Technology in Society 42 (2015) 9–20

Contents lists available at ScienceDirect

Technology in Society

journal homepage: www.elsevier.com/locate/techsoc

Issues and opinions

Office of Technology Assessment: History, implementation, and participatory critique

Jathan Sadowski

Consortium for Science, Policy & Outcomes, Arizona State University, Tempe, AZ 85281, USA

ARTICLE INFO

Article history:
Received 22 December 2013
Received in revised form 20 January 2015
Accepted 21 January 2015
Available online

Keywords:
Office of Technology Assessment
Technology and science policy
History of technology policy
Democratic control of technology

ABSTRACT

The Office of Technology Assessment (OTA), which was created by the Technology Assignment Act of 1972, was—and still remains even after its abolishment in 1995—a unique congressional agency. OTA provided members of Congress with their own means of understanding and evaluating complex science and technology matters—of which there are no shortages. It spurred an entire literature of academic research both about OTA and the idea of technology assessment more generally. Understanding the legislative history and implementation of the Technology Assessment Act is crucial not just for scholarship, though. OTA was a blueprint for institutionalizing politically accountable technology assessment. Even as technologies advance at rapid rates, OTA still offers valuable lessons that scholars and policy-makers alike ought to glean. This paper places OTA in a contemporary context of (institutionalized) technology assessment. It contributes to a better understanding of OTA's origins by tracing its lineage to a set of federal reports beginning in 1929. It then analyzes OTA's response to pragmatic implementation questions of how to strike a balance between speed, depth, scope, and temporal focus. Lastly, it uses a public values framework to critique OTA's failure to adequately incorporate participatory elements into its processes.

1. Introduction

On October 13, 1972, President Nixon signed the Technology Assessment Act into law. This act created the Office of Technology Assessment (OTA), an organization responsible for providing Congress with authoritative and unbiased reports on a wide range of present and emerging issues in science and technology. OTA was supposed to play a pivotal role in providing legislators with a capability for understanding and governing emerging science and technologies before they had detrimental environmental, economic, or social impacts. There is much worth learning from both OTA's *history* and *implementation*; this paper will provide a detailed analysis and a participation-oriented critique of both these elements.

Such analysis is especially important in the modern context of institutionalized technology assessment (TA) in the USA—or, lack thereof. As Sadowski and Guston [60] argue, "The lack of a centralized TA capacity moves the US back in time, pre-OTA, when TA functions existed but were so decentralized and varied that they were hardly recognized as such. There is no primary organization, public or private, to innovate new methods, establish best practices, or provide policy guidance. Instead, there are disparate organizations, the connections among which cannot even be called a network." While OTA has now been defunct for almost as long as it was operational, it still persists as the best model we have to learn from with regards to the successes and failures of institutionalized TA. Many of the problems that OTA was established to address still persist today, largely because issues surrounding technology-in-society are constant. As long as people keep

E-mail address: Jathan.Sadowski@asu.edu.

http://dx.doi.org/10.1016/j.techsoc.2015.01.002
0160-791X/

developing and using technologies there's no end point where we can declare all social, ethical, and political problems have been properly assessed and solved.

Academic efforts at refining and implementing TA did not stop when OTA shut down. And much of that work has taken place, in various forms, within the pages of this journal. For instance, in a highly cited paper, Guston and Sarewitz [34] lay out the framework of "real-time technology assessment," which then paved the way for "anticipatory governance" [3]—both of which are explicitly situated "in a national political context that had eliminated a congressional OTA and consistently rejected attempts to reestablish it" (Ref. [33]: 230). Rather than waning import, researching and developing TA—which supports moral reflexivity [66], sustainable development [44], methods of risk assessment [36], innovation policy and governance [24], funding and investment prioritization [76], and other such goals—remain a critical endeavor. Yet, even as we try to move ahead with different means and ends of TA—particularly with regards to institutionalized practices—there is still plenty to glean from the trials and errors of OTA (e.g., the politicking endemic to government agencies and pragmatic implementation questions of how to strike a balance between speed, depth, scope, and temporal focus). In short, attempts at TA would be remiss if they didn't draw insights, whether positive or negative, from the OTA experience.

In an effort to trace a chronological lineage, the paper's next section will begin with a brief examination of the 1937 report, *Technological Trends and National Policy* (TTNP), which was commissioned by the National Resource Committee. Inouye and Süsskind [41] argued TTNP constitutes the first "modern technology assessment." In looking at this report—and the two reports that laid the groundwork for it in 1929 and 1933, respectively—I will pay particular attention to TTNP's contributions in helping create an intellectual and political context conducive for TA.[1] This will provide a backdrop for looking at the motives behind and development of the actual TA Act of 1972, and the subsequent details about the legislation's introduction to Congress. The historical context and events that led up to Congress institutionalizing TA will help create a better understanding how OTA—an influential and, at the time, unique organization—came into existence and subsequently helped kick start much of the research around TA.

The paper's third section will then provide a high level analysis of OTA's existence as a political entity that had to navigate the turbulent waters of Congressional control. OTA had a rough beginning and cycled through its first and second director in relatively quick order. Since OTA was the first institutionalized form of TA there wasn't precedence that could help guide its development and operations. The agency did not end up hitting its stride and finding stability until the tenure of its third director. After this elevated view, I will dive into finer level details about OTA's methodology, knowledge production, and policy influence. From there I will explain the context and cause of the agency's demise in 1995.

The paper's fourth section will use a "public values mapping" framework [11] to describe why participation was one of OTA's public values. It will then critique OTA's notorious failure to adequately incorporate participatory elements into its processes, and in the process argue that participation ought to be taken seriously as a public value for (institutionalized) TA.

2. A history of the technology assessment of 1972

2.1. Build up

TTNP was born out of two previous reports. Spurred on by the post-WWI era, in 1929 a committee chaired by Herbert Hoover, who at the time was President Coolidge's Secretary of Commerce, released the first report titled *Recent Economic Changes in the United States*. According to the authors, the report's purpose was to "make a critical appraisal of the factors of stability and instability; in other words, to observe and to describe the American economy a whole" (Ref. [56]: v). The report had a wide breadth and covered a variety of topics related to the American economy. While they reviewed new technologies, the committee was explicit about their decision to remain descriptive and not forecast or make predictions.

Research directed at foreword-looking development would come in the follow-up report commissioned in 1929—by the newly elected President Hoover—as a response to the current economic crisis. Although, this second report, *Recent Social Trends in the United States*, wouldn't be issued until January 1933, right before F.D. Roosevelt succeeded Hoover. In this case, the committee sought to understand the systems that constitute society and then use that knowledge to shape how the nation would develop. In their own words, "The outstanding problem might be stated as that of bringing about a realization of the interdependence of the various factors of our complicated social structure, and of interrelating the advancing sections of our forward movement so that agriculture, labor, industry, government, education, religion, and science may develop a higher degree of coordination in the next phase of national growth" (Ref. [57]: xii). The committee's ability to study the tight coupling between society and technology—what contemporary scholars refer to as "socio-technical systems"—was lacking, in part because there was not an established framework to build from, which prevented an in-depth analysis. They showed they were self-aware of this fact by explicitly stating that their forecasts were subject to change and should not be taken as "dogmatic in form and spirit."[2]

These two early reports developed research crucial for the conception of the 1937 report of the National Resource

[1] Much of the information about the history and implementation of TTNP is derived from Inouye and Süsskind's [41] excellent study of the Technological Trends and National Policy report.

[2] As Inouye and Süsskind explain, on January 2, 1933, "The *New York Times* gave extensive coverage to the report, including a front-page story ('Long-Range Social Plan for Nation Urged by Hoover Board to Stabilize Economic Trends and Curb Unrest') and a special supplement (sec. 2) of sixteen tabloid pages containing a detailed review" (Ref. [41]: 599).