Congress Re-Empowered

Why the legislative branch needs better science and technology policy advice—and how it can get it.

By Wayne T. Brough and Josh Withrow

Congress is struggling to cope with a multitude of complex technology issues, from data privacy to fake news to the future of work. Artificial intelligence is on the verge of being deployed on a widespread basis, as is 5G technology, and the Internet of Things is on the horizon. Drones and driverless vehicles already pose significant legal and regulatory challenges, with more sure to arise. Few observers have confidence in Congress's ability to handle these issues. "Scientific knowledge and technological development," noted Deborah D. Stine, are "changing constantly," but "the same is not always true of public policy."[1]

When Congress is called upon to address science and technology issues, it must grasp the relevant technical details, attempt to understand their economic implications, and take into account the competing interests of a variety of parties—disruptive innovators, displaced incumbent industries, labor unions concerned about the effects of technology on employment, and others. The institutional capacity of Congress to understand complex technical issues not only affects the quality of legislative output but also raises important questions about governance more broadly. There has been an ongoing debate over whether Congress has ceded too much of its legislative authority to the executive branch, where the various agencies interpret and implement legislative policy descriptions. Congress's capacity to address complex policy questions—or its lack of capacity to do so—has important ramifications for the balance of power among the three branches of government.

The Will of Congress

The story of how Congress stopped jealously guarding its legislative powers and instead began to welcome opportunities to hand them off to executive agencies is a long and complicated one. Woodrow Wilson played a leading role, first as an academic political scientist —"administrative questions are not political questions," he wrote in 1887—then as a progressive governor and president.[2] The politicians, academics, and public intellectuals who welcomed the rise of the administrative state generally expected that the will of Congress would dominate public policy, with executive branch agencies acting as mere passive administrators of the laws passed by Congress.

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[1] Deborah D. Stine, Congressional Research Service, RL34454, *Science and Technology Policymaking: A Primer* (May 27, 2009), https://fas.org/sgp/crs/misc/RL34454.pdf.

[2] Woodrow Wilson, "The Study of Administration," *Political Science Quarterly* vol. 2 (1887), pp. 197–222.

Over time, however, some observers began to question this view of government.[3] William Niskanen, examining the functioning of the executive branch, posited that bureaucrats are budget maximizers, with budgets offering a proxy for important variables in a bureaucrat's utility function, including salary, perks, the ability to manage, and prestige.[4] Importantly, the interests of the bureaucracy, he noted, do not necessarily align with those of the legislature:

> While legislators can use delegation as an effective substitute for the acquisition of expertise, delegation can also be problematic. Experts can use their expertise to take actions whose consequences are both unknown to legislators and detrimental to legislative interests (i.e., experts can use their expertise to wrest control of the policy-making process from legislators). Thus, legislators must realize the potential benefits of delegation without abdicating control over policy.[5]

The inability to evaluate complex issues exacerbates the problem of bureaucratic discretion. For the typical member of Congress, information relevant to policymaking is acquired from personal staff, committee staff, hearing witnesses, federal agencies, and special-interest lobbyists. For technical information, Congress is especially dependent on agencies of the executive branch and interested stakeholders. This can contribute to the dynamic, noted by Theodore Lowi, by which Congress abdicates its legislative authority to bureaucrats and interest groups, to the detriment of social welfare.[6]

The executive branch is not alone in encroaching on Congress's constitutional prerogatives: the judiciary, too, as Alan E. Wiseman and John R. Wright have argued, has acted in ways that strengthen the executive branch and its regulatory agencies.[7] The Supreme Court's *Chevron* decision established what has become known as "*Chevron* deference," whereby courts will defer to regulatory agencies in instances where legislative intent is ambiguous.[8] Under this doctrine, as long as an agency acts in a reasonable manner, its interpretation of the legislation is acceptable. The judiciary, Wiseman and Wright emphasize, has inserted itself as a significant new layer in the public policy process.[9]

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[3] See, for example, James Buchanan and Gordon Tullock, *The Calculus of Consent* (Ann Arbor: The University of Michigan Press, 1962).

[4] W. A. Niskanen, *Bureaucracy and Representative Government* (Chicago and New York: Aldine-Atherton, 1971).

[5] Ibid., p. 363.

[6] Theodore J. Lowi, *The End of Liberalism: The Second Republic of the United States* (New York: Norton, 1969).

[7] Alan E. Wiseman and John R. Wright, "*Chevron*, *State Farm*, and the Impact of Judicial Doctrine on Bureaucratic Policymaking," working paper (May 2018), https://cdn.vanderbilt.edu/vu-my/wp-content/uploads/sites/166/2019/04/14091903/wiseman_wright_statefarm_may_2018.pdf.

[8] Chevron U.S.A., Inc. v. Natural Resources Defense Council, Inc., 467 U.S. 842 (1984).

[9] Wiseman and Wright, "*Chevron*, *State Farm*, and the Impact of Judicial Doctrine on Bureaucratic Policymaking," op. cit., note 29.

The shift away from congressional control has continued with executive branch review of agency rulemakings by the Office of Information and Regulatory Affairs within the Office of Management and Budget, which began in the Reagan era but has been a critical tool for every president since then.[10] This review mechanism provides the president and the administration an opportunity to help shape rulemakings according to their preference rather than the will of Congress.

Establishing an agency within the legislative branch that assists Congress on science and technology issues may be a way to rectify some of the asymmetries of information and analysis among the branches of government. Among other things, it could allow Congress to draft legislation much more precisely (if, in fact, that is what members of Congress want), which could help address some concerns over the *Chevron* doctrine by leaving implementing agencies far less discretion in interpreting legislative mandates.

Of course, building new institutions to strengthen congressional capacity can create new potential problems. To the extent that Congress must monitor the behavior of the new institution, there will be challenges to align the incentives of the new organization with the needs of the members and committees who will be the "consumers" of their work.[11] In this case, members of Congress face monitoring costs and agency problems of the sort associated with any delegation of authority, so institutional design is an important consideration.[12]

Various strategies have been proposed for building congressional capacity on science and technology. One suggestion—arguably the most simple and direct—is to expand congressional staff. Other proposals involve creating a new institution responsible for providing Congress with information and analysis related to science and technology—or reviving the Office of Technology Assessment, which served this role for Congress from 1974 until its dissolution in 1995. Alternatively, some suggest that science and technology assistance can be housed in an existing institution, such as the Government Accountability Office, which, indeed, recently launched an initiative to ramp up its work in this area.[13]

We will discuss each of these three suggestions in turn.

The Limits of Congressional Staffing

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[10] Regulatory Planning and Review, Exec. Order No. 12866, 58 Fed. Reg. 51735 (October 4, 1993).

[11] In a principal-agency framework, Mathew McCubbins identifies four strategies that Congress can use to ensure its control of the bureaucracy: contract design, screening and selection, monitoring and reporting requirements, and institutional checks. See Mathew D. McCubbins, "Common Agency? Legislatures and Bureaucracies," in *The Oxford Handbook of Legislative Studies*, Shane Martin, Thomas Saalfeld, and Kaare W. Strøm, eds. (Oxford: Oxford University Press, 2014).

[12] See Armen A. Alchian and Harold Demsetz, "Production, Information Costs, and Economic Organization," *American Economic Review* vol. 62, no. 5 (December 1972), pp. 777–795.

[13] Adam Mazmanian, "GAO Expands and Elevates Tech Assessment," *FCW*, Jan. 29, 2019, https://fcw.com/articles/2019/01/29/gao-new-tech-office.aspx?m=2.

Before considering the merits of increasing congressional staffing, it is worth looking at staffing trends in recent decades.[14] The average U.S. representative's D.C. office today has a full-time staff of roughly eight (down from more than nine in the late 1970s),[15] while for Senate D.C. offices the average has hovered around twenty-four.[16] In any given year, the thousands of pages of bills considered by Congress will run the gamut from basic government funding legislation to highly complex proposals that span a diverse range of issues, from agriculture to cybersecurity to finance, meaning that the opportunity for staffers to develop a high level of subject expertise is fairly limited.

Exacerbating this limitation is the fact that, as noted by Zach Graves and Kevin Kosar, "roughly 40 percent of Capitol Hill staff are under 24 years of age and staff turnover is high, which inhibits the development of expertise."[17] Aside from the obvious churn created by electoral turnover in Congress every two years, the combination of heavy workloads and uncompetitive salaries greatly accelerates the rotation of the "revolving door" between Congress and outside industries and special interests, who can always use (and pay top dollar for) expertise that can facilitate favorable legislative outcomes.

Assisting the individual office staff are the staffs of the standing and select committees of each chamber, some of whom share time working directly with the individual offices of members of their committees. The overall congressional committee staff has dropped by nearly 40 percent since the late 1970s.[18] These more specialized committee staffers are few in number—several dozen at most for the typical committee—and their ranks suffer turnover that is only slightly less than that of the personal offices: depending upon the position, between 70 and 90 percent of House committee staff had under five years of tenure on average between 2006 and 2016, with the percentage for Senate committee staff being only slightly less.[19] While turnover rates are hardly a perfect predictor of the competency or collective knowledge of the staff, they do

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[14] Zach Graves and Daniel Schuman, "The Decline of Congressional Expertise Explained in 10 Charts," *TechDirt* (blog), October 18, 2018, https://www.techdirt.com/articles/20181018/10204640869/decline-congressional-expertise-explained-10-charts.shtml.

[15] Congressional Research Service, R43947, *House of Representatives Staff Levels in Member, Committee, Leadership, and Other Offices, 1977–2016* (September 13, 2016), https://www.everycrsreport.com/files/20160913_R43947_da2c748f8678c287d55f1dc7ef1c843c6f25a93f.pdf.

[16] Congressional Research Service, R43946, *Senate Staff Levels in Member, Committee, Leadership, and Other Offices, 1977–2016* (September 13, 2016), https://www.everycrsreport.com/files/20160913_R43946_9d82f82510af41260ed64c6994c959debaeb8a4e.pdf.

[17] Zach Graves and Kevin Kosar, "Bring in the Nerds: Reviving the Office of Technology Assessment," R Street Policy Study no. 128 (January 2018), https://2o9ub0417chl2lg6m43em6psi2i-wpengine.netdna-ssl.com/wp-content/uploads/2018/04/Final-128-1.pdf.

[18] Graves and Schuman, "The Decline of Congressional Expertise Explained in 10 Charts," op. cit.

[19] Congressional Research Service, R44683, *Staff Tenure in Selected Positions in House Committees, 2006–2016* (November 9, 2016), https://crsreports.congress.gov/product/details?prodcode=R44683; and Congressional Research Service, R44685, *Staff Tenure in Selected Positions in Senate Committees, 2006–2016* (November 9, 2016), https://crsreports.congress.gov/product/details?prodcode=R44685.

illustrate the difficulty of keeping a high level of specific expertise on any given issue before Congress over time. Moreover, high turnover rates increase agency costs, as new staff members must be monitored and trained, and the learning curve on complex issues can be steep.[20]

Turnover rates also matter because there is reason to believe that staff size is less important than staff experience in helping lawmakers advance their legislative agendas and producing more substantive legislation.[21] As Jesse Crosson and coauthors wrote in a recent paper, "Our analysis shows that a targeted effort to retain the most long-serving legislative staff would likely be much more effective than would broad (and highly costly) attempts to increase staff size or staff compensation across the board."[22]

Other recent studies have also emphasized that it is not necessarily the level of staffing that matters as much as the ability of staff to process complex information. This question of absorptive capacity was first raised by Grant Tudor and Justin Warner, who note that the issue is not necessarily a lack of technical information, but more a lack of ability by congressional staff to effectively process the vast amounts of data that are available.[23]

It is worth noting that there are several organizations that sponsor fellowships for a small number of scientists, engineers, and physicians, usually early in their careers, to work for members of Congress and committees. Although these fellows often have the opportunity to work on substantive projects, their appointments usually last for just one year, so their ability to contribute meaningfully or build expertise is very limited.

The Rise and Fall of the Office of Technology Assessment

Another idea often proposed to help Congress evaluate complex technical policy issues involves establishing a dedicated office within the legislative branch. The recognition that Congress should have its own expert source of technological advice stretches at least as far back as the early 1960s. The legislative branch found itself being requested to fund new technological priorities such as the space program, the next generation of nuclear armaments, and advances in telecommunications. "The Congress has no source of independent scientific wisdom and advice," said Senator Edward Bartlett in 1963. "Far too often congressional committees for

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[20] Here and below, we use the term "agency costs" in the economic sense—that is, referring to the resources that go into ensuring that an agent is acting as its principal wishes—and not in the budgetary sense of the funding for a government agency.

[21] Jesse M. Crosson, Geoffrey M. Lorenz, Craig Volden, and Alan E. Wiseman, "How Experienced Legislative Staff Contribute to Effective Lawmaking," CEL Working Paper 2018-002, Center for Effective Lawmaking (September 2018), https://thelawmakers.org/wp-content/uploads/2018/09/CEL-Working-Paper-2018-002-002-1.pdf.

[22] Ibid.

[23] Grant Tudor and Justin Warner, "The Congressional Futures Office: A Modern Model for Science and Technology Expertise in Congress," paper, Harvard Kennedy School Belfer Center for Science and International Affairs (May 2019), https://www.belfercenter.org/sites/default/files/2019-06/PAE/CongressionalFuturesOffice.pdf.

expert advice rely upon the testimony of the very scientists who have conceived the program, the very scientists who will spend the money if the program is authorized and accounted for."[24]

After much debate, Congress established the Office of Technology Assessment (OTA) in 1972 to serve, in essence, as its own in-house tech think tank, providing the legislature with analysis of complex questions of science and technology. For the next two decades, OTA produced hundreds of reports and kept a full-time staff of over a hundred technical experts (along with dozens more hired contractually) to work on the office's priorities and often to consult with members and committees. The subjects OTA covered in its reports ranged from acid rain to the role of polygraphs in legal proceedings to missile defense systems.

Some lawmakers feared that an expert body such as OTA could easily become a partisan, agenda-driven institution if it were given the latitude to actually recommend policies. Thus, the mission of OTA was explicitly not to make direct legislative suggestions to Congress, nor even to reach consensus on a given issue. Rather, OTA was to present a range of options based on current research.[25] The line between expert analysis and what might be called agenda control could at times be blurry, but the OTA staff was cognizant of the need to maintain the agency's reputation for neutrality.

Nevertheless, the shadow of partisan influence dogged OTA throughout its existence—at some times more fairly than others. It did not help OTA's image that one of its most vocal early board members, Sen. Edward Kennedy (D-Mass.), was seen as using the office as an aid in enacting a pro-regulatory legislative agenda. Kennedy's early interference in particular—which included positioning some of his own staff at OTA—caused members of the Technology Assessment Board, the body charged with overseeing OTA, to resign and tainted the organization's reputation for impartiality from the start, especially among Republicans.[26] OTA further aroused Republicans' ire during the Reagan administration, when it was commissioned for a report on the Strategic Defense Initiative (popularly dubbed the "Star Wars" program) and issued its opinion that the program was technologically infeasible.[27]

Thanks in large part to these partisan concerns, OTA's fate was effectively sealed by the midterm elections of 1994, which brought the Republican Party its first majority in both houses of Congress in over half a century. Part of incoming Speaker Newt Gingrich's "Contract with America" platform during the campaign had been a promise to scale back the footprint of Congress itself.[28] The number of staff members supporting Congress had more than doubled over

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[24] *Establishment of a Congressional Science Advisory Staff: Hearing on H.R. 6866 and H.R. 8066, before the Subcommittee on Accounts, Committee on House Administration*, 88th Cong. (1963) (written statement of Senator E.L. Bartlett of Alaska, quoting his original statement of August 13, 1963), p. 12.

[25] Peter D. Blair, *Congress's Own Think Tank: Learning from the Legacy of the Office of Technology Assessment (1972–1995)* (New York: Palgrave, 2013), p. 52.

[26] Colin Norman, "O.T.A. Caught in Partisan Crossfire," *Technology Review* (October/November 1977), https://ota.fas.org/technology_assessment_and_congress/norman/.

[27] Graves and Kosar, "Bring in the Nerds," op. cit., p. 7.

[28] Text of the "Contract with America" has been archived at https://web.archive.org/web/19990427174200/http://www.house.gov/house/Contract/CONTRACT.html.

the preceding 30 years, making a reasonable case for a significant haircut.[29] OTA's entire $22 million budget was zeroed out, its staff was let go, and it closed its doors in September 1995.[30]

OTA's core functionality was not replaced. This was exacerbated by the fact that other staff who may have had some ability to fill the void were also drastically reduced. The Government Accountability Office staff was cut by nearly 30 percent between 1993 and 1997, while the Congressional Research Service took more than a 10 percent trim.[31] Notably, the House Committee on Science, Space, and Technology also took one of the most drastic cuts— laying off nearly half its staff members, dropping from 86 in 1994 to 45 the following year.[32]

With its technical staff drastically reduced and its legislative burden not getting any lighter, Congress was again left without any neutral, in-house source dedicated to providing it with scientific and technological information and analysis.

The Rise of the Government Accountability Office

Since OTA was only defunded and its authorizing statute was not formally repealed, much of the commentary about bolstering Congress's technological expertise in the last couple of decades has focused on reviving the office. But as long as the GOP held on to majorities in Congress—as it did until 2007, except for part of 2001–02 in the House—and as long as many Republican lawmakers remembered the concerns that caused OTA to be shuttered, restarting the office was not plausible.

Consequently, in 2002, Congress created a pilot project aimed at re-creating some of OTA's functions within the Government Accountability Office (GAO). The new GAO technology assessment program showed promise despite its very limited reach and resources.[33]

The combination of the pilot program's solid performance and the increasing awareness of a pressing need for congressional advice on technical matters resulted in a breakthrough in the Fiscal Year 2019 legislative branch appropriations.[34] The GAO was authorized to explore a major expansion in its technology assessment activities. In January 2019, the GAO launched its new office of Science, Technology Assessment, and Analytics (STAA).

The STAA office was authorized to hire 70 full-time staffers, with expectations to perhaps double that number in the next few years (although by late 2019 the STAA had still only

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[29] Thomas E. Mann, Norman J. Ornstein, and Molly E. Reynolds, *Vital Statistics on Congress*, Brookings Institution, Table 5-2, https://www.brookings.edu/multi-chapter-report/vital-statistics-on-congress/.

[30] This translates to a bit under $37 million in December 2018 dollars, according to the CPI Inflation Calculator at https://www.bls.gov/data/inflation_calculator_inside.htm.

[31] Mann et al., *Vital Statistics on Congress*, op. cit., Table 5-1 (March 4, 2019).

[32] Ibid., Table 5-6, https://www.brookings.edu/wp-content/uploads/2017/01/vitalstats_ch5_tbl6.pdf.

[33] Jon M. Peha, "Science and Technology Advice for Congress: Past, Present, and Future," *Renewable Resources Journal* vol. 24, no. 2 (June 2006), pp. 19–23, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3219892.

[34] Legislative Branch Appropriations bill for 2019, S. Rep. No. 115-274 (2018), p. 48, https://www.appropriations.senate.gov/imo/media/doc/FY2019%20Legislative%20Branch%20Appropriations%20Act,%20Report%20115-2741.pdf.

reached half its anticipated staff size).[35] For perspective, OTA at its peak employed 143 full-time staff, with dozens more working as temporary or contract employees. The STAA's capabilities with a similar number of staff ought to be vastly greater, given the force-multiplier of being able to easily loop in outside experts via the Internet. On the other hand, the STAA is also taking on a mission that is broader than OTA's, including audits of government science and technology programs, evaluation of engineering best practices, and a new "innovation lab" that will explore the use of analytics and emerging tech for their auditing practices.[36]

Indeed, the STAA is developing an effective program tailored to the needs of Congress. It has developed programs to provide various levels of assistance, from quick responses to detailed "technology assessments" comparable to those produced by OTA. As the STAA's chief scientist and managing director, Timothy Persons, notes, the agency has made a "shift in our strategic posture from a product-centered to an agile, content-centered operation in order to capitalize on newer information channels (e.g., podcasts, interactive/visualized data, mobile platforms) and in a manner that fits today's legislative operational tempo."[37]

Additionally, the GAO recently released its *Technology Assessment Design Handbook,* which examines guidelines for the STAA when undertaking a technology assessment.[38] The handbook carefully addresses questions of scope and design for technology assessments as well as other issues aimed at making the reports more useful to members of Congress and their staffs. As the STAA program evolves, it appears to be taking a systematic approach to ensuring that it develops the capabilities to provide Congress with a wide range of products in a manner that is timely, objective, and thorough.

Getting the Institutions Right

More important than the sheer number of personnel is how their efforts are being directed, and the nascent STAA is still in the process of establishing its staff and organizational structure, pending direction from Congress. One of the instructions Congress gave when funding the STAA's creation was that the National Academy of Public Administration (NAPA) produce a report on how a new technology assessment body for Congress might best be structured. NAPA delivered its report in October 2019. Despite instructions from Congress that the report include

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[35] "GAO Science, Technology Assessment, and Analytics Team: Initial Plan and Considerations Moving Forward" (memo), GAO.gov, April 10, 2019, p. 16, archived at https://web.archive.org/web/20190412233347/ https://www.gao.gov/pdfs/about/GAOScienceTechPlan-2019-04-10.pdf. See also Timothy M. Persons, Chief Scientist and Managing Director, Science, Technology Assessment, and Analytics, Government Accountability Office, GAO-20-306T, *Overview of GAO's Enhanced Capabilities to Provide Oversight, Insight, and Foresight*, p. 21, submitted as a written statement to *Experts Needed: Options for Improved Science and Technology Advice for Congress, Hearing before the Committee on Science, Space, and Technology, House of Representatives*, 116th Cong. (December 5, 2019), https://www.gao.gov/products/gao-20-306t.

[36] Persons, *Overview of GAO's Enhanced Capabilities to Provide Oversight, Insight, and Foresight*, op. cit., pp. 1, 2, 19, 21.

[37] Ibid., p. 4.

[38] U.S. Government Accountability Office, GAO-20-246G, *Technology Assessment Design Handbook* (December 4, 2019), https://www.gao.gov/products/GAO-20-246G.

an assessment of the capabilities of OTA relative to those of the existing STAA, the NAPA authors declined to consider reviving OTA as a viable option in their report.[39]

Many experts both inside and outside of Congress have still expressed a strong desire to either renew OTA outright or largely model the STAA on its dormant predecessor. While the appeal of sticking to a known model is understandable, there are several clear advantages to thinking outside of the OTA box. The first advantage of the STAA is obvious: it exists, is funded, and has a current, demonstrated ability to produce high-quality technology assessments. This brings the political advantage of not adding "one more boondoggling board to what we already have," a concern voiced by Congressman H.R. Gross during the debate over creating the original OTA that would almost certainly be voiced by conservatives today.[40]

Moreover, the monitoring costs are lower and the principal-agent problems are fewer when comparing the GAO to a revived OTA model. One structural flaw that presented substantial principal-agent issues was OTA's controlling body, the Technology Assessment Board (TAB), which consisted of six members each from the House and Senate. Although the board was evenly split between the Republicans and Democrats, by law the members were all chosen by the majority leadership of each chamber, lending some automatic credence to charges of bias.[41]

The TAB was often a bottleneck, slowing down the research request process—a crucial fault when one of the most essential needs of congressional staff is that information be timely. The increasingly acrimonious partisan atmosphere in Congress also raises the question of whether the TAB could function at all as an independent check upon OTA, to the extent that it ever did.

In 2005, draft legislation from Rush Holt—a physicist who was then a congressman from New Jersey—proposed the creation of a new OTA-like center that would have been advised by a TAB-like board, but placed the final decision on setting the research queue in the hands of the GAO's director, the comptroller general (CG).[42] The CG is appointed by the president, but is selected from a list of individuals recommended by a bipartisan committee of lawmakers and serves a 15-year term.[43] This selection process, combined with the unusual longevity of term, has done well to ensure that the CG is much more independent of partisan pressures than most

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[39] National Academy of Public Administration, *Science and Technology Policy Assessment: A Congressionally Directed Review* (Washington, D.C.: initially released to Congress on October 31, 2019; subsequently released to the public on November 14, 2019), https://www.napawash.org/studies/academy-studies/science-and-technology-policy-assessment-for-the-us-congress.

[40] Gregory C. Kunkle, "New Challenge or the Past Revisited? The Office of Technology Assessment in Historical Context," *Technology in Society* vol. 17, no. 2 (1995), pp. 175–196, https://ota.fas.org/technology_assessment_and_congress/kunkle/.

[41] 2 U.S.C. 15 § 473(a), https://uscode.house.gov/view.xhtml?path=/prelim@title2/chapter15&edition=prelim.

[42] Rep. Rush Holt, "Holt Technology Assessment Bill, 2005," draft legislation (June 27, 2005), published by Zach Graves with permission from Rush Holt, https://github.com/zachgraves/futurecongress/blob/master/CSTA%20draft%202005.pdf.

[43] GAO.gov, "About" pages, "U.S. Comptroller General," https://www.gao.gov/about/comptroller-general.

political appointees, and makes that officer an ideal choice to preserve the neutrality of the STAA.[44] Also, compared to OTA, the GAO has a looser policy for accepting project requests: it allows any member of Congress to submit a request, although it prioritizes requests from the chairs or ranking members of committees and subcommittees.

The authors of the NAPA report recommended that Congress create a new Office of the Congressional Science and Technology Advisor (OCSTA), which would be responsible for coordinating the STAA's collaboration with outside experts, producing "horizon-scanning" studies that flag future issues likely to be of concern for lawmakers, assisting congressional committees in hiring their own in-house science and technology advisors, and in other ways serving as a science and technology "capacity-builder" for Congress.[45]

Although this recommendation seems sensible, Zach Graves and Daniel Schuman have pointed out that the NAPA report leaves indefinite many key details of the organization and function of OCSTA—some of which may prove problematic.[46] In particular, the horizon-scanning function proposed for OCSTA would likely come under scrutiny for bias, since horizon scanning by definition involves making subjective judgments about what emerging technologies are likely to require attention from Congress. Reports of this kind can also easily fall into the tendency to be prescriptive, assuming a future need for the sort of government interventions in emerging technology that may threaten competition and innovation.

Moreover, before creating such an office, several challenging questions must be explored in detail—including how to minimize agency costs, create correct governance structures, and develop organizational structures that foster the correct incentives for internal management and external dealings with Congress. An excessively bureaucratic structure may succumb to the same pitfalls that frustrated OTA's operation under its TAB. A more streamlined approach can allow a quicker interaction with Congress that is more suited to the information flow in today's interconnected world—but may create pitfalls of its own.

Any attempts to revive the OTA model would have to address the need to more carefully align the incentives and interests of those providing the assessments with those of the legislators whom they are advising. Questions of congressional dominance and how a new legislative agency can curtail bureaucratic discretion in executive branch agencies must be evaluated carefully.

Advantages of the GAO

Skeptics of the GAO's ability to fulfill a technological assessment mission point to the fact that the GAO is primarily an auditing agency, more concerned with overseeing executive agencies on behalf of Congress than consulting with Congress on legislation. Rather than a

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[44] The comptroller general is currently Gene Dodaro, who was appointed in 2010 (having served as acting CG since 2008).

[45] National Academy of Public Administration, *Science and Technology Policy Assessment*, op. cit.

[46] Zach Graves and Daniel Schuman, "Evaluating the 2019 NAPA Report on S&T Policy Assessment and Resources for Congress," Lincoln White Paper (December 4, 2019), https://lincolnpolicy.org/2019/12/04/evaluating-the-2019-napa-report-on-st-policy-assessment-and-resources-for-congress/.

weakness, however, this could be an enormous advantage. In fact, the GAO's mission to eliminate waste, fraud, and abuse may generate incentives that more accurately align the GAO's interests with those of Congress, given the annual budget process and funding constraints.

Let's return to our earlier discussion about the administrative state: the majority of actual policymaking is now performed by executive branch agencies that Congress is supposed to oversee. Rules promulgated by these agencies can have a massive impact on innovation and the deployment of new technologies. The GAO has statutory authority that OTA lacked to compel executive agencies to share documentation of their activities, which would greatly aid in ensuring that these agencies comply with legislative mandates as originated in Congress.[47] (While OTA, too, had subpoena power, it could only be exercised by the TAB—and it was never used—whereas the GAO's subpoena power is in the hands of the comptroller general.)

Certainly, there will be a need to allow the STAA to develop its own culture as a sub-agency somewhat independent from the oversight model of the GAO at large.[48] The GAO has seemed to recognize this in the way it has proposed building out the STAA overall, and the STAA appears to be actively working to shape its future as an effective component within the GAO.

Another criticism of OTA was that its research output was not always aligned to the needs of the members of Congress and staffers whom the office was advising. Peter Blair, a former assistant director of OTA, notes that timeliness is among the most important attributes of a useful analytical resource for Congress, and that OTA's full reports frequently failed to achieve this, often reaching publication weeks or even months after the relevant legislative debate had occurred.[49] The reports were also voluminous, which limited their short-term usefulness to harried congressional staffers looking for concise white papers. The recent NAPA study found that, by contrast, the GAO and the Congressional Research Service offer quick-turnaround reports, networking with outside experts, consultative activities, short-to-medium-term reports, and technology assessments (albeit with modest gaps in networking, consultation, and short-to-medium-term reports).[50] In reviewing the services that would be most useful to Congress, the NAPA report found that the one significant service that is not now performed and that today's congressional agencies are not well set up to perform is horizon scanning. While this service is important, it would not necessarily require the revival of OTA rather than housing such expertise at the GAO.

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[47] 31 U.S.C. § 716, https://uscode.house.gov/view.xhtml?path=/prelim@title31/subtitle1/chapter7&edition=prelim.

[48] See Zach Graves, "Technology Assessment: Can the GAO Fulfill OTA's Mission?" on LegBranch.org, April 20, 2018, https://www.legbranch.org/2018-4-20-technology-assessment-can-the-gao-fulfill-the-otas-mission/; and Will Rinehart, "Should Congress Revive the Office of Technology Assessment?," *American Action Forum Insight*, October 29, 2018, https://www.americanactionforum.org/insight/should-congress-revive-the-office-of-technology-assessment/.

[49] According to former OTA Assistant Director Peter Blair, "In the late 1980s and early 1990s a typical OTA assessment took 18 months to complete and cost about $500,000 (1994) in direct costs." Blair, *Congress's Own Think Tank*, op. cit., p. 51.

[50] National Academy of Public Administration, *Science and Technology Policy Assessment*, op. cit.

Some advocates of reviving OTA note that the very process of creating large-scale reports helped its experts provide a longer view of technologies and their potential, rather than simply focusing on the problems of the moment.[51] But this "forecasting" function would seem to be of secondary practical importance to the more pressing need for high-quality, digestible information available on the timeline of the legislative process. Indeed, during a Georgetown Law policy workshop on technology assessment for Congress, "one [workshop] participant noted that over time, OTA's deliverables came to include more than just the final report—for example, interim reports and background papers—and that a 21st-century model should embrace that approach."[52]

Beyond its publications, another of OTA's strengths was the availability of its experts to meet with lawmakers and their staffs. These interactions were informal, were usually related to work underway or completed for an OTA report, and ranged from briefings to consultation on legislation. This points to the value of having a significant presence of expert personnel available to Congress. As noted at the Georgetown Law workshop, "an in-house entity is more likely to be in tune with the rhythms, needs, and priorities of congressional staffers at any given time" and thus better able "to swiftly provide relevant information."[53]

Conclusion

While there are broad bipartisan concerns about Congress's institutional capacity, particularly on complex technical issues, rebooting OTA is not necessarily the solution given today's political realities. The office labored under the shadow of accusations of bias for its entire existence and was immediately eliminated the very first time that Republicans won majorities in both chambers of Congress. The air of partisan suspicion in Congress has not exactly lessened in the intervening quarter-century.

Unlike rebuilding OTA, expanding and improving the GAO's capacity does not involve creating a new government bureaucracy. And, unlike OTA, the GAO also has a strong reputation for maintaining political neutrality and producing impartial work. As the GAO continues to explore the necessary structural and resource additions that will be needed to accommodate its expanded role in technology assessment and oversight, the opportunity may exist not only to revive the best functions of OTA but to improve upon them.

Whether the GAO remains the primary provider of congressional science and technology advice or another entity—a revived OTA or a new office—steps in, improving congressional capacity provides three important benefits. First, legislation can have significant impacts on markets. Misguided legislation can generate real economic harm, or, contrarily, informed legislation can promote dynamic and innovative markets. Second, budgeting for and oversight of federal agencies requires a degree of expertise, especially when dealing with science and technology issues. More effective oversight can improve fiscal outcomes and better allocate

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51 Aaron Fluitt and Alexandra Givens, "Improving Tech Expertise in Congress: Time to Revive OTA?," policy workshop report, Institute for Technology Law and Policy, Georgetown Law (August 2018), p. 5, https://georgetown.app.box.com/s/2dt0lq0tb6p7kqdf68c7plwewseg3hxs.

52 Ibid., p. 10.

53 Ibid., p. 4.

scarce appropriations dollars. Finally—and perhaps most importantly—strengthened capacity would allow Congress to assert itself more effectively as the first branch of government. As expertise has been delegated to regulatory agencies, the executive branch has become more dominant in interpreting congressional will and determining policy outcomes. Strengthening Congress's ability to address complex scientific and technological issues would rebalance this dynamic while improving the quality of legislative output.

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