FACTSHEET ON
TECHNOLOGY ASSESSMENTS

What is a technology assessment?

- "Technology assessment" refers broadly to an extensive and interdisciplinary process of policy research intended to anticipate and address the medium- and longer-term consequences of the introduction and use of a technology.[1]

- Technology assessments are a part of policy-making practices in many countries, and use a broad array of different components and methodologies.[2]

- A technology assessment can serve several purposes, but it is generally meant to provide policymakers and other stakeholders with different policy options (and an informational base to support them) to address potential societal implications of new technologies.

- Assessments are broad in scope, often encompassing legal, ethical, social, economic, and other aspects of a new technology, and take into account both risks and benefits associated with it.

- Assessments may include participatory components involving consultations with stakeholders beyond policymakers and technical experts, including the general public.

Is a technology assessment the same thing as a risk assessment?

- Technology assessments are much broader in scope and in subject than risk assessments.

- A risk assessment is primarily a regulatory process concerning a specific intervention or application of a technology, to determine whether that intervention or application can go ahead or if the risks to the environment/human health/society etc. are unacceptably high. A technology assessment is a broad policy analysis examining the general implications, risks, and benefits of one or more policy decisions relating to a novel technology. It is intended to support

policy-making around a new technology or class of technologies, and not regulatory decisions around specific applications.

- Risk assessments are routinely conducted by regulatory agencies worldwide, while formal technology assessments carried out by specialized agencies in support of legislative decision-making have been institutionalized primarily in Europe and North America. Therefore, familiarity with, and experience conducting, technology assessments may not be evenly geographically distributed.

- Technology assessments require a far more extensive range of expertise across different domains than risk assessments, and are far longer processes, often requiring time for public consultation and several rounds of feedback and analyses from experts and stakeholders.

- Technology assessments also differ from horizon scanning: horizon scanning is an expansive but relatively rapid process of identifying developments and technologies that may be suitable subjects for a technology assessment.

How are technology assessments currently conducted?

- Specialized agencies have been established in several countries to conduct technology assessments in support of policy decision-making. These include the Parliamentary Office of Science and Technology in the UK, the Office of Technology Assessment at the German Bundestag (Parliament) in Germany, the Parliamentary Office for the Assessment of Scientific and Technological Choices in France, and the Science, Technology Assessment, and Analytics division of the Government Accountability Office in the USA.[3]

- There is no single common approach to conducting technology assessments (unlike risk assessments), and individual agencies draw on different methodologies and techniques.

- Although methodologies differ significantly among organisations, many of these institutions have developed extensive guidance on the design and implementation of technology assessment, which underpins their work.[4]

- Technology assessments typically involve some combination of literature reviews, primary data collection, interviews/surveys of domain specialists, interviews/surveys of affected stakeholders, interviews/surveys of the general public, open consultations, workshops, and meta-analyses. Analytical approaches employed may include cost-benefit analyses, simulation modelling, trend extrapolation, cross-effect matrices, and scenario road mapping.

- Design and implementation of a specific assessment will ultimately depend on its objectives and available resources.

Case study:

An illustrative example of a technology assessment is the one conducted by the European Parliamentary Technology Assessment Network, focused on genetically modified (GM) plants and foods and completed in 2009.

This was a 3 year, multi-stage process conducted jointly through an international collaboration by 8 different agencies: the Office of Technology Assessment at the German Parliament (Germany), the Institute for Technology Assessment (Austria), the Danish Board of Technology (Denmark), the Norwegian Board of Technology (Norway), the Centre for Technology Assessment

(Switzerland), the Parliamentary Office of Science and Technology (UK), the Science and Technology Options Assessment Panel (European Parliament), and the Science and Technology Institute (Flemish Parliament).

Its goal was to provide information on the following related to GM plants and food:

- Regulatory challenges the EU may face in the coming years

- Points of public debate in future

- Means of addressing the issues identified related to the above

In the first stage, researchers from all the participating institutions who had previously been involved in technology assessments of genetically modified plants at the national or subnational level took part in a series of in-person brainstorming sessions to develop key issues meriting further investigation.

This was followed by a systematic review of the results of past technical assessment projects related to genetically modified plants, with a particular focus on statements relating to future prospects and predictions with regards to potential problems, impacts of decision-making, and demands for action. Prior to this a common set of criteria and a checklist for the review had to be developed by participating researchers.

A further survey of experts in the field of GM crops and food was then developed, which 183 of those experts were invited to take.

Finally, the results of the survey, the systematic review, and the in-person sessions were brought together and analysed to produce the final technology assessment.

For more details, please see: https://www.itas.kit.edu/pub/v/2009/buua09a.pdf

[1] Global Technology Assessment Network, "what is technology assessment?", accessed November 14, 2022, https://globalta.technology-assessment.info/what-is-ta

[2] Josée C.M. Van Eijndhoven, Technology assessment: Product or process?, Technological Forecasting and SocialChange, Volume 54, Issues 2–3, 1997

[3] European Parliament Technology Assessment Network, "Members", accessed November 14, 2022, https://eptanetwork.org/members

[4] U.S. Government Accountability Office, "Technology Assessment Design Handbook", accessed November 14, 2022, https://www.gao.gov/products/gao-21-347g

For more information visit:
www.genedrivenetwork.org