as much in the notion of the people being the sovereign and political institutions representing them as it is in the concept of “reason” represented by “objective” scientific knowledge (Ezrahi 1990). It is difficult to say precisely when this idea developed into a concept, namely of systematically analysing the impact and effects of modern technology in an unbiased and comprehensive way to provide decision makers with a reliable and inter-subjectively acceptable source of knowledge. A demand for and supply of scientific expertise on the uncertain and probably detrimental effects of technology can be traced back to early industrialization (see e.g. Radkau 1989). The date when this concept was baptized “technology assessment” and it was suggested that it be “institutionalized” in the political sense of being embedded in a non-temporary organizational entity with a definite role in political decision making can be given as 1967, when US congressman Emilio Q. Daddario in a report to the US congress pled for “strengthening the role of the congress in making judgements among alternatives for putting science to work for human benefit” (quotation according to Vig/Paschen 2000a, p. 3). In the same year, the same congressman introduced a bill stipulating the establishment of suitable procedures in the congress, which led in 1972 to the decision to establish the Office of Technology Assessment as a congressional agen-

cy, which has become the role model for many subsequent parliamentary TA units.

Ideas and concepts are entities of elusive character, “mind games” that in order to become “operable” have to materialize into rules and practices, which again can be cast into some form of organizational structure that provides for continuity and interaction with (or functionality for) other practices. In the case of TA, the institutional form has to provide for links to science, society and foremost politics as TA is intended not only to provide insights but mainly to use these to inform decision making. The concept of TA is open to being taken up by academia, civil society organisations or industry. For democratic reasons, the legislature has always been at the centre of TA’s ambitions since it constitutes an interface between the public and the government and is the place for public deliberation of public problems. As the process and the result of institutionalization in Western Europe have shown, however, a wide variety of modes of parliamentary TA are possible, and the mission is not necessary only to inform parliament but especially in many European TA institutes to inform and stimulate public discourse. And looking beyond parliamentary TA, if TA can be regarded as a “democratic innovation involving parliaments, scientists and the public sphere” (Böhle/Moniz this issue), the possible forms of institutionalization can be manifold depending on a broad set of boundary conditions.

It has been the aim of the current EU-funded project “Parliaments and Civil Society in Technology Assessment” (PACITA)¹ to explore the opportunity structures for and barriers to strengthening the TA concept in the national political contexts of seven European countries where TA infrastructures are not yet in place, be it for national parliaments, or elsewhere in policy making and society. The overall PACITA objective is to empower European member states and associated countries with an interest in TA to make informed decisions about institutionalizing, organising and performing parliamentary TA. At the same time, PACITA is meant to stimulate reflection in regions and countries with established TA organizations (<http://www.pacitaproject.eu>). The insights, reflections and debates initiated by PACITA about a possible “next wave” of TA

(Hennen/Nierling 2014) are in a way the starting point for the present selection of articles about the institutionalization of TA in this thematic focus of this issue of *TATuP*, which also serves to enrich the PACITA debates on institutionalization.

We present this selection of articles on the following topics that we consider relevant for further understanding the process of TA institutionalization, namely the history of TA institutionalization, the different forms of TA in the current landscape (TA units and forms of distributed governance), the risk of the de-institutionalization of TA that reflects the political side of TA, and the national and international scope of TA. Questions that are addressed in the present issue of *TATuP* are thus: What are the implications of institutional models and what are contextual prerequisites (societal, political, economic and cultural) for TA to flourish, and might they be different in different national, international or historical contexts?

1 A Short History of the “Institutionalization of TA”

Technology assessment as a means of providing policy advice on matters of S&T policy making has been introduced in many Western industrialized countries starting from the late 1960s. Having its scientific origins in systems analysis, planning and forecasting, the field of TA has continued to develop both with regard to conceptual approaches and to research methods. A central and persistent feature that is connected to its founding idea is its orientation on practical problems of policy making (Decker/Ladikas 2004). In particular, national parliaments have always been regarded as the main addressee and client of TA. From its beginnings at the U.S. Congress in the 1970s, TA has always been tied to two impulses that have driven its development (Guston/Bimber 2000): One drives towards expert analysis, while the other drives towards public deliberation. Accordingly, two models of TA have been pursued throughout the history of TA: a policy analysis model and a public deliberation model. The policy analysis model was predominant when the Office of Technology Assessment (OTA) was established at the U.S. Congress in 1972. Congress intended to provide a broad base of knowledge

for its own deliberations and decisions by creating an institution that should be able to inform legislators on any new developments in S&T and should function as an “early warning” facility with regard to possible problems and needs for political intervention.² The policy deliberation impulse was highly important for the foundation of a series of TA institutes associated with national parliaments in Europe in the 1980s and 1990s. This “second wave of TA” (Rip 2012) has consequently been connected with a focus of TA on the involvement of stakeholders and the wider public in TA processes. Parliamentary TA in Europe took up the heritage of the OTA but differs from it in many respects, both organisationally and with regard to methodologies and mission (Vig/Paschen 2000b; Hennen/Ladikas 2009; Enzing et al. 2012; Ganzevles/van Est 2012; Hennen/Nierling 2014).

The situation regarding the political institutionalization of TA is nowadays characterized mainly by the European Parliamentary Technology Assessment Network (EPTA), which comprises 13 national parliamentary TA institutions including the TA body of the European Parliament with another three associate members with a close relationship to their national parliaments (<http://www.eptanetwork.org>). In addition there are many other active organisations or units at universities or other public research institutions and authorities as well as private think tanks that offer their advice to governmental bodies as well as to private enterprises and to civil society organisations from the local to the international level. No overview is available of the TA landscape in this respect. The manifold contributions by TA practitioners with all kinds of backgrounds to *TATuP* and the documented individual and institutional membership in the German-speaking TA Network may serve as a proxy (<http://www.openta.net/netzwerk-ta>). For the US, the article by *Sadowski/Guston* in this issue provides at least a sketch.

With regard to the political and national (or international) levels of government, there still are big white spots in the TA map. Especially for Europe – given the existing European R&D policies and its ambition to establish a “European Research Area” – the expansion of the TA landscape to many Southern, Eastern and Central European countries can be considered a challenge.

In these countries, the idea and concept of TA (not to speak of institutional bodies) is either widely unknown (see *Leichteris* in this issue) or – despite an often longer history of debates among political and scientific advocates – has not succeeded yet in gathering enough support from influential actors to materialize into some form of institution (see *Böhle/Moniz* for Portugal and Spain, or *Delvenne et al.* for Belgium/Wallonia in this issue).

2 Forms of Institutionalization

In the existing literature on TA institutions, the focus on parliament is usually very strong. Historical, political and cultural reasons are used to trace the path and the specific mission with which a TA institution was set up for a parliament (Vig/Paschen 2000b; Enzing et al. 2012; Delvenne 2011). This often highlights the diversity of different TA models, practices and effects. Three primary institutionalization models of TA have become very popular for describing European TA institutions: the parliamentary committee model, having a parliamentary committee leading a parliamentary technology assessment unit; the parliamentary office model, describing a specific office to accomplish TA studies at the request of parliament; and the independent institute model, where a TA institute operates outside parliament but with parliament as main client (e.g. Hennen/Ladikas 2009; Enzing et al. 2012).

In this issue, the state of discussion of different institutional models of TA is taken a step further. Without a doubt, parliament was the first and most important addressee of TA. In times where science and technology issues form prominent items on political agendas, a range of parliaments in Europe followed the US example and initiated an institution providing parliament a better capacity to control the government's decisions in S&T policy making. In its institutional practices, however, the scope and reach of TA today goes beyond this connection to parliament. Currently, there are a number of institutionalized forms of TA in Europe – be it connected to the parliament, to the government or to the scientific system. The contribution by *van Est, Ganzevles* and *Nentwich* thus argues in favour of opening the strong parliamentary perspective of TA also and equally to other important

actors, namely the government, the science system and society. Based on empirical research into the current practices of TA institutions in Europe, they develop a modelling approach giving TA institutions a function of mediating science and technology issues across four spheres: parliament, society, government, and science. The diversity of national models which is outlined in their contribution shows the social and political specifics of a TA institution and – especially for new TA players – the necessity of finding one's own place and model of institutionalization (see also the articles by *Böhle/Moniz*, *Delvenne et al.* and *Leichteris*). It also intends to offer a continuous tool for existing institutions to let them determine their own place – and maybe also any necessary strategic shift – in relation to their European counterparts.

Having one institute specifically dedicated to TA is the most obvious form of an institutionalization of TA. Interestingly, two articles in this volume provide more flexible understandings of institutionalization. The contribution by *Sadowski/Guston* describes a distributed model of institutionalization for the current US context. Here, TA competence and functions are scattered across a range of institutions from all the four of the spheres identified above. The article shows that although OTA – as the “mother institution” of TA and still an important point of reference for European discussions – ceased to exist long ago, the US can offer a way that either can be developed into a new institutional mode or at least may serve as a good starting point for future initiatives for parliamentary TA. Even without a fixed TA institution, TA as such seems in the meanwhile to be deeply anchored in society and some of its institutions, so that a distributed model of TA can be described for the current US landscape.

Another “flexible” institutional model is proposed by *Leichteris* in his contribution on the state of the art of TA in Central and Eastern Europe. He proposes a network model of institutionalization for these countries with no tradition of “thinking in TA terms”, a lack of trained personnel and merely an “unrecognized need” for TA by political and societal actors. This (rather transitional) institutional model serves to unite the existing “forces” for the way ahead.

3 The Other Side of the Coin: De-Institutionalization of TA

The process of setting up a central body of technology assessment with the function of providing independent advice to the national policy-making level is often – as is proven by the history of many parliamentary TA units (see contributions in Ganzevles/van Est 2012; Vig/Paschen 2000b) – a long and winding road of initiatives, a search for TA advocates in the academic and political system, a search for supportive coalitions across existing political factions, a constant argument against hostile positions from relevant players in the innovation system and a defence against accusations of allegedly following a hidden agenda of “technology arrestment” and the like. This corresponds to the experience of many practitioners and supporters of parliamentary TA bodies that it is part of their daily business (even after years of established successful practice) to prove the usefulness and functionality of scientifically sound, non-partisan political advice under conditions of quickly changing political agendas and changing political personnel, resulting in changing expectations and interests of its client. In the case of the parliament, the fact that “the client” is made up of several groups often representing opposing interests remains the source of a constant challenge. It is thus not surprising that the OTA, the first case of a successful long-term institutionalization of the TA concept, not only has been a role model for many subsequent institutionalizations but also provides the first case of “de-institutionalization”.

The recent history of parliamentary TA in Europe has seen the discontinuation of the Institute Society and Technology (IST) at the regional parliament of Flanders and the “rededication” of the Danish Board of Technology from a publicly funded body advising the Danish Parliament to a non-profit private foundation. It is of course impossible to come up with a universal explanation of the central causes of de-institutionalization. The little that is available in terms of analytical reasoning points, however, at a few critical factors. One obviously is holding, or failing to hold, the balance between opposing expectations of influential political factions. The fact that the OTA was always regarded with suspicion by the

republicans as a “tool of the democrats” is regarded by many as at least a decisive factor that led to the closure of the OTA as soon as the republicans won the majority in both chambers of the US congress. And *Sadowski* and *Guston* (this issue) hold that the current “aggressive partisan divide” in the congress is not at all conducive to any new initiative to re-establish a non-partisan and scientifically independent body of policy advice. Being non-partisan and independent in the sense of not serving specific interests bears the risk of not making it into the news and having a low public profile. Reflecting on the reasons of the closure of the Flemish IST, its former director says in an interview: “... independence also means that nobody will defend you when you are in trouble” (Rabesandratana 2013). The lack of public profile and thus support (as a consequence of its formal ties to parliament) has also been addressed as a cause of the political “down grading” of the Danish Board of Technology (Horst 2014; see also *Delvenne et al.* this issue).

Another risk factor is most probably TA’s hybrid character as a concept between science and policy making. In the case of IST, one decisive argument purported in parliamentary debates was that parliament is not there to fund research. In the words of IST’s former director: “... there was a perception that research is nothing parliament should pay for, that what we did was somehow already done by researchers elsewhere” (Rabesandratana 2013). In the case of DBT, the argument of the ministry for cutting DBT’s budget to zero was the need for reallocation of budgets for strategic research and that the DBT (although funded from the research ministry for decades) could not be regarded as doing research. Being neutral and independent and at the same time publicly visible, serving the needs of policy makers and at the same time having one foot in academia, taking a leading role in public S&T debates without taking a definite position in them are challenges ingrained in the concept of TA as an “honest knowledge broker” (Pielke 2007). This demands a lot of “balancing activities” which involve vulnerability – the more so when “hostile environments” search for “good reasons” for discontinuation.

4 “TA has Politics”

“Hostile environments” are often suspicious of a hidden anti-technocratic agenda held by TA. TA stands for a specific open, transparent, democratic, inclusive and “socially robust” mode of S&T policy making. The establishment of TA, as *Delvenne et al.* argue in this issue, is not only conducive to non-technocratic modes of R&D but is itself, as a concept, also tied to pushing the democratisation of S&T governance, thus not just taking a neutral position in R&D policy making. For Flanders and Wallonia, *Delvenne et al.* show that TA initiatives flourished in an era of a policy shift to “strategic science”, i.e. a shift from isolated academic research to research that is socio-economically relevant. It was in this context of active R&D governance that initiatives of further opening the process of knowledge production and R&D decision making to a broad range of stakeholders successfully introduced TA into R&D governance debates. *Delvenne et al.* argue that “TA has politics” as it is aligned with a deliberative, open, democratic style of S&T governance and has often been primarily fostered and thus “naturally” promoted by policy makers with a left or green background. They argue that TA – in the course of being adopted as a neutral knowledge broker serving the needs of all fractions of parliament – loses its teeth, i.e. is no longer supportive of the goals associated with it by its advocates. This is a challenging argument that contradicts the discourse legitimizing TA that is usually heard in institutionalization debates – not surprisingly since institutionalization ideally needs the support of all sides, which is especially true in a parliamentary context with changing majorities. Does the institutionalization of TA as a central body providing policy advice on the national level (e.g. parliament) necessarily come at the price of being “tamed”? Our guess is that this question is by no means unfamiliar to TA practitioners involved in advising parliament, but the question may deserve to be dealt with more thoroughly and openly when reflecting on the opportunities, modes and risks of institutionalization.

5 National “TA Habitats”

We concluded from our research during the PAC-ITA project on the conditions conducive for TA to evolve in countries where this has not yet been the case that the qualitative concept of what we called a “TA habitat” is important when thinking about introducing TA in a specific country (Hennen/Nierling 2014). The specific societal features of such a TA habitat provide room for further research but, drawn from the historical development of today’s TA institutions, it seems that the process of institutionalization is highly dependent on a specific political context and the presence of political entrepreneurs pushing the idea of TA. The climate supportive of TA institutions thus seems to involve an interest by parliament, a scientific community trained and interested in interdisciplinary problem-oriented research, and a civil society eager to discuss and to raise their voice in issues of science and technology policy making. The country case studies discussed in this special issue also provide evidence of such features of national TA habitats. In some cases the authors of the articles even play a double role: a scientifically trained observer of institutional landscapes on the one hand, and a national political entrepreneur of TA on the other.

The contributions by *Böhle/Moniz* and *Delvenne et al.* both describe the long political negotiation processes which stand behind recent attempts and failings to institutionalize TA at either national or regional parliaments in Europe, where the smart use of “windows of opportunity” plays as important a role as the constant efforts of political and scientific actors to keep the idea of TA alive on the rapidly changing political agendas. They differ, however, when they analyse the specific function that TA has in the political environment. *Böhle/Moniz* still argue for the neutral function of TA as a means to “increase accountability and responsiveness of the political system regarding its innovation and environmental policies”, which from their point of view can even serve as a first response to concerns citizens have expressed in Southern Europe. *Delvenne et al.* argue in contrast that the main motivation for an institutionalization of TA is deeply intertwined with the interest-driven push of regional science, technology and inno-

vation (STI) regimes to be the dominant climate characterising the Belgian TA habitat.

The contributions by *Leichteris* and *Sadowski/Guston* both are sceptical – although for very different reasons – of the sensibility of the long-held role of parliament as the best location for a national TA institution. The Lithuanian case stands for the difficulties which occurred in a recent exploratory process to ground modern forms of science-based policy making in Central and Eastern Europe where the centralist heritage of the Soviet Union is still prevalent. *Leichteris* concludes that the political climate is not yet ready for TA as far as politicians as well as governmental and science organizations are concerned. He thus proposes a transitional strategy of lobbying for and marketing of TA. The US case describes in contrast a habitat still supportive of TA where TA has until now been taken for granted. The supportive nature of this habitat is grounded in a range of organizations in the field of government, civil society and science even though it lost its prominent role in congress. The extent to which TA will be carried on in this distributed manner in the US in the future remains to be seen.

Both case studies furthermore allow us to shed a bit of light on the concept of “distributed TA” (*Sadowski/Guston*) – a term principally characterizing a lack or a flaw as it implies that TA is only a niche business. Can it also be understood as a strength when TA is distributed at decisive points in the R&I process – one could think of integrated or constructive TA early on in the R&I process? At least for specific national contexts, such a mode of institutionalization can be regarded as a prerequisite or a necessary step towards building more politically influential structures. In the case of Central and Eastern Europe (*Leichteris*) as well as in the context of international development (*Ely et al.*), the network model can be regarded as a step forward.

6 Future Outlook: TA on an International Level

How can we think of the future of institutionalization? Following the previously successful attempts of Western European institutions, can we still think of fixed pathways? The experiences of

de-institutionalization (Denmark, Flanders, US) as well as the forward looking contributions in this special issue show that there are still followers of the “traditional Western model of TA” (see *van Est et al.*, *Böhle/Moniz* and *Delvenne et al.*) on the one hand, but also a range of modified pathways towards the future (*Leichteris* and *Sadowski/Guston*) on the other. It becomes obvious that the concept of TA as well as its forms of institutionalization need to be flexible and open to adapt to different political and social surroundings while still reflecting its specific heritage.

Although TA as a means of providing policy advice has *per se* a strong focus on the national context, it does not appear to be reasonable or even possible anymore to limit TA to national borders. Not least the European Union – an important actor for funding research as well as for cross-border exchange and learning – has also triggered institutionalization processes in certain countries, as with the PACITA project, which can be understood as a recent “re-energizer” of TA institutionalization (see *van Est et al.*). Without doubt, the role of the EU is a difficult one here: funding projects for a limited time span leaves the cooperation and the processes started in an open status, where stabilization and continuity would be preferable. The contribution by *Peissl/Barland* addresses the challenges that such a European perspective poses to TA. Thinking in a “Cross-European TA” perspective about TA pits benefits against its drawbacks: great opportunities for collaboration and mutual learning as well as a stronger position of the TA community through networks like EPTA versus a lack of structural funding from the EU; thus a strong dependence on the national context while at the same time facing the difficulties of European cooperation when attempting to transfer national results. Notwithstanding these difficulties, the European or even international perspective on TA will gain even more weight in the future.

The contribution by *Ely et al.* opens such a truly international perspective by presenting how TA can be employed by non-governmental organisations in developing countries. The idea which this perspective strengthens is the “broadening out and opening up” not only of the concept of TA but also of the actors and institutions involved in TA to international organizations,

such as the UN or OECD but also to globally operating NGOs. What we can learn from the international exercise *Ely et al.* present is the need for TA to stay flexible and open in order for it to be fruitfully employed in various contexts, but also the need to be clear about the limits and frame of the TA concept and of the institutions which can be named TA institutions.

Notes

- 1) PACITA (FP7, 2011–2015) is a four-year research and action plan, funded by the European Commission Framework Program 7, under Theme SiS-2010-1.0.1 Mobilisation and Mutual Learning Actions.
- 2) For a history of OTA and an analysis of the reasons for its closure in 1996 after a major change from a democratic to a republican majority in congress, see Herdman/Jensen 1997; Hill 1997.

References

- Decker, M.; Ladikas, M. (eds.), 2004: Bridges Between Science, Society and Policy. Technology Assessment – Methods and Impacts. Berlin*
- Delvenne, P., 2011: Science, Technologie et Innovation sur le Chemin de la Réflexivité. Enjeux et Dynamiques du Technology Assessment Parlementaire. Academia-L’Harmattan: Louvain-La-Neuve, Belgium*
- Enzing, C.; Deuten, J.; Rijnders-Nagle, M. et al., 2012: Technology Across Borders. Exploring Perspectives for pan-European Parliamentary Technology Assessment. Brussels*
- Ezrahi, Y., 1990: The Descent of Icarus: Science and the Transformation of Contemporary Democracy. Cambridge, MA*
- Ganzevles, J.; van Est, R. (eds.), 2012: TA Practices in Europe. Deliverable 2.2. PACITA Project, European Commission. Brussels*
- Guston, D.H.; Bimber, B., 2000: Technology Assessment for the New Century. New Brunswick, NJ*
- Hennen, L.; Ladikas, M., 2009: Embedding Society in European Science and Technology Policy Advice. In: Ladikas, M. (ed.): Embedding Society in Science and Technology policy. European and Chinese Perspectives. Brussels, pp. 39–64*
- Hennen, L.; Nierling, L., 2014: A Next Wave of Technology Assessment? Barriers and Opportunities for Establishing TA in Seven European Countries. In: Science and Public Policy 41/3 (2014), pp. 1–15*

- Herdman, R.C.; Jensen, J.J., 1997: The OTA Story: The Agency Perspective. In: Technological Forecasting and Social Change 54 (1997), pp. 131–143*
- Hill, Ch.T., 1997: The Congressional Office of Technology Assessment. A Retrospective and Prospects for the Post-OTA World. In: Technological Forecasting and Social Change 54 (1997), pp. 191–198*
- Horst, M., 2014: On the Weakness of Strong Ties. In: Public Understanding of Science 23 (2014), pp. 43–47*
- Pielke, R., 2007: The Honest Broker: Making Sense of Science in Policy and Politics. Cambridge*
- Rabesandratana, T., 2013: A Quiet Death. Interview with Robby Berloznik on the closure of IST. In: Research Europe 24 (2013), p. 6*
- Radkau, J., 1989: Technik in Deutschland – Vom 18. Jahrhundert bis zur Gegenwart. Frankfurt a. M.*
- Rip, A., 2012: Futures of Technology Assessment. In: Decker, M.; Grunwald, A.; Knapp, M. (eds.): Der Systemblick auf Innovation. Technikfolgenabschätzung in der Technikgestaltung. Berlin, pp. 29–39*
- Vig, N.J.; Paschen, H., 2000a: Introduction: Technology Assessment in Comparative Perspective. In: Vig, N.J.; Paschen, H. (eds.): Parliaments and Technology. The Development of Technology Assessment in Europe. New York, pp. 3–35*
- Vig, N.J.; Paschen, H., 2000b: Parliaments and Technology. The Development of Technology Assessment in Europe. New York*

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