

menhangs mit Blick auf diskursive Verfahren der TA durchaus kontrovers. Dies betrifft

- die kommunikations- und gesellschaftstheoretischen Voraussetzungen der Diskurstheorie (einschließlich der damit konkretisierten Problemdiagnosen),
- die strukturellen Rahmenbedingungen für praktische Diskursversuche,
- die praktischen (politischen und gesellschaftlichen) Voraussetzungen für die Teilnahme an Diskursverfahren ebenso wie für die Rezeption ihrer Ergebnisse,
- die verfahrenseigenen Möglichkeiten und Grenzen zur Erbringung der erwarteten "Leistungen" (kompetentere Entscheidungen durch Steigerung von Rationalität; praktikablere Entscheidungen durch Erweiterung der Beteiligung Betroffener; legitimere Entscheidungen durch umfassende Reflexion berührter Interessen und Wertpräferenzen),
- wie schließlich die beobachtbaren tatsächlichen Funktionen empirischer Diskursverfahren hinsichtlich des Inhalts und Ablaufs von Entscheidungen.

Der Diskurs zum Diskurs ist noch in einem zu frühen Stadium, als daß generalisierende Aussagen zum jetzigen Zeitpunkt möglich wären. Somit stellen die Beiträge dieses Buches eine Einladung an alle Leser dar, die unterschiedlichen Interpretationsmöglichkeiten zu vergleichen und auf der Basis der vorgestellten Fallbeispiele eigene Rückschlüsse über Potential und Grenzen diskursiver und partizipativer Verfahren in der Technologiepolitik zu ziehen.

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Rathenau Institute (ed.): Technology Assessment through Interaction – A guide. Working document 57, December 1997. 98 p. ISBN 90 346 3505 8

The Rathenau Institute devotes part of its funds to activities aimed at the further development and evaluation of technology assessment methodologies. This guide is a product of such an activity. It is an attempt to provide Technology Assessment analysts with a taxonomy for the

process side of *interactive* projects. It is hoped that the guide will contribute to the further development of Technology Assessment.

Definition of Interactive TA

The primary function of an interactive TA analysis is to contribute to the influencing of *development paths* in a direction desired or at least accepted by the affected parties. In order to realize this, TA is carried out from the perspectives of the *parties affected*, as well as the *suppliers*, the *sponsors*, the *embedders* and others actively involved in the process. For this purpose, a method is selected in which the questions posed and the way they are answered, the data and the assumptions, the conclusions and recommendations of the analysis all result from an interaction between the TA analyst and the involved actors.

Interactive TAs do not coincide with technology development processes. Also, an interactive TA differs from approaches where a *mediator* attempts to reconcile the views of a number of influential people in a problematic area. At most, an interactive TA simulates technology development processes, with an explicitly evaluative goal, for the purpose of exerting influence upon actual processes.

Lastly, it is helpful to position interactive TA with respect to *constructive TA* (CTA). The stakes by *constructive TA* (Daey Ouwens et al., 1987; Rip et al., 1995; Schot & Rip, 1997), are more or less the same, i.e. to influence *development paths*. However, by no means all the examples from the CTA literature and CTA practice demonstrate an interactive approach. The *parties affected* by the technology are usually involved in the analysis; users in their active role are also often involved, but *suppliers*, *sponsors* and *embedders* are not always involved. In addition, some CTAs are directed towards a specific category of *parties affected*, i.e. consumers (cCTA; Fonk, 1994), producers (pCTA; Rip, 1995) or the government (gCTA; Schot, 1995). In an interactive TA, all these perspectives are by definition involved.

Aims, limitations, key questions and structure of the guide

The guide's first aim is to provide guidelines for carrying out an interactive TA in a way that it contributes optimally to policy formation and technology development. There is as yet relatively little experience with interactive forms of TA. That is why, in this guide, the set of tools offered is still incomplete and has not yet been extensively tested in practice. However, people who dare to set foot on the relatively virgin soil of interactive TA will be able to tread safely when accompanied by this *travel survival guide*. They will gain a lot of experience along the way, which could contribute to the further development of this tradition within the field of TA research.

Before the discussion of the contents of the toolbox – the methods and techniques – a number of methodological insights are given. They can be used, in the first place, to determine if a job should be tackled interactively, and in the second place, to determine how the tools must be employed. The methods and techniques discussed are not always interactive in themselves. However, they can be used in an interactive process, under appropriate methodological conditions. A second aim of this guide is to describe the circumstances under which an interactive TA can influence policy making and technology development.

With this as a backdrop, the guide deals with the following key questions: *In what cases is an interactive form of TA worthwhile? What methodological guidelines apply to interactive TA? How can such guidelines be put to use? What methods and techniques might be useful for that purpose?*

These questions are split into a number of sub-questions, which are dealt with in successive chapters: *In what cases is an interactive TA worthwhile and what functions could it fulfill?* Chapter 2 first provides a general answer. Then, two different situations are discussed more specifically: one in which the interactive TA is primarily intended to contribute to policy formulation, and one in which it is intended to influence technology development.

What is essential in an interactive TA and what methodological guidelines and other considerations are thereby implied? Partly based

on methodological literature, Chapter 3 provides guidelines for an interactive approach to a TA, derived from the functions discussed in Chapter 2. Further, chapter 3 discusses the *closure* of an interactive TA and the qualitative criteria for its evaluation.

How can the guidelines be put into practice in diverse situations, and what limitations apply? This question is addressed in Chapter 4 by discussing a number of examples. Since the interactive approach is still relatively new, there are comparatively few examples of actual practice. Thus also a number of examples are used which do not fully conform to the definition of an interactive TA, but which do indicate a number of interesting ways to carry out in practice an interactive TA.

What steps can be differentiated with respect to an interactive TA? Chapter 5 provides a step-by-step plan for interactive TAs, which is a rather simplified depiction of an essentially iterative process. Some steps have to be repeated, and the order in which they are performed may vary too. A brief summary of the step-by-step plan is given, followed by practical advice for implementation. Methods and techniques to be used are also suggested. In an interactive TA, much use is made of methods and techniques that are not specifically intended for interactive forms of analysis. In such cases, reference is made to relevant literature, and an indication is given of the way in which these methods and techniques can be employed in an interactive TA. Those methods and techniques that are specific to an interactive TA are discussed in greater detail.

Putting Integrative TA into perspective

A few remarks to put TA into perspective are emphasized in the concluding summary:

- An interactive TA will not always result in total agreement.
- The participants in an interactively conducted TA are naturally only a selection out of all the people who are involved in the courses of development concerned in the *real world*. The fact that the participants go through a learning process, and together construct courses that they all re-

gard as meaningful, does not necessarily say anything about the *real world*.

- An interactively conducted TA is a kind of social experiment, an attempt to carry out a creative and innovative analysis in as power-free a context as possible. But in the *real world power* does in fact also play a role, and interactive forms of TA, too, can provide little more than insights which interested parties can use to influence existing relationships and processes. Moreover, this guide was primarily compiled with a public body, parliament and the government, in mind as the addressee of the TA.
- Finally: interactive forms of TA contribute to social and political judgment, and in so doing they also influence processes of policy formation and technology development. Interactive TA cannot replace these processes, if only because the time available and the number of participants is limited. TA is and remains a form of analysis – based on research and discussion – that sets out to influence these processes.

(compiled by I.v.Berg)

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Weniger Luftverkehr schafft Platz für mehr Luftverkehr?

Rezension der Studie von Hans-Georg Ungefug: "Luftverkehrsanalyse 1998: Umstieg vom Flug zum Zug. Innerdeutscher Flugverkehr im Wettbewerb mit der Schnellbahn".

von Torsten Fleischer, ITAS

Der Flugverkehr weist unter den Verkehrs trägern die höchsten Wachstumsraten auf. Das Wachstum der 249 Fluggesellschaften des Internationalen Luftverkehrsverbandes (IATA) im

Passagierverkehr fiel 1996 mit 8,4 % im internationalen Linienverkehr fast doppelt so hoch aus wie im Inlandverkehr (+ 4,4 %). Das Frachtgeschäft legte im internationalen Linienverkehr um 6,5 % und im Inlandverkehr um 2 % zu. Für die nächsten fünf Jahre rechnet die IATA mit einem durchschnittlichen Wachstum des Weltluftverkehrs von 6,6 %. In Asien und im südlichen Pazifik wächst der Luftverkehr mit 7,3 % weiterhin am stärksten, während Europa (6,2 %) und die USA (6,1 %) unterdurchschnittlich zulegen dürften. Die Arbeitsgemeinschaft Deutscher Verkehrsflughäfen (ADV) rechnet mit einem Zuwachs des Passagieraufkommens auf deutschen Flughäfen von gegenwärtig etwa 110 Mio. auf rund 200 Mio. Fluggäste bis zum Jahr 2010.

Bereits seit geraumer Zeit wird in Deutschland diskutiert, ob und in welchem Umfang der Kurzstrecken-Luftverkehr, und hier insbesondere der innerdeutsche Flugverkehr, auf die Bahn verlagert werden kann. Anfangs wurde diese Debatte fast ausschließlich mit umweltpolitischen Argumenten geführt, inzwischen werden seitens der Fluggesellschaften und der Flughäfen zunehmend auch ökonomische Gesichtspunkte ins Felde geführt - der wirtschaftlich wenig lukrative Kurzstreckenverkehr soll auf den überlasteten Flughäfen knappe Kapazitäten räumen für den Verkehr auf Mittel- und Langstrecken.

Hans-Georg Ungefug hat in seiner lesenswerten Studie die Entwicklung des innerdeutschen Luftverkehrs zwischen 1990 und 1996 dargestellt. Neben einer allgemeinen Analyse der Entwicklung des Luftverkehrs in diesem Zeitraum werden 18 wichtige innerdeutsche Strecken detaillierter untersucht. Dazu lagen ihm zusätzlich zu den amtlichen Statistiken erstmals auch Zahlen der Deutschen Bahn AG zu Reisendenzahlen auf diesen Relationen vor. Die Statistiken sind in einem umfangreichen Diagramm- und Tabellenwerk akribisch zusammengetragen und exzellent nachvollziehbar dokumentiert. Der begleitende Text kommentiert und interpretiert nicht nur das Datenmaterial, sondern vermittelt zudem weitere wertvolle Hintergrundinformationen.

Zentrale Ergebnisse von Ungefugs Untersuchung sind:

- Der "Luftverkehrsboom" in Deutschland wird vor allem vom Auslandsreiseverkehr