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"R&D" Means Something Different on Capitol Hill

Scientists need to learn how information flows to congressional staffers—and the crucial role they play in setting policy.

My first morning as a scientist-turned-Senate-staffer began with a misunderstanding that would become a metaphor for my impending immersion into the complex world of policymaking. When my new colleagues mentioned "R&D," I naively assumed they were discussing critical topics related to research and development. After 10 or so confused minutes, I realized they were referring to Republicans and Democrats—my first lesson in the distinctive language and unique dynamics of congressional work. The "R&D" at the center of their world was vastly different than that of mine.

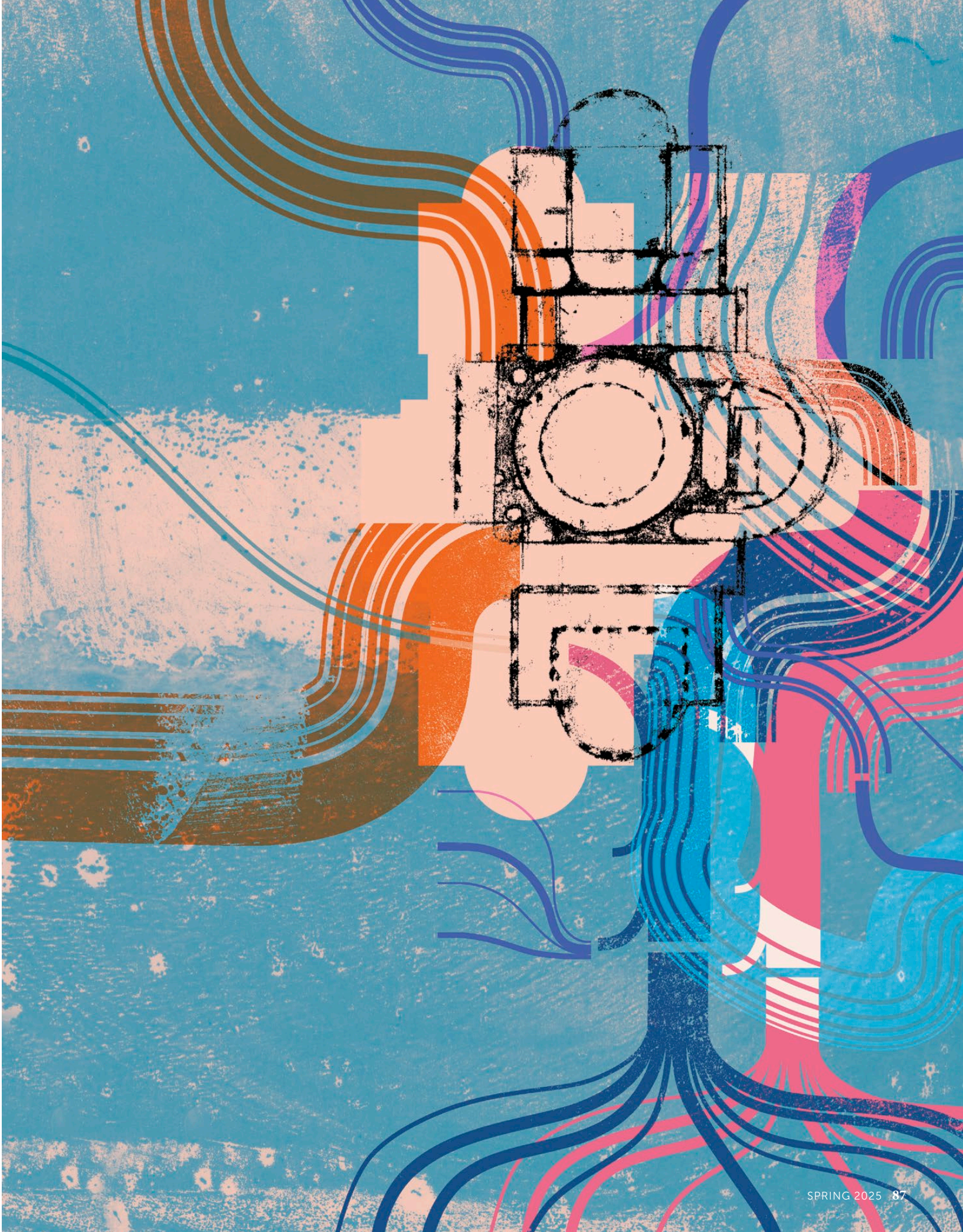
In the 20 years since, I've moved between academic science positions and working on science policy in the Senate, under both Republican and Democratic majorities. My goal during these two decades has remained the same—to promote evidence-based policymaking that advances science and serves the public, regardless of the political landscape. But the transition from scientist to staffer has transformed my understanding of why so many efforts by scientists to influence policy falter. Despite generations of scholarly research to understand how information informs political decisions, scientists and other academics consistently overlook a crucial part of the process: the role of congressional staffers.

The staff hierarchy shapes how scientific information flows to elected officials. Chiefs of staff manage office operations and serve as the member's closest advisors. Legislative directors oversee all policy matters, while legislative assistants (LAs) handle specific issue portfolios. One or two LAs may be designated as the office "science people," although they often lack formal scientific training. Committee staffers provide deeper expertise and institutional knowledge on topics within their jurisdiction. In this ecosystem, few dedicated science positions exist, and science-related topics are distributed among staff already juggling multiple responsibilities.

Nothing—not a master's degree in public policy, not media portrayals, not even reading insider accounts—prepared me for the realities of entering this world on Capitol Hill. Congressional offices are perpetually bustling. Elected leaders and their staff juggle issues ranging from health and taxes to energy, defense, the economy, the environment, and immigration. Back-to-back meetings leave little time to process any given conversation before moving to a completely different subject with a new group of advocates, experts, lobbyists, or constituents.

This frenetic pace has contributed to a disconnect between political institutions and the public. As historian Richard D. Brown observed, Americans live with "agreed-upon fictions of democracy," and one of these is believing our elected leaders are sufficiently informed on all of the

Illustration by Shonagh Rae



various issues they must address. Legislators are expected to make thoughtful decisions on thousands of topics about which they have little or no expertise. In reality, key staffers serve as primary filters for the information reaching elected officials. These senior staffers are the ones who determine what information matters, which scientific voices—if any—are heard, and how all of that is translated into policy. Political scientist Michael J. Malbin described these individuals as our "unelected representatives" because they shape policy without electoral accountability.

When it comes to science policy, staffers' influence is particularly critical. Staffers, not just politicians, are expected to navigate complicated scientific issues in fields outside their expertise. I began my career as a fisheries biologist, but in the Senate I was dubbed a "science person" and inherited a portfolio of topics ranging from the clean energy transition to Superfund sites. In the first months of this role, I had to practice a new way of learning that prioritized speed and reframed my ideas about what it takes to be considered an expert.

As part of a legislator's information ecosystem, staff face mounting pressure to process vast amounts of technical information while balancing competing interests, tight deadlines, and shifting political priorities. Knowing where senior staff turn for help—who they trust, and how they decide who is trustworthy—is the single most effective method for influencing legislative outcomes.

Since I began my career in the early 2000s, scientists' interest in policy engagement has grown tremendously. But the process of training people to work in the field still emphasizes lessons in communication and engagement over understanding the daily realities of how congressional decisionmakers get information. Meanwhile, most Hill staffers struggle to recognize where and how science intersects with pressing issues.

This disconnect led me to conduct qualitative research exploring how senior legislative staff prioritize and value scientific information. With the aim of helping scientists increase their effectiveness on Capitol Hill, I interviewed 30 chiefs of staff, legislative directors, and legislative assistants—the key players who shape nearly every policy decision that moves through Congress. What I learned challenges conventional wisdom about how scientific information flows on Capitol Hill and reveals why many well-intentioned efforts by academics fall short.

It's widely understood that data alone rarely drive decisionmaking. But nearly all the staffers I spoke with described relying on a hierarchy of information sources in which guidance from party leadership, committee staff, and lobbyists takes precedence over expertise from universities, think tanks, and nonprofit organizations. After working in Congress, I was not surprised by the significance of party positions—but I did not expect academic and NGO scientists to have such a low priority.

The hierarchy I observed upends two common notions among scientists: that peer-reviewed findings speak for themselves, and that more information about science leads to more favorable policy outcomes for the science community. Popularly termed the *deficit model*, the latter idea has been long discredited by communication scientists. However, this outdated belief continues to be widely held within the part of the science community that aims to influence policymakers.

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Although staffers frequently noted the value of evidence-based decisionmaking, they suggested that scientists may not appreciate the extent to which party priorities and constituent interests shape how evidence is received and used. As one staffer candidly shared, "Even on issues that are not partisan, you're still working for one side ... It's always the frame in which you have to look at everything." At times, scientists lobbying Hill staffers cannot see the larger framework of political decisionmaking related to their area of expertise. They may lack context about relationships and previous legislation on the issue. Or they may not fully understand how socioeconomic and social factors play an important role in the outcome.

The congressional staff I spoke with noted that decisions about supporting or modifying policy often require balancing multiple perspectives beyond the scientific evidence, which can run counter to scientists' notions of expertise. One chief of staff described scientists'

expectation that staffers rely on models and statistics as "really annoying," noting that scientists "miss a lot of what's actually going on." One Democratic staffer explained, "Scientists come in here thinking that facts are facts and data should influence people in certain ways. And it's not the case." His Republican colleague noted, "Just data on a piece of paper doesn't always help you understand the implications."

A major challenge for staffers is understanding when they're getting bad information. Every day, they receive a barrage of visitors and emails declaring emergencies that demand their immediate attention. "My whole day is people coming in telling me that they have a crisis that I need to address," one legislative assistant shared. "Ninety-five percent of the time they're not telling the truth, and I have to figure out the 5% of the time that they are."

As a result, experienced staffers rely heavily on established networks, both inside and outside Congress. "A lot of the time, it's individuals you know, or know indirectly ... just a friends-of-friends sort of situation," explained one legislative director. By developing sophisticated networks of trusted people on and off the Hill, staffers can quickly separate signal from noise.

The value of these networks is that they give long-serving staffers and committee staff access to deep wisdom about the history and politics of policy ideas. A former chief of staff with 17 years of experience described seeking out "lifers [for information] who know where the bodies are buried in the agencies and can instantly recognize when policy ideas are being reinvented or rediscovered." Conversely, early-career staffers most often turn to government resources like the Congressional Research Service or basic internet searches, which cover the relevant issues but don't contain the nuanced understanding that comes from years of experience on Capitol Hill.

This relationship-based approach often puts academic scientists at a disadvantage, as they typically lack the sustained presence and personal connections that successful industry lobbyists cultivate over years. Not a single person I interviewed said they would call a member of the scientific community first when they needed to learn more about a science-related issue. The first people they turn to are those closest at hand, including party leaders, staff colleagues in other offices, and industry lobbyists.

These challenges are further complicated by the political landscape. Much has been written about a Republican "war on science," but my research revealed a more nuanced reality. Staffers on both sides of the aisle complained that scientists seem to focus most outreach efforts solely on Democratic offices that are perceived as most friendly to their cause.

While the partisan divide in Congress is real, scientists may be inadvertently placing self-imposed limitations on their engagement that widen the gap. Selective attention to one side fosters resentment and creates a self-fulfilling prophecy in which one side of the aisle is more attentive to their science.

During my years in the Senate, I witnessed this selective engagement firsthand. When I asked visiting scientists about their scheduled meetings on Capitol Hill, they rarely mentioned Republican offices—even those representing the scientist's home state or district where they might find genuine interest in their expertise. This failure to reach out does more than just reduce potential influence; it actively undermines the possibility of evidence-based, bipartisan solutions. And it reinforces the very partisan divide on science that we claim to lament, creating parallel policy conversations on Capitol Hill where each party draws from different pools of expertise.

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It is possible to break this cycle. When scientists build relationships across the political spectrum, they open new pathways for expertise to shape legislation. Engaging with both parties, regardless of personal political leanings, creates opportunities for meaningful impact that partisan approaches cannot achieve.

My journey between Congress and academia has shown me that scientists can become effective policy advisors—in fact, they must. My own transformation from a confused new staffer who didn't know what "R&D" meant to a trusted scientific advisor didn't come from academic credentials or peer-reviewed papers. It came from

experience: building relationships, understanding how Congress functions, and recognizing that science acts as one vital instrument within a larger policy symphony. Drawing from this experience and my research findings, I can offer practical approaches for scientists to enhance their policy engagement.

First, people matter more than research citations. While scientists often focus on perfecting presentations, polishing papers, and practicing talking points, successful policy engagement requires sustained relationship-building across party lines. This means going beyond single Hill visits to spending time developing ongoing connections. To that end, universities could provide more support for academic scientists engaged in building these networks, in tandem with their legislative affairs teams.

During interviews, staffers often explained that the scientists who influenced them the most weren't necessarily the most famous, but those they connected with on a personal level by engaging consistently over time and across party lines. When staffers and scientists get to know one another, it helps everyone to share science policy information productively. Rather than visiting Capitol Hill to present scientific information to strangers (often unsolicited), scientists familiar with legislative assistants and correspondents can become trusted sources, respond to requests, or reach out in a more targeted way tailored to the unique characteristics of a district or state.

Second, congressional literacy is crucial. Many scientists visit Capitol Hill armed with data but lacking basic knowledge of how congressional offices function. Congressional staff are smart, highly capable professionals who process information differently than academic audiences because their role demands different approaches to problem-solving. Science organizations and societies that provide policy engagement boot camps should be moving beyond communication skills to include fundamental information about the policy process itself and how legislation moves through Congress. And scientists should not be shocked by the idea that staffers discuss trade-offs and weigh evidence with other interests—that's what they're here for!

Third, the science community should work to present a more unified front. The decentralized nature of academic research, which helps drive innovation and discovery, can sometimes work against itself in policy settings. When multiple scientists independently approach Congress about the same topic, each with valuable but different messages, staffers may struggle to synthesize these insights into actionable policy recommendations. In turn, too many overlapping or seemingly competing visits on a single subject can undermine the ultimate goal of science-informed governance. As one staffer with a strong science background observed, "[Scientists should] invest a little bit more in lobbying. I think that would help us." A more coordinated approach, with new tools for engagement, clear leadership roles, and shared responsibility, could significantly boost scientists' influence in legislative discussions.

In this period of unprecedented political transition and rapid environmental, technological, and social change, new approaches for effectively incorporating scientific evidence into policy are needed. Scientists and science communicators must move beyond approaches that dilute the effectiveness of scientific advice toward a more coordinated model that fosters meaningful engagement between research practitioners and policy experts.

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To make scientific voices more impactful in policymaking, scientists will need to get to know Congress. It's no longer enough to present data; scientists must now take on the patient work of building trust, fostering mutual understanding between scientists and policymakers, and engaging all decisionmakers, regardless of party affiliation. As someone who has traversed the scientific and political worlds, I can attest that building the competencies to bridge the divide is essential to translate scientific knowledge into meaningful action and to serve the public good.

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