ELEMENTS OF A SUCCESSFUL SCIENCE AND TECHNOLOGY POLICY FELLOWS PROGRAM FOR STATE GOVERNMENT

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EXECUTIVE SUMMARY

The Opportunity
State policymakers face a wide variety of issues connected to science and technology. A nonpartisan science-and-engineering advising mechanism can provide policymakers with timely background information and impartial analyses to enable evidence-based decision-making. Likewise, scientists, engineers, and health professionals need to enhance their skills and knowledge in science and technology policy so they can contribute effectively to important, fast-moving conversations at international, national, state, and local levels.

Many scientists and engineers are also interested in careers in public service and policy or want to contribute to science and technology policy discussions from positions in academia, business, industry, and non-governmental organizations. State-level science and technology policy fellowship (STPF) programs serve all of these needs.

Getting Started in Your State
Several states have launched successful STPF programs customized to meet the needs of their state, including full- and part-time fellows, placement in the legislative and executive branches, and with fellows who are matriculated in graduate school and those who have completed their degrees. Before you begin to solicit feedback and garner support for a state-level STPF program, it is important to plan. Consider, for example, the overarching questions that will serve as the basis for your conversations and consider how you articulate fellowship program goals in relation to your state's needs.

In this guide, you will find information to help program planning partners understand the landscape of science and technology policy advising in your state and prepare for external conversations.

- Preparing for the first meetings
- Setting and measuring program goals
- Creating an inclusive program

FUNDAMENTALS FOR LAUNCHING A STATE FELLOWSHIP PROGRAM

Teams that have launched STPF programs have identified the following common fundamentals for creating successful programs. They recommend identifying the following components when considering the launch of a program:

- Champions committed to the establishment of a nonpartisan STPF program and significant interest in science and technology-based policy in the state
- A nonpartisan host organization dedicated to strengthening state government and improving the engagement between scientists and policymakers
- Funding sources

ELEMENTS FOR MANAGING AN EFFECTIVE PROGRAM

Based on efforts in states with existing programs, we recommend building a fellowship program that has the following features. It is not critical that all of these will be in place from the beginning; however, they are important to consider thoughtfully for long-term program success.

- Advisory body
- Selection & placement process
- Training & professional development opportunities
- Plan for impact measurement & program evaluation

State-Specific Considerations for STPF Programs

Each state is unique, and there are a number of different ways to establish and successfully run a state-level STPF. The approach will be influenced by the political context, financial and personnel resources, and key areas of interest and need in your state. Key areas may include: public health, support for industry, environmental stewardship and resource management, transportation, and more.

For reference, additional detailed resources are appended to this guide, including frequently asked questions for state science and technology policy fellowship programs (Appendix 1) and a program evaluation starter kit (Appendix 2). A template fellow handbook is also available for reference.

Idaho Science and Technology Policy Fellow, Dr. Veronika Vazhnik

INTRODUCTION

Purpose
When founding a new policy fellowship program, it is important to first understand the science and technology policy and political landscape in which the program will be operating. All 50 states (and U.S. territories) have unique policy climates that present different challenges and opportunities for developing STPFs, such as political dynamics, legislative and executive structures and governance, academic and industry resources, and more. It is important to gather input from professionals engaged with the state-level policy process -- particularly those who may be familiar with current science advising strategies -- and to use that understanding to develop a program in which fellowships can be embedded within the existing science advising process.

Given the unique situation that each state faces when developing and implementing a state-level STPFs, this guide was assembled based on feedback from teams that have successfully established fellowship programs that can inform efforts in other states. The guide contains tips for getting started during the early planning stages, fundamentals for launching an effective program, and elements for managing an effective program. For reference, additional detailed resources are appended to this guide, including frequently asked questions for state science and technology policy fellowship programs (Appendix 1) and a program evaluation starter kit (Appendix 2). A template fellow handbook is also available for reference.

Background
States that have inaugurated STPFs are diverse in their approach to science advising. Programs that are developing across the country (at both the state and municipal level) are equally diverse in their approaches. Regardless of approach, founders and planners work to build fellowship programs that best serve the interests and priorities of their states.

One of the most important discussions that must happen prior to founding a new fellowship program is how to balance long-term strategy and short-term success. When first starting, it can be difficult to see all inter-dependencies of the planning process that will emerge along the path to a full-fledged program. A worksheet is included in this document to assist new states in thinking through the steps needed to establish a fellowship. The worksheet includes questions that were used by other states when starting their fellowship programs.

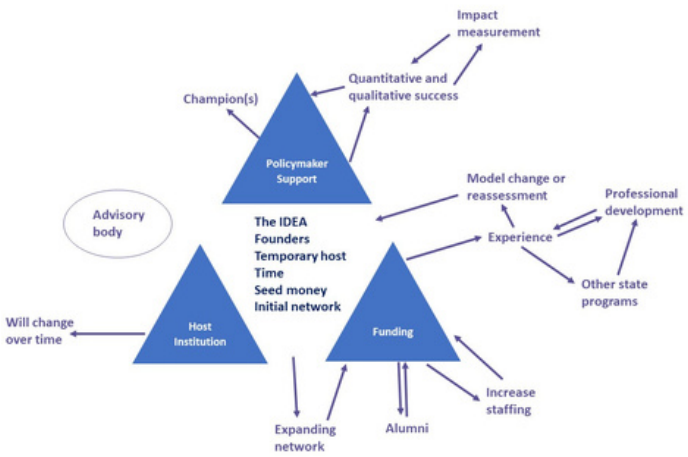

Figure 1. Interdependencies among core fundamentals and elements of an effective STPF program. This figure was adapted from an earlier version developed by Dr. Deborah Stine.

The relationships between the main elements of a fellowship program depend on the state context, the overall goals of the program and envisioned endpoint (Figure 1). Due to this variability in the landscape, it is a challenge to generalize successful approaches from one state to another. Therefore, it is key to begin understanding the landscape in which a fellowship program will be developed prior to working to fully establish a program. Each fellowship program, as first envisioned, will likely not be how the program matures. New information will be collected in the process of building relationships with policy makers, securing funding, and conducting evaluations that will allow the program to fully form.

Current Approaches to S&T Policy Advising and How STPF Programs Help Close Gaps

A successful state STPF program will complement the existing science and technology policy advising landscape in that state and provide scientists, engineers, and health professionals with valuable public service and policy experience. Fellows can help to close gaps in existing science and technology policy advising mechanisms by providing government officials with trusted, nonpartisan input on issues related to science and technology.

Fellowship programs should aim to avoid competition with existing science and technology policy advisors, which may be done by building a coalition of organizations in the state to support an STPF program including all of the advisors listed below that exist in your state. Policy advisors and organizations will provide critical feedback to program planners on how their fellows can be most effective within the existing landscape.

State Government Entities

Several legislative and executive branch offices provide scientific and technical input into the policy-making process, but these resources vary by state. In the legislative branch, some states have 'legislative research offices' or comparable services that are responsible for drafting legislation and providing nonpartisan legal and constitutional input to lawmakers. These offices typically employ individuals with policy and legal experience. Legislators also rely on partisan staff (e.g., legislative assistants, caucus staff, committee staff) to conduct research on policy topics. Science and technology policy fellows can be placed as partisan or nonpartisan legislative staff, given the best fit for the state, and work alongside existing legislative staff on science and technology policy issues.

State executive branch agencies typically employ deep rosters of scientists, engineers, and health professionals. They may conduct their own research and analysis and may provide technical advice to other government officials. A Governor may create a science and technology advising function within their office to advise or work within the government on matters related to science and technology. Executive branch fellows can help bridge gaps and support technical staff and decision makers, can assist the agency by advising legislative committees on technical bills, and can help overcome the agencies' resource limitations to address emerging policy problems or challenges.

Lobbyists

State-level lobbyists and advocates play a significant role in science and technology advising across the country. Sometimes referred to as the 'third-house', lobbyists are a sustained presence at state capitols, work with lawmakers to introduce and amend legislation, and are seen as a trusted resource by many lawmakers when making decisions. Lobbyists may represent science and technology-based organizations or interests. While lobbyists may or may not be nonpartisan, a unique distinction between lobbyists and an STPF program is that lobbyists are agenda-driven, whereas fellows should work to remain as objective and unbiased as possible.

Institutions of Higher Education

Academic institutions have statewide networks that may include legislators and other government entities, and often have government relations offices. Land-grant institutions, which exist in each state, have state-focused missions. Some institutions of higher education (IHEs) have centers, laboratories, or other similar entities that routinely communicate their research and findings to policymakers (e.g., North Carolina Collaboratory; Rutgers University Eagleton Institute of Politics; University of Idaho's McClure Center for Public Policy Research). Some IHEs are dedicated to particular types of research or house laboratories and consortiums that include a focus on and communicate about national, state, and local policy issues.

Those involved in exploring a fellowship program should consult with and work with IHEs and the opportunities they provide that may support development of the program. In some states with many universities and colleges, it may be important to bring together a coalition of representatives from those institutions to enhance discussions with state policy-makers.

State Academies of Science

The National Academies of Science, Engineering, and Medicine in Washington, D.C. were chartered by the U.S. government to act as a science and technology advisory body for the country. While most states have an academy of science (some also including engineering and medicine), a few academies function similarly to the National Academies by providing reports that inform policy decisions and other rulemaking. These academies draw on the scientific brain trust present within their states. (The majority of state academies of science focus on outreach and providing opportunities to learn about science in informal settings, although some state academies are now considering augmenting their role to include policy advising.) Despite the different structural makeup of the state academies, they may provide an organizational home where fellows can be hosted. It may be worthwhile to contact your local academy when making state-level connections and exploring host institutions for fellowship programs, even if the state academy does not currently provide science policy or advising to the state.

Non-Profit Organizations

Many non-profits and professional societies are changing their approach to advocacy from a primary focus on national interventions to a multi-level approach, which includes state- and local-level engagement. These institutions may help new fellowship programs become more quickly aware of the science and technology policy landscape within the state and could be a useful resource for training fellows.

The National Conference of State Legislatures (NCSL) and Council of State Governments (CSG) are non-profit organizations specifically designed to provide research services and resources to state legislatures and state governments, respectively. NCSL and CSG are trusted advisors for state lawmakers and also offer resources that can be helpful for fellows conducting research for their host offices.

For-Profit Organizations

For-profit businesses and research facilities also influence policy related to science and technology at the state level. State officials may rely on professionals at private businesses for technical advice and the industry perspective. Additionally, private businesses often advocate for certain policies via a government relations office, trade associations, or hired lobbyists. Some states (e.g., Virginia) have elected to work with private organizations to host fellows when the organization has a nonpartisan reputation and established relationship with state officials.

PROGRAM TYPOLOGIES

The following examples and definitions illustrate the diversity of fellowship programs that currently exist across the country. This section describes different fellowship models, as well as the benefits and potential challenges of each model. Ultimately, each state program should look different due to the state government structure, resources available, nonpartisan home, champions, and more. We encourage program developers to determine what the minimum viable fellowship program looks like in their state as well as the long-term vision of what a fully funded, successful program would look like.

Full-time Fellowships

A full-time fellowship program is defined as fellows placed full-time for a minimum of 12 months. Full-time fellowships tend to be restricted to professionals who have a PhD or terminal degree and are able to work exclusively in the fellowship program. Fellows in these programs may be at any stage in their careers, including faculty who use their sabbatical time to contribute to public policy, but tend to be early-career scientists and engineers. Full-time fellowship programs often require a longer planning period before launch (up to 3-4 years).

Full-time fellows can be placed in legislative or executive branch positions during their fellowship program. Part-time legislatures require creative approaches to determining how to place legislative fellows, how to optimize their contributions to the policy process and to create valuable experiences for the fellows. Full-time fellowships offer an immersive policy experience and often allow fellows to step into permanent policy positions within their state government and beyond after the fellowship ends. According to the California Council on Science & Technology's (CCST) 10-year evaluation of its STPF program, approximately 90% of fellows gained employment in the policy sphere, including state and local government or other policy advising organizations following their fellowship year.

Part-time Fellowships

Part-time fellowship programs are typically structured for simultaneously enrolled graduate students. These fellows may be asked to commit to a position full-time over a short period of time or may work part-time while taking classes and doing research. Part-time fellows may be placed in the legislative or executive branches or may work directly with an external organization during their fellowship program (e.g., Texas fellows are hosted by a nonprofit organization that works with the state legislature on health policy). There are pros and cons for when the placement should occur for a part-time fellow placed with the legislative branch, particularly in states with part-time legislatures. Regardless, as with full-time fellows, part-time fellows should be well supported and trained so as to not become overwhelmed and to get the most out of their experiences. Part-time fellowship programs tend to be less expensive than full-time fellowship programs and can be developed more rapidly (6-24 months).

Executive Branch Fellowships

Full-time and part-time fellows may be placed within the executive branch, either at a state agency or in the office of the governor. For these placements, fellows typically have a contact/fellow liaison assigned within the agency to provide direction and support, and these fellows work on a project basis, with the project defined at the beginning of the fellowship

program. Depending on placement, an executive fellow's portfolio can shift considerably over the period of the fellowship. Additionally, fellows can be placed in shared appointments between two offices or agencies. Executive branch fellowships can be a flexible benefit to the host office by providing additional capacity. In turn, offices provide valuable policy-making experience for the fellow.

Legislative Branch Fellowships

Similar to executive branch fellows, legislative fellowship positions can be filled by full-time or part-time fellows, but most current models have placed full-time fellows. In most states, legislative fellows are placed directly as partisan or nonpartisan legislative staff, either in member offices or as committee staff; however, this varies widely given the variability in state legislative structures. In states with full-time legislatures (e.g., California, New Jersey), legislators tend to have ample staff, but fellows bring a unique perspective to their host offices given their technical and research backgrounds in science and technology. In these positions, fellows are deeply involved in the policy-making process and can gain valuable experience. Part-time legislative fellows gain similar experience, but are more likely to work on a smaller scope of topics or issues during their fellowship. Outside of the legislative session, fellows may work with elected officials in their home districts and conduct research and analyses in preparation for the next legislative session.

Fellowships with Other/Hybrid Placements

Fellows do not necessarily need to be placed exclusively with a particular branch of state government. In some states, it may make the most sense for fellows to work with multiple branches or for fellows to work with an external organization that provides nonpartisan science and technology policy advice. In states with part-time legislatures, for instance, fellows may work with legislators during the legislative session, but also work on similar topics for state agencies during the legislative interim. If there are no opportunities to place fellows directly in a legislative or executive branch office, fellows may be able to gain similar policy experience through a placement at an organization that provides nonpartisan science and technology policy advice to lawmakers. External organizations, however, may have policy agendas that can limit the experience or impact of the fellow and should only be considered when there are no viable placements within the state government.

Pre-Degree Fellowships

Pre-degree fellowships are often part-time fellowship programs designed for current graduate students; however, full-time fellowships may be available to scientists, engineers, and health professionals without PhDs or similar terminal degrees. Universities may be willing to sponsor pre-degree fellows from their institutions, and thus funding for these programs may be more accessible than for full-time, post-degree fellows. Pre-degree fellows must often balance working on their research or graduate studies while completing their fellowship programs.

Post-Degree Fellowships

Post-degree fellowship programs tend to be full-time placements in the legislative or executive branches. Post-degree programs can serve as a career transition for scientists and engineers interested in exploring or transitioning from a research career to a career in policy and can offer an immersive, policy experience. Though most post-degree fellowships that currently exist at the state-level are filled by early career scientists, engineers, and health professionals, they may also be opportunities for mid- to late-stage professionals to take a sabbatical year. Compensation for post-degree fellows does not tend to vary based on experience, which may limit later stage professionals from applying for the fellowship positions.

CURRENT STPF PROGRAM MODELS

As of February 2022, there are ten active state-level STPF programs. Four are part-time fellowships, either working full-time or part-time over 3 to 6 months, and six are full-time, working full-time for 12 or 24 months. Generally, full-time programs tend to take a longer time from founding to placing fellows, whereas part-time programs have been developed over a shorter timeline (Figure 2). This difference may be due to the fundraising limitations or to prioritization of program rollout for proof-of-concept reasons. Among active programs, those with full-time fellowship structures support post-degree fellows, whereas programs with part-time fellowship structures predominantly support fellows who are simultaneously enrolled in graduate school.

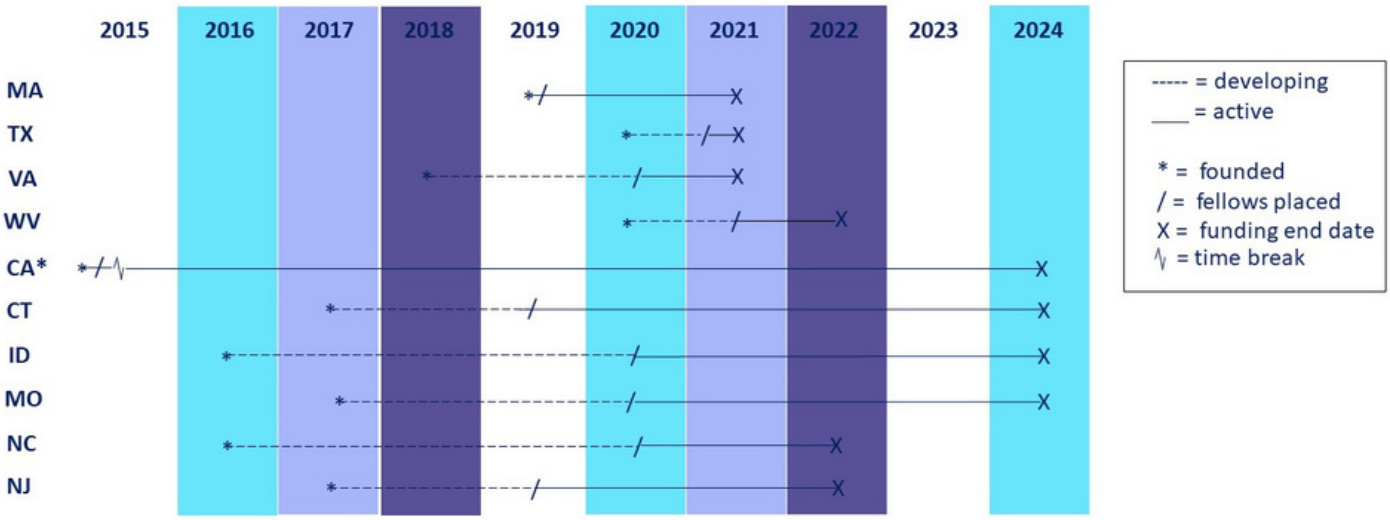

Figure 2. Timelines indicating when each of the currently active programs was founded, when fellows were placed, and the estimated date when funding will expire for the programs (based on survey data collected in summer 2021). *California's development phase began in 2007 and the program first placed fellows in 2009.

2021-2022 Cohort of Missouri Science and Technology (MOST) Policy Fellows

These models should morph and expand over time, as demonstrated by several states with established programs (Table 1). For instance, after placing legislative fellows for a number of years, CCST (the state of California's STPF host) recently expanded their program to place fellows in the state executive branch. In Missouri, the Missouri Science and Technology (MOST) Policy Fellows program began by placing full-time, post-degree fellows and will expand to placing part-time, pre-degree fellows in 2022. New Jersey has increased the number of post-degree fellows placed through their program as resources have allowed in the past few years.

GETTING STARTED IN YOUR STATE

All 50 states have unique policy climates that present different challenges for developing state-level science and technology policy fellowships. When founding a new policy fellowship program, it is important to first consider the landscape in which the program will be operating: How will your program provide support to the state government and to the fellows and are there other programs that fill part of that gap or another, competing or complementary gap in the landscape? This landscape will vary greatly from state to state, so it is important to gather input from people engaged with the policy process -- particularly those who may be familiar with current science advising strategies locally -- and to enable the program to adapt as needed. The rest of this guide will refer to state-level STPF programs specifically, though the information contained will be relevant to both local and state programs.

Table 1. Summary of fellowship duration, placement, and renewal options for current STPF programs. An asterisk indicates an area of expansion identified by the state (based on survey data collected in summer 2021). Numbers in parenthesis after placement refer to the number of fellows placed, if known.

State	Post-Degree	Pre-Degree	Legislative placement	Executive placement	Judicial placement	Other placement	Fellowship renewal	Current number of fellows	Goal number of fellows
CA	12 month		Committees & member offices (10)	Agency (5)	--	--	No	15	15
CT	24 month			Agency (1)	--	--	No	1	6
ID	12 month		*	Governor's office & agencies (2)	--		No*	2	5
MA		3 month	Committee (7)	*	*	--	No	7	10
MO	12 month		Multiple committee assignments (5)	Agency (1)	--	--	Yes	6	15
NC	12 month			Indirect work through nonprofit (4)	--	--	No	4	10
NJ	12 month		Partisan offices, both chambers	Agency	--	--	No	7	8
TX		3 month	Indirect work through nonprofit (4)		--	--	No	4	10
VA	3 month	3 month	Committee & member offices (varies)	Agency (varies)	--	For profit & non profit (varies)	No	10	15
WV	3 month		Committee & member offices (varies)	Agency (varies)		Non-profit	TBD	7	10

Preparing for the First Meetings
Foundational meetings can provide important initial insight into your state's science advising approaches and gaps as well as early feedback on how you can build an effective, nonpartisan STPF program. Schedule initial meetings with members of the legislature, executive branch staff and elected officials, non-profit leaders, and other scientists who may be interested in helping launch an effort in your state. Below are some questions you may want to consider when meeting with stakeholders early in the planning process. Not all questions will be relevant for each stakeholder meeting, and you may be able to research some of the answers on your own. Preparation is essential.

1. What are the political dynamics of your state? How might these dynamics impact a science and technology policy fellowship program?
2. What are your state's current science advising mechanisms?
3. What are the most pressing topics being considered by government officials related to science and technology?
4. Who are the current trusted science and technology policy advisors in the state (e.g., lobbyists, universities, government staff, etc.)?
5. How can you complement current science advising efforts?
6. What is your primary goal for a fellowship program -- to support state needs, to provide STEM workforce training, both, something else? What goals do the stakeholders have?
7. Who is likely to support a fellowship program in your state - funders, government champions, host institutions, etc.?
8. Do you have a team of dedicated individuals who can commit to building a fellowship program over a number of years?

Setting and Measuring Program Goals
Set initial program goals based on the needs of your state's government, capacity within the scientific community and potential applicant pool, and pressing societal concerns. Your goals may shift and sharpen as you gather information. Establishing and continuing to update goals will be important for communicating priorities and successes with funders, policy makers, potential host institutions, and other stakeholders.

Based on a survey carried out in 2021, states with STPF programs share many common goals, including but not limited to the following:

- Providing evidence-based science and technology guidance across all areas of interest to policy makers
- Supporting both the scientific and policy-making communities
- Offering professional development for fellows
- Expanding career path opportunities for scientists
- Educating students who are currently matriculated in degree-granting programs

Before you've established your program, potential partners (e.g., funders, policymakers, etc.) may ask how you plan to measure the success of the STPF. Once you've established goals, identify metrics that you plan to use to evaluate the effectiveness of your program that can be shared with stakeholders to garner support. See Appendix 2 for more detailed information related to program evaluations.

> For reference, additional detailed resources are appended to this guide, including frequently asked questions for state science and technology policy fellowship programs (Appendix 1) and a program evaluation starter kit (Appendix 2). A template fellow handbook is also available for reference.

Creating an Inclusive Program

A focus on diversity, equity, and inclusion (DEI) will help ensure that a program reflects society more broadly, thus serving the public more effectively. Similar to program goals, it is important to set and measure goals on DEI early in program establishment. Some DEI goals relate to how the program is managed and the fellows' experiences; other DEI goals relate to the nature of the work fellows carry out. States may consider racial/ethnic diversity, expertise, state/regional location, income, age, etc. in DEI efforts.

Inclusion and diversity should be embedded across the fellowship program as a guiding principle. Depending on how your program places fellows, DEI implementation may look different. For example, if your fellows are placed in host offices, the office could host seminars with speakers discussing the role of equity in science and policy or provide professional development to fellows to more directly comment on equity issues when writing policy briefs.

Partnering with Historically Black College and University (HBCU) or Hispanic- Serving Institutions (HSI), university DEI offices, DEI consultants, and professional organizations such as the National Society of Black Engineers and Society for Advancement of Chicanos/Hispanics and Native Americans in Science and similar organizations can help to ensure diversity, equity, and inclusion are present from recruitment of applicants to finalizing public program materials and beyond.

Human resources departments may have requirements, guidelines, or best practices to follow during the recruitment and selection process. Host organizations may also have resources related to DEI that can be used for the fellowship program. There may also be additional or supplemental funding opportunities to support DEI efforts or to support historically minoritized individuals.

Two Texas Science Policy Fellows with vaccine policy partners in front of the Texas Capitol

FUNDAMENTALS FOR LAUNCHING A STATE FELLOWSHIP PROGRAM

Several states have launched STPF programs in a variety of formats, including full- and part-time fellows, placements in the legislative and executive branches, and with pre- and post-degree fellows. These states identified fundamental aspects needed to create successful programs:

1. **Champions committed to the establishment of a nonpartisan policy fellowship program and significant interest in science- and technology-based policy**.

Seek multiple supporters throughout the formation of your fellowship program who have extensive networks where they can advocate for your program. Possible champions include retired legislators, elected officials, other government personnel such as chiefs of staff, leaders of prominent nonprofits, philanthropies and local businesses, university and research institutes (i.e., National Laboratories) administrators, alumni of state and federal fellowship programs living in/connected to your state, and other influencers that may not hold official positions but maintain large statewide networks.

Champions are important because they will expedite the initial process of identifying and securing stakeholders who support launching a new STPF program. They will also share your ideas with others and help hone the plans you drafted. If you intend to have a champion that holds a partisan position, consider having another champion from the other party to balance out perceived partisan influence. Bipartisan support is essential.

In addition to the verbal and written support that champions can provide, they may also provide guidance on any statutory changes that may need to occur in order for a fellowship program to exist in your state. See the memo written for California's program as an example.

Considerations

- Seek out government officials and community leaders with STEM backgrounds
- Seek out government officials who represent academic or research institutions
- Seek out alumni of state and federal STPF programs connected to your state
- Speak to other state STPF program directors
- Speak to your government relations office for advice, if applicable
- Speak to academic leadership, particularly the dean of graduate studies or affairs
- Ask early champions to help connect you to others in leadership positions
- Request letters of support to show interest in science and technology-based policy (funders may also request this evidence)
- Ask for feedback early and often, refine your fellowship program, and plan accordingly

2. **A nonpartisan host organization dedicated to improving the engagement between scientists and policymakers to manage the program.**

As previously detailed, there are many options for a host organization. The reputation of the host institution will be reflected on the fellows program (and vice versa), so it is important to select a host that aligns with your program goals and will provide credibility to your program. Additionally, it may be important to build a coalition of different organizations to support and host the fellowship program, particularly in states where there may be in-state rivalries among HEIs.

Host institutions must also have the financial and staff capacity to support a fellowship program for the long term. For instance, if the founders of the fellowship program are at a university and graduate or move to other positions, will the host institution continue to provide staff support to the program? Is the potential host institution able to accept state funds or large philanthropic grants?

Some states have founded nonprofit organizations to provide a host institution for the fellowship program. While there are benefits to establishing an organization, there are also challenges that go along with founding a nonprofit corporation. Fiscal sponsors can provide an intermediary option – allowing program autonomy with fiscal and program management support. Organizations, such as Social Good Fund, Multiplier, and Community Initiatives are dedicated to empowering local initiatives while providing fiscal sponsorship and management for a modest fee, usually 10% or less. For fiscal sponsorships, it is important to note that the relationship between a fellowship program and the fiscal sponsor must be established independent of conversations between the program and foundations that are considering supporting the fellowship; foundations cannot broker these relationships. Experts at foundations or organizations that are funding the fellowship as well as local small business incubators or advisors can help navigate the financial implications of various hosting models.

Once a host organization is identified, work with the host to establish branding materials and language that describes the fellowship program and the relationship to the host organization. Branding materials, such as a website/webpage, social media presence, business cards, etc., can add credibility and professionalism to the fellowship program while the remaining fundamental elements are established.

Considerations

- Understand the current landscape of science and technology policy advising (see 'Introduction - Current Approaches to Science and Technology Policy Advising')
- Reach out to institutions of higher education offices (e.g., government relations, graduate deans, research administrators, institutes or centers of politics and policy)
- Reach out to your state's academy of science or comparable institution
- Seek out government entities with science advising authority (e.g., legislative research office, governor's science advisory office, etc.)
- Consider how the reputation of each potential host may impact the effectiveness of the fellowship program
- Consider the staffing and financial capacity of each host institution
- Check into the cost to the fellowship program of different host organizations and models (e.g., administrative overhead, indirect costs, benefits program affordability)

3. **Funding sources**

The funding needs of a state-level STPF program will depend on a number of factors, including:

- Structure of the fellowship (part-time or full-time)
- Eligibility (graduate students, early-, mid- to late-career professionals)
- Number of fellows in each cohort
- Compensation structure (salary, stipend, benefits, etc.)
- Professional development funding
- Administrative costs associated with staffing and the host institution

While it may not be crucial to have an exact budget prepared prior to exploring funding sources, it may be helpful to have an idea of the most effective structure for your state in order to avoid accepting opportunistic funding that may not ultimately lead to a sustainable or effective program.

Funders may have a particular interest in funding a fellowship, which may require a different or additional set of goals or metrics compared with your initial plan. In addition, the importance of a funding coalition -- i.e., multiple funders who agree to support an effort and that ideally align on streamlined reporting requirements -- should not be under-estimated, even if the funders contribute different amounts. A funding coalition helps inoculate the fellowship program against being perceived as biased, advocacy-oriented, or an extension of a sole funding organization. In addition to forming a funding coalition, these optics can be overcome by putting in place a transparent agreement between the funder(s) and the program host which articulates the role of the funder in supporting the fellowship program. For example, funders may suggest selection criteria, but they should not participate in selection of fellows. Finally, consider any perceived or realized conflicts of interest that may arise if funders are placed on a formal advisory board for the fellowship program or if they have oversight over fellow placement. The following list of funding sources may be an option in your state, depending on your host institution and the political climate of the state. Multiple funding sources are preferred to decrease the potential risk. This is true even of state funding – a program receiving 100% of funding from the state government may be subject to budget cuts and political transitions.

- Public and private IHEs
- Private and public foundations -- in-state and with a national orientation
- State funding (i.e., appropriations, agency support)
- STEM-related associations and professional organizations
- Individual donors
- For-profit corporations
- Government grants and contracts
- Matching funds

Ultimately, sustainable funding for a fellowship program should come from a diverse array of sources.

If the host institution is a non-profit organization, "tipping" -- a specific legal issue -- should be avoided. Tipping is when too great a proportion of funding comes from any one philanthropic donor. This can be avoided by planning ahead, maintaining an active donor base, and encouraging small and medium donors to give regularly. Once a program is established and independent evaluations affirm the program is being managed effectively and is achieving its intended impact, an endowment may be possible to ensure program sustainability in perpetuity.

One model of public-private partnership may also create unique opportunities for funding. While private philanthropies are generally prohibited from lobbying, if a private foundation is supporting or plans to fund a fellowship program, the foundation may be permitted to lobby state officials for financial resources from the state in the spirit of building a co-funded public-private partnership. This exception to lobbying rules, available for private foundations only, excludes from the definition of "lobbying" certain communications related to a "jointly funded project," defined to include, among other things, "a new program which may be jointly funded by the foundation and the government." (See Treas. Reg. Sec. 53.4945-2(a)(3).)

<u>Considerations</u>

- Speak with other state fellowship program managers to better understand financial needs and budget considerations
- Create a preliminary budget (e.g., $/fellow) based on the best program structure for your state
- Prepare marketing materials that describe the proposed fellowship program
- Consider if state funding would be appropriate or possible in your state, noting that opportunities may shift annually
- Reach out to local IHEs about funding opportunities

- Research in-state and nationally oriented foundations to identify those that support science and technology initiatives
- Speak with fundraising, donor relations, or the alumni office at your host institution, if applicable

Other Key Considerations

4. Appropriate fellowship structure

Each state will likely have a different fellowship program structure depending on the program goals, host institution, state government structure, and more. Developing the program structure can be done in tandem with considering fellow placement (see 'Elements for Managing an Effective Program')

Workload: A fellow's workload hinges on their scope of work or issue portfolio. Your program should provide enough workload to occupy the number of fellows you plan to hire. For legislative fellowship programs, this can be done through working with legislators year-round in a full-time legislature or by providing other project-based work for fellows outside of the legislative session in a part-time legislature. A part-time fellowship program may be a good fit for states with part-time legislatures. Executive branch officials work year round, thus, full-time fellows placed with state agencies will likely have a sufficient workload given supportive supervision. Another method for increasing workload may be to place regional fellows who will work with multiple state legislatures or agencies on particular topics related to science and technology policy.

Below are some examples of topics on which fellows may work:

- Agriculture and Natural Resources
- Energy and Environment
- Health and Mental Health
- Transportation and Infrastructure
- Education and Workforce Development
- Social Services
- Public Safety
- Economic Development and Innovation
- Elections and Local Government

Duration: Fellows may be placed on a full-time or part-time basis. Current full-time fellowships exist in several states, where fellows serve one to two years. Part-time fellowships can vary in duration, but tend to be approximately three months or the length of the state's legislative session. Part-time fellows may serve in a full-time or part-time capacity during their fellowship period. See the 'Current Models' section in the introduction for more details.

Timeline: Once the duration of the fellowship has been determined, it's important to consider when the fellows will start their program. For legislative fellows, this is often offset slightly from the legislative session in order to make sure fellows complete training and are placed in host offices prior to the start of a new session. For executive branch fellows, timing may be impacted by the state budget cycle or legislative session. You may also choose to consider the timeline for other state programs or federal fellowships if you accept out-of-state applicants and the academic calendar if you accept pre-degree applicants or applicants close to completing their degrees or if you wish to attract faculty during a sabbatical year.

Continuity/Relationship Building: For fellows to serve as an effective resource to lawmakers and get the most out of their fellowship experience, it is important that they will be seen as a trusted, credible resource. Trust will depend on the reputation of the host institution and fellowship program, but the structure of the fellowship program can also enhance relationship building. For instance, it is helpful for fellows to start their positions prior to the legislative session in order to build relationships with lawmakers before the rush of policy-making begins. While fellows may be placed as partisan staff, the program should maintain a nonpartisan reputation.

Considerations

- Determine the legislative cycle of your state, including policy-making that happens outside of formal legislative sessions
- Be prepared to discuss fellowship structures in other states and how those structures may fit in your state
- Discuss fellowship options with potential host offices (e.g., legislators, committee leadership, agency directors, governor's office, etc.) to get feedback
- Consider how your state's political climate may affect your fellowship program's structure

5. **Appropriate staffing structure**

Staffing needs to support a fellowship program will likely vary broadly among states. There are common needs from staff, including fundraising to support fellows and administrative costs, coordinating applicant interviews and the selection process, facilitating fellows' orientation, serving as a point of contact for fellows once they have been placed in their host office, and meeting with fellows and host offices during the fellowship year. In some states, the fellowship management staff serve as the fellows' supervisor when fellows are not formally placed in a host office (e.g., MOST). Fellowship management staff may serve as the fellows' supervisor on record with IHEs when fellows are university employees on loan to state agencies (e.g., Idaho Science & Technology Policy Fellowship).

Considerations

- Discuss staffing capacity with potential host institutions, including requirements of the host institution (e.g., serve as supervisor on record)
- Write a job description of staffing needs for the fellowship program (even if you already have staff in mind to support the program)
- Consider the cost of staffing when assembling overall program budget

6. **Navigation of existing fellowships and internships**

If trusted fellowship or internship programs already exist in your state, you should be aware of other programs and be prepared to work with these existing fellowship structures already in place in your state. These programs might be hosted by academic institutions, state agencies, legislative research offices, etc. Additionally, opportunities may also exist to work with fellowship programs in other states, so it may also be beneficial to reach out to directors of other state STPF programs.

Considerations

- Reach out to existing fellowship programs within your state or other state-level STPF programs outside of your state to discuss your program goals and possible collaboration opportunities
- Be prepared to discuss pros and cons of working with existing programs when pitching your fellowship program to potential supporters

Anna L. Hagstrom, PhD - Inaugural Science and Technology Policy Fellow at Connecticut Academy of Science and Engineering

ELEMENTS FOR MANAGING AN EFFECTIVE PROGRAM

Based on efforts in states with existing programs, we recommend building a fellowship program with the following features. These elements are critical for managing a fellowship program, but should be considered and developed before a fellowship program is launched.

1. **Advisory body**

A formal team of advisors can provide guidance and support and lend credibility. This team may or may not include the champions who helped build your program. It may be beneficial to have advisors within the legislative or executive branches -- including former officials -- and should maintain a bipartisan composition and champion for the nonpartisan nature of the program. It is important that this group complements the contributions of the program founders and fellows and is positioned to guide the general direction of the organization through their collective experience within many sectors in your state. As your program grows, a reliable advisory body will be key in providing resources and making strategic decisions. As your advisory needs evolve, the advisory board composition may need to change with time. To facilitate these changes, clear terms of reference and term limits may be valuable when structuring an advisory committee.

Considerations

- Intentionally seek out a diverse team of advisors (e.g., geographic regions, industry, for-profit vs. non-profit sector, racial/ethnic and gender diversity, political perspectives, policy topics, etc.)
- If including elected officials, maintain bipartisan representation and include your state's legislative and executive branches
- Seek out alumni of state and federal STPF programs with connections in your state, and as your program ages, consider including alumni fellows on your board
- Establish best practices for term lengths, onboarding, and turnover of the advisory body (can be formal or informal procedures)
- Be clear on advisor responsibilities and revise as necessary to serve the program

2. **Selection & placement process**

The selection and placement process for your fellowship program should be determined prior to recruiting your first class of fellows and can be adjusted over time.

The selection process typically has multiple stages including an application period, informational sessions while applications are open, initial interviews, interviews with finalists, and a selection meeting with key leaders/advisors. Your program goals, including plans related to DEI, should be considered throughout the fellow selection framework. Requirements from the host organizations, such as human resources protocols, must be considered.

Both the selection and placement processes may be informed by potential host offices where the fellows can be placed. If fellows will be placed in host offices in the legislature, they may need to cover a broader range of issues compared to fellows placed in executive branch agencies; therefore, candidates who exemplify an ability and interest to cover a diverse portfolio of issues could be more successful as legislative fellows. Program organizers should work closely with host offices and potential supervisors to ensure that they understand the capacity of the fellows and are equipped to provide mentoring.

Through the placement process, fellows can be placed in host offices within the legislature or an executive agency, as committee staff, or outside of governmental

structures (within a non-profit or within the fellowship program structure itself). Each placement option will provide a unique experience for the fellows. Depending on the placement process, fellows will report to a liaison within their placement office or to the program staff. These procedures should be clarified during fellow orientation. Some fellows may spend the fellowship year in two offices, simultaneously or in succession.

Many current fellowship programs solicit placement options from lawmakers prior to placing fellows and allow incoming fellows to interview with different offices to find the best fit. The fellowship program then matches fellows with a host office, based on fellow and office staff feedback from the interview process. Other programs assign incoming fellows to their placements before they begin the fellowship program. This may be the case if funding is only available for specific placements or when fellows are selected to cover a specific portfolio. Regardless of the model (placement or match), it is important to have some flexibility so that fellows benefit the most from their experience while also meeting the needs of your state and fulfilling program goals.

Considerations

- Determine approximate length of interview process, number of interviews, and interview questions for selection and placement processes
- Obtain input from advisory board members, staff, and alumni/current fellows during the interview and selection process
- Check with human resources for any specific review committee requirements, if applicable
- Consider the application, interview, and placement timeline compared to other fellowship programs
- If your placements require specific expertise, recruit candidates with those skill sets, but remain open-minded during the selection process
- Some criteria to consider when selecting fellows may include: breadth of interests, ability to learn quickly, ability to communicate technical material, ability to remain nonpartisan when necessary, and comfort with topics outside of expertise area
- Consider when to place and or match fellows – should this be several months prior to the fellowship or close to the first week (and be sure fellows know they may not be compensated financially for this time, if applicable)

3. **Orientation & professional development**

New fellow orientation provides an opportunity to introduce fellows to a new state and/or a new landscape of work outside of academic institutions and related structures. Your program should provide incoming fellows with an overview of science communication, the political and scientific landscape of your state, the expectations of their fellowship (among other state-specific topics), and networking opportunities during orientation. There are many examples of how a fellowship training program can be designed, including those already put on by states that have established science and technology policy fellowships and the federally oriented American Association for the Advancement of Science (AAAS) STPF. Orientation typically occurs during the first 1 to 3 weeks of the fellowship year, but professional development should be ongoing throughout the fellowship period.

Professional development activities will enhance the fellowship experience and provide career preparation as fellows transition to a new career path. Professional development can be organized by the host organization and embedded into the fellowship program on a regular basis (e.g., weekly, monthly, etc.). Additionally, financial resources can be provided to allow fellows to seek out their own professional development opportunities, such as traveling to annual meetings of the

National Science Policy Network (NSPN), AAAS, National Conference of State Legislatures (NCSL), Council of State Governments (CSG), National Governors Association (NGA), and other relevant conferences. Finally, states with fellowship programs may choose to co-host professional development and networking events with other states on occasion, sharing speaker costs, providing consistent resources to fellows, and allowing fellows from multiple states to interact and learn from one another.

Considerations

- Discuss program goals and history
- Reiterate expectations for the fellowship and its attendant DEI principles
- Introduce the geography of the state, local elected officials, and other leaders
- Provide the administrative process for reimbursement of professional development expenses and travel, or other reimbursable costs, if applicable
- Provide an overview, and/or resource materials on communicating science
- Describe how the state government works, including key areas for input on legislation, state budget overview, and how these processes connect to policy
- Provide a history of the state and political opportunities/challenges
- Consider including networking events with multiple stakeholders as part of your training in order to get fellows started making connections
- Set clear expectations for ongoing professional development opportunities with fellows and their host offices to assure that fellows can take advantage of all training opportunities
- Outline post-fellowship expectations, such as participation in alumni network, post-fellowship surveys, providing updated contact information, and speaking to future fellows

4. **Impact measurement & program evaluation**

As you develop and refine the goals for your fellowship program, consider how you will measure progress towards those goals. Goals should relate both to program management (your organization's effectiveness and skills with relationship management and fundraising) as well program impact enabled by the work of the fellows. Typically for the latter, fellowship program evaluation will focus on the experience of the fellows (e.g., learning outcomes, career placement post-fellowship, etc.), and you may also measure the impact of the program on your state by collecting feedback from host offices and external stakeholders. At the beginning of the fellowship program, collect baseline information from fellows and stakeholders so that you can show impact and progress over time. This information will assist with downstream decision-making and will provide useful content when applying for initial or continuing funding sources.

There is a template appended to this document to help you start thinking about how to evaluate your program and measure impact (Appendix 2).

Considerations

- Set measurable goals that can be evaluated over time; collect evidence of the impacts made by the fellows
- Collect baseline data to measure progress and future impact
- Survey fellows at the beginning, middle, and end of their fellowship experience to measure learning outcomes and attitudes
- Consider the perception of your program by external stakeholders, such as legislative offices and/or members of the executive branch as well as those impacted by policy choices
- Keep surveys as succinct as possible to increase response rates and respect fellows' and stakeholders' time
- Record placement of fellows after their term and utility of program for their careers
- Stay connected to fellow alumni to assess needs of an alumni network and their ability to give back to the program

- Consider aligning a subset of survey questions with those asked by other state and federal policy fellowship programs

Other Key Considerations

5. **Assignment of a formal mentor(s)**

Formal mentors will serve as guides for fellows when navigating a new professional environment. Mentors may be alumni fellows, faculty members, policymakers in government, and/or program staff who have experience working at the boundary of science and policy or building a career in this space. Fellows may benefit from having a mentor who is not their official supervisor/liaison; however, their supervisor/liaison will still play an important mentoring role for the fellow. Program founders and staff should curate relationships with people that will be willing to serve as mentors or resources for fellows. These additional relationships will function as a support network.

Considerations

- Identify mentors with similar academic research experience
- Match interests between fellow and mentor
- Consider input from fellow on preferred mentor
- With support from mentors, encourage the fellow to develop professional goals during and after their fellowship term (this may be a requirement of some programs)

6. **Recognition for fellows, mentors, & champions**

Celebrating wins, big and small, of a new program can be important for recognizing and retaining fellows, mentors, and program partners. Program supporters are likely being asked to volunteer time training fellows, providing feedback, and championing the fellows program – program organizers should regularly show their appreciation for these supporters.

Recognition can also be a great way to build exposure for a new fellowship program. Press releases, social media posts, and similar such announcements can be used to celebrate wins big and small, such as a new fellowship cohort, new letter of support, or program milestones (e.g., finishing orientation, receiving placements, etc.).

Considerations

- Highlight program achievements for external audiences to increase exposure
- Leverage support from champions to share and boost your program announcements and achievements
- Publicly thank mentors, advisors, and supporters for their work when appropriate

7. **Fellowship alumni network**

It is never too early to start thinking about building an alumni network. As mentioned above in the advisory board section, alumni fellows will serve as important members of the organization beyond their time as a fellow. Tracking alumni professional achievement and trajectory will also provide information for impact measurement in addition to helping build a team of supporters for the program. An effective alumni network will also serve the alumni by helping them to share information and contacts to enhance their careers. Finally, look for opportunities to connect alumni fellows in your state to a broader network of state STPF alumni.

Considerations

- Establish goals
- Build an alumni network that serves the program and the alumni
- Take input from alumni fellows to identify how they might serve the program after their time as fellows
- Consider the alumni network as a powerful tool for recruitment of new fellowship classes
- Create an alumni network that best meets the needs of your fellowship program and alumni

CONCLUSION

Science and technology policy fellowship programs offer an important science and technology advising structure for state government and provide career training that grants access to new pathways and experiences for scientists and engineers interested in policy and public service, either as a full-time position or as an element of their work in business, industry, academia, and non-governmental organizations. Given the unique situation that each state faces when developing and implementing a state-level science and technology policy fellowship, we have assembled this guide to assist those interested in developing and expanding fellowship programs in their own states. Though this guide is focused on state-level programs, many of the same concepts can be applied to municipal or regional programs as well.

Worksheet for development and expansion of current programs

The following sample worksheet was developed from the information in this guide and may be useful as you consider a STPF program in your state. 1.

1. What is your primary goal for a fellowship program - to support state policy-making needs, to provide STEM workforce training, offer a public service opportunity, something else?
    - How will diversity, equity, and inclusion be integrated into these goals and your program more generally?
    - What is your long-term goal?

2. What are the political dynamics of your state? How might these dynamics impact a STPF program?
    - Are there scientists and engineers serving as elected officials?
    - Is science advising already part of the policy process? What is the mechanism?

3. What is the structure of your state government?
    - Does your state have a legislative research or existing fellowship/internship office? What is their role?
    - What are opportunities in executive branch agencies and the governor's office?
    - How often does your state legislature meet? Are there opportunities to work with lawmakers outside of the legislative session?
    - Does your state have a part-time or full-time legislature?

4. Who are the trusted science and technology policy advisors for legislators and staff (e.g., lobbyists, universities, government staff, etc.)?
    - Make a list of advisors to contact to learn more.
    - Do any legislators have STEM academic or professional backgrounds?

5. How can you complement current science and technology policy advising efforts?
    - What are the opportunities for science and technology policy advising in your state?
    - What type of program works for your state? Full-time? Part-time?

6. What are the financial needs of your program?
    - How much will a fellow cost per term/year?

7. Who is likely to support a fellowship program in your state - funders, government champions, host institutions, alumni from state and federal programs, etc.?
    - Possible government officials/community leaders with STEM backgrounds?
    - Are there government officials who represent research institutions?
    - Can early champions connect you to other supporters?
    - Request that supporters sign letters of support to provide evidence to funders and other (more downstream) supporters
    - Are there private foundations (in-state and national) located near you?
    - Is state funding appropriate/possible in your state?

8. Do we have a team of dedicated individuals who can commit to building a fellowship program over a number of years? Will the host institution provide long-term support?

- Do you have strong institutional support?
- If not, where can you build institutional support or is an independent non-profit structure right for your program?
- Understand the various constraints and opportunities that different host institutions can provide.
- Does the host institution have a trusted, nonpartisan reputation?

9. Address the following as you progress through initial program structures and questions:

- Formation of an advisory body
- Recruitment, selection and placement of fellows
- On-going facilitation during the term of the fellowship
- Training and professional development opportunities for fellows
- Impact measurement and program evaluation
- Mentorship of fellows
- Recognition of fellows/mentors/champions for retention and goodwill
- Form and maintain an alumni network

10. Ask for feedback early and often and refine your plan accordingly!

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Appendix 1: Frequently Asked Questions

If you are working on a pitch deck or on fliers to share information and collect feedback on the proposed state-level STPF program, it will be important to have answers to the following questions for different audiences.

Legislators and Elected Officials

1. How does this program benefit your state?
2. What would this program look like when initiated?
3. How much funding is needed for the fellowships in this program (per fellow and for program management)?
4. Who will provide funding for this program? Are you asking for state funding?
5. Do other states, regions, or municipalities have similar programs? How will this one be different?
6. If a program is in place, who is providing support?
7. How can you support this program?
8. How will you make sure that the fellows are not politically biased?
9. How will you avoid lobbying and maintain a nonpartisan reputation?

Funding Organizations

1. What are your program goals and how will you measure them?
2. What have you learned from other state efforts? Will your program become a model for other states?
3. Do you have support from local government officials (i.e., state, city, or county)?
4. What will be the cost of your program (per fellow/per year)?
5. What is the ideal number of fellows you would like to place?
6. Do you have matching funding sources?
7. How will you assure long-term sustainability of your program? Long-term funding?
8. Who will accept funding on behalf of the program? Who is your fiscal sponsor?
9. How will you promote diversity, equity, and inclusion in your program?

Host Institutions

1. What are the primary responsibilities and responsibilities of the host institution?
2. What will be the role of the host institution in fellow placement?
3. How much staff time is needed to facilitate the fellowship program?
4. Will the program require fiscal or decision-making autonomy?
5. What will be the role of the host institution in recruiting and selecting fellows?

Appendix 2: Science and Technology Policy Fellowship Evaluation

Your fellowship program should include a formal plan for regular data collection and evaluations to ensure that the program is achieving its goals. Below are a few questions to consider when designing your Fellowship program's evaluation strategy and some examples of how other fellowship programs have approached their evaluation.

How will you use the evaluations?
List all the ways you intend to use evaluations and the relevant audiences.

Example Evaluation Audiences and Uses

- Program Staff: Evaluation of program operations and management to identify how staff can improve the delivery and impact of the fellowship program, develop and maintain relationships with stakeholders, and raise funds.
- Applicants: Evaluation of program's impacts on fellows to demonstrate the value of applying to the fellowship program.
- Government/Host Offices: Evaluation of the program's impacts on host offices and state policy to demonstrate the value of hosting and mentoring fellows
- Funders: Evaluation of the program's ability to achieve its goals and adaptively manage as necessary to demonstrate the value of supporting the program.

What are the program outcomes or goals that you want to evaluate?
List the program outcomes and goals that you want to evaluate for your intended uses. Start by reflecting on the initial goals and objectives of your fellowship program and the impact that you are hoping to measure and communicate to your audiences (e.g., funders, host offices, applicants, etc.). You may also want to include outcomes that address your fellows' and host office's satisfaction with the operation of the program to inform how you can iterate and improve the program.

Example Program Outcomes and Goals:

- Public policy is informed by science and technology
- Fellows increase their knowledge and skills in science policy
- Fellows improve their ability to pursue careers that integrate science and policy
- Contributions of fellows to host offices benefit from the high-quality work produced by fellows
- Processes for recruiting applicants and selecting fellows promote diverse cohorts
- Fellowship orientation and training prepares fellows for a successful fellowship
- Host offices feel supported by program staff

How often and who does the evaluation?
Determine how often and who will be responsible for carrying out the evaluations of program goals and outcomes. Depending on your needs, you may plan for more than one type of evaluation.

Example of Evaluation Schedules

- Midyear evaluation of fellows and mentors satisfaction of their fellowship experience conducted by program staff to identify issues and course correct to improve the fellows and mentors experience.
- End-of-year evaluation of fellows and mentors experience and satisfaction of the fellowship conducted by program staff to identify issues and make programmatic improvements before the next year.
- Five-year comprehensive evaluation of all program outcomes and goals conducted by an external professional consultant to assess long-term impact and value of the program to all audiences and identify areas for programmatic improvement.

What type of data and metrics do you need to collect and how often?

To evaluate your program, you will need to establish a plan to regularly and consistently collect information that can be used to assess your program's desired outcomes and goals. You will need to decide what type of information you will collect (e.g., demographic metrics of fellows, stories of fellows impact), how often (e.g., monthly, annual, 5-years, 10-years), and the method of collection (e.g., surveys, interviews). You will also need to decide how the information will be curated and stored securely in databases or repositories for easy access in future years. You should explain why any personal information is requested (e.g., volunteered demographic characteristics to check for bias in the selection process or to compare fellowship cohort diversity relative to the diversity of scientists and engineers writ large) and how it will be kept safe or deleted. It may be helpful to consult with a professional program evaluator when first designing your program survey and data collection plans to ensure you will have the appropriate information to meet your evaluation needs.

Examples of Information to Collect

- Baseline, midyear, and end of year surveys of fellows and mentors experiences and satisfaction of the program conducted annually
- Surveys of fellowship alumni to capture information on alumni career impacts conducted every 5 years
- Demographic data of individuals at each stage of the application and selection process conducted annually (noting that providing this information is optional and will not be used as part of the selection process)
- Data on fellow's work products (bills staffed, reports, analyses, hearings organized, etc.) conducted annually

What else should I consider?

Collecting information, curating information, conducting evaluations, and disseminating results to stakeholders takes time and resources. Be sure to include the costs associated with evaluation in your program budgets. Finally, pay attention to any unintended fellowship outcomes that arise out of your evaluation. Your program may be very successful at doing something that you had not initially planned, which may be an opportunity to pivot.

Examples of Program Evaluations

- AAAS STPF - A Retrospective Evaluation of the STPF Program
- PNAS Article - How to bring science and technology expertise to state governments
- CCST one-pager - Measuring the Impact of the CCST Science and Technology Policy Fellowship