NSF-SBIR/18F design workshop report out

Objectives and goals

The objectives and goals of the two-day workshop were to:

- **Develop a shared definition of success for our work**
- **Put ourselves in users' shoes**
- **Assume best intentions**
- **Ask questions in a supportive, communicative environment**
- **Set vision:** Gather the group's input on what problems the product should attempt to solve and the value it should attempt to create
- **Understand actors:** Surface the existing understanding of who the various actors are, what they need and how we know it. This includes external users as well as internal stakeholders.
- **Understand the existing process:** Build a shared picture of the existing, end-to-end (pre-application to check) and surface-to-core process for the NSF SBIR.

The content workshop had several additional objectives: To foster increased identification with the user, to help participants conceptualize necessary user tasks as the foundation for the redesigned site, and to draw attention to task priority as the basis for the information hierarchy of each page. Achieving these objectives, and drawing on our previous research, will allow us to set the vision for upcoming IA and content work. It will also help us ensure and to ensure alignment between the SBIR site and core business objectives and user tasks.

Objectives of the service blueprinting session included collaboratively constructing a detailed visualization of systems, people, and interactions involved in delivering a phase of a service (in this case, the awarding of a grant to an NSF SBIR program applicant). Fully visualizing this process will allow us to identify pain points and help us determine how we can modify the process to improve the user's experience. The following sections describe a summary of activities for each workshop.

Summary: Content workshop

On March 23, 2017, members of the 18F, NSF-SBIR, and Brunet-Garcia teams gathered for a three-hour content workshop, led by Kate Garklavs. The workshop included four sections: introductions, during which folks shared their relationship to content; the core pages activity (described in more detail below); a sketching session; and a discussion of next steps.

The core pages activity formed the basis of the workshop. This activity was important because it helped us think about the message we're attempting to share with site visitors, and how our message aligns with our program objectives. To begin, the group listed the SBIR program's objectives, the key tasks potential SBIR applicants need to complete, and which core pages (extant and not) fulfill both. Workshop participants shared their thoughts for each major topic, and an open dialogue drove the list of themes and observations.

Our list of business objectives included:

- Provide early-stage, high-tech startups with funding for research and development
- Commercialize innovative technologies
- Foster continued success of startups
- Show the general public what the program is funding
- Provide clear information about our programs and application instructions
- Provide a visualization of how startups can reach their end goals
- Clarify the non-monetary benefits of the program (e.g., developing a solid network)
- Engage and inspire entrepreneurs; demonstrate how the program benefits them
- Meet national priorities and contribute to the greater societal good

Our list of user tasks included:

- Become aware of the SBIR program
- Learn about the program and its intent

- Understand the *why* of the program — what unique benefits does it offer?
- Complete pre-application registrations (DUNS number, FastLane, etc.)
- Write an executive summary
- Engage in conversation with Program Directors regarding your executive summary
- Attend informational webinars
- Read the solicitation
- Determine whether your company is a good fit
- Learn about networking and mentorship opportunities
- Submit your proposal in FastLane
- Wait for a response

We created the following list of core pages:

- A page that highlights the mission, background, and goals of the SBIR program
- A page that includes application criteria and helps users determine if their company is a good fit
- A page that tells users why they should apply for funding and highlights benefits of the SBIR program
- A portfolio (social proof) page
- A page detailing the merit review process
- A team page highlighting key program staff
- An outreach/events page that highlights live events, webinars, and more
- A page that details the application process and helps users get started with their application

After the group created these lists, participants split into pairs and chose the few core pages that they feel are most important to SBIR site users. Though there was some variation in what pages folks chose, the **About us**, **Benefits/why?**, **Portfolio**, and **Apply now** pages were the most commonly addressed. The identification of these core pages is helpful as it begins to set the stage for an eventual information architecture for the new site.

About us page

In considering a revamped About page, the group made the following suggestions:

- Use a welcoming tone to build trust and credibility with the user.
- Emphasize the SBIR program's mission and philosophy — in particular, their views on technical risk, innovation, and the importance of assembling a strong team.
- Use this page to humanize the program: Include photos and relevant bios of Program Directors, and provide PDs' contact information to foster early (and frequent) communication.
- Consider including compelling statistics here to pique ambivalent users' interest.

Benefits/why? page

The current SBIR site doesn't feature a Benefits/why? page. Rather, most of the current content targets user who have, in a sense, already converted; the site as it exists now presupposes that all visitors are interested in applying, rather than considering the benefits of application.

In proposing a Benefits/why? page, the group made the following suggestions:

- Lead with the program's most appealing benefits: no-equity funding, the potential to develop deep and lasting connections to a respected network, award availability, and the prestige that results from working with the NSF.
- Make an especial effort to call out the benefits of the strong network NSF offers, which the current site doesn't do as well as it could.
- Consider highlighting news stories that talk about other grant recipients; this will demonstrate the SBIR program's relevance to the field and showcase grantees' success (nicely complementing the Portfolio page).
- Consider incorporating videos taken at conferences and videos submitted by grant recipients.

Portfolio page

The current NSF SBIR site includes an awardees search interface with pre-populated results, but this is tough to navigate, largely text focused, and hard to filter. Content workshop attendees recognized the need to provide a representative sample of companies that have received awards, and made the following suggestions for an updated version of the one that exists:

- Develop relatable stories that profile awardees as a way to help inspire and educate other entrepreneurs.
- Present various media — videos, tweets, press releases, and news mentions of awardees — to showcase awardees' accomplishments and foster identification among potential applicants.
- Include testimonials from awardees to present a first-person perspective on how SBIR funding helped further those companies' progress.
- Include links to awardees' company websites so potential applicants can evaluate how their companies measure up to those that have received awards.
- Relatedly, showcase awardees' Crunchbase or AngelList pages to improve the program's social proof and allow potential applicants to quickly find the information they need.
- Consider including a connection to LinkedIn and notes on how submission quality is determined.

Apply now page

Though the current NSF SBIR site includes application-related materials, workshop participants identified a streamlined Apply now page as a necessary feature of the updated site. Here are the suggestions participants offered for an updated application page:

- Add a timeline that addresses the application process as a whole, along with timelines for the individual sub-steps. Workshop participants mentioned the possibility of including a “pizza tracker,” which would provide applicants with a visual representation of where they are in the application process.
- Provide information about the pre-application process, the application process itself, and what to expect after submitting your application.
- Reiterate information about companies that are a good fit for the program.
- Emphasize the importance of the executive summary; ensure that applicants are put in contact with the right PD for their proposal.
- Include solicitations, a sample budget, a link to the FastLane guide, registration links, and links to other resources (informational webinars, the FAQ, and so on).

For further investigation: content

After reviewing the outputs of this workshop, the 18F team identified the following themes that warrant further investigation:

- **Storytelling**: The current NSF SBIR site includes a large volume of instructional and informational content, both of which appeal mostly to users who have already made the decision to apply for funding. In updating the site, we should broaden our focus to include a stronger storytelling component — captivating narrative content about the mission and benefits of the program — which will resonate more strongly with ambivalent users. The introduction of more narrative content applies to the SBIR site itself, but it may also include linking to other sites (e.g., Medium) popular with our target user group.
- **Approachability**: Our past research has established that target users view the NSF as prestigious and reputable, but the current site doesn’t portray the NSF SBIR program as approachable; this owes, in large part, to the content’s density and official, academic tone. To stress the openness and approachability of the program, we’ll work to develop a friendlier, more conversational tone (similar to that employed by sites that resonate with our target users); create content focused on award availability, SBIR-sponsored events (onsite and online), and the supportive network available to grant recipients; and stress the need to establish communication with program directors early in the pre-application process, which may help potential applicants view the process in more collaborative terms.

- **Use of trusted external channels**: Throughout the workshop, participants emphasized the value of communicating with potential applicants using established, trusted channels (including Crunchbase, AngelList, LinkedIn, Medium, and more). Incorporating these channels offers two potential benefits: It could create positive social proof for the NSF and could reduce the number of new pages that need to be developed for the redesigned site. For instance, instead of creating a new space within the NSF SBIR site where awardees can write about their recent accomplishments, we could consider linking to relevant Medium posts (which, our Phase I research has shown, already resonate with target users).

Summary: Service blueprinting session

On Friday, March 24, 2017, members of the 18F and NSF SBIR teams gathered to conduct a three-hour service blueprinting session, led by Phoebe Espiritu. This session included four sections: introductions, an overview of service blueprinting, completing a service blueprint for the NSF SBIR program, and a discussion of next steps.

During the overview section, Phoebe detailed the purpose of service blueprinting — namely, to visualize the entirety of a process: all input mechanisms, all invisible mechanisms, all internal and external processes, and more. Laying out every step in a given process not only clarifies the complexity of that process, but allows people to more easily identify which steps are working well and which can be improved. To illustrate the process, Phoebe walked the group through an example of a service blueprint detailing the Consumer Financial Protection Bureau's blueprint for the eProcurement process.

The group spent the bulk of the session constructing the service blueprint for the NSF SBIR application process. To simplify the activity, Phoebe divided the application process into discrete periods: **pre-application** (four months prior to the due date until the application due date), **application** (the day on which the solicitation is posted until the applicant receives funding), and **post application** (beginning on the date on which the submitted proposal is sent to a Program Director for review).

Phoebe asked the group to list every individual step in each phase; she recorded these steps on sticky notes, which she placed in chronological order on a whiteboard. After the discussion for each phase had ended, our team photographed the board to capture the data. During each discussion, our team also recorded the steps in real time using Mural.ly — you can view the service blueprint mural here.

The following sections detail our observations from each of these three brainstorming sessions.

Pre-application period

- During this phase of the activity, we discussed programs and resources that point potential applicants in the direction of NSF SBIR. Among these was I-Corps, during which participants receive funding to receive seven or eight weeks of training to learn more about the process of starting a company. Participants who do decide to start companies receive information about the SBIR program; NSF SBIR is able to track which I-Corps alumni go on to found successful companies.
- Partnerships for Innovation (PFI) graduates are another group that receive direct NSF SBIR pitches. Our discussion did not touch on what percentage of PFI grads go on to apply for SBIR funding.
- The SBIR staff shared examples of the many events potential SBIR applicants can attend. These include VC summits, trade shows (CES, BIO, and so on), webinars, and the SBA Bus Tour, during which Program Directors travel around the country — in particular, to areas that traditionally have low SBIR application rates — and meet with potential applicants.
- SBIR staff told us that pre-application communication with program staff is an important part of pre-application. Currently, user contact with program staff isn't formally tracked.
- Aggregate data on the executive summary process isn't currently tracked; rather, information about individuals' executive summaries "lives in Program Directors' inboxes."
- We inquired about the availability of SBIR preparation software. While preparation software doesn't exist, applicants can access a step-by-step guide to navigate the application process.
- The current SBIR homepage features a newsletter link. We learned that the newsletter includes notifications of solicitation changes, information about new program directors, and examples of executive summaries, among other things. The newsletter comes out approximately once per quarter. The sheet containing the email addresses of newsletter recipients is the canonical source of applicant contact information.

Application period

- One of our questions about the application period was what materials user need to apply; proactively communicating about these materials may provide a better user experience. We classified required application materials according to the following three categories:
    - **Materials applicants likely already have**: Resumes or CVs
    - **Materials applicants likely have but will need to revise**: Descriptions of their business models
    - **New materials**: Project summaries and letters of support (we weren't able to locate a template for the letters of support)

- We learned that most first-time applicants contact the Help Desk about FastLane — in fact, the week before the submission deadline, the Help Desk receives an average of 100 FastLane-related calls a day.
- SBIR staff reported that, because the application involves multiple steps, some applications are “lost” when applicants think they’ve submitted (but in fact have only completed the first of several submission steps).
- A good portion of our discussion during this phase focused on what the user experiences after they submit their proposal. We learned that users can check on the status of their application in FastLane, but that FastLane might not adequately communicate how to do this. After spending about a week reviewing proposals, SBIR program staff will contact applicants whose proposals were rejected, along with those who need to make minor administrative adjustments to their proposals. Everyone else is in “waiting mode” — they don’t receive personalized updates from program staff.
- The outside timeframe (from the time an applicant submits a proposal to the time they receive a proposal decline letter) is six months; most applicants hear back before then.

Post-application period

- Once an applicant’s proposal has been approved, the applicant receives much more communication from program staff (because, as one workshop participant put it, “they’re officially part of our group now.”).
- After receiving funding, awardees are required to periodically check in with their program directors. Program directors’ preferred methods of communication vary. Some PDs hold weekly office hours sessions, while others have monthly phone calls with their awardees. Currently, the SBIR program doesn’t track communication between PDs and their awardees.
- 20% of the total award amount is withheld from awardees and is disbursed only once awardees have delivered their final reports. Report approval (conducted through research.gov) may take up to a month, though it’s often quicker than that. In some cases, awardees’ final reports may need revisions, which can postpone the disbursement of their remaining funding.

For further investigation: service blueprint

The workshop we held allowed us to develop a comprehensive service blueprint — one we feel captures the nuances of the NSF SBIR application process. It also surfaced the following observations, which we’ll continue investigating during this sprint and those following:

- Mutually positive interactions tend to occur around person-to-person exchanges rather than transactional (person-to-system) ones. This reinforces what we consistently heard

from entrepreneurs — that fundraising is about building partnerships and making the right alliances.
- As the old VC adage goes, “If you want money, ask for advice. If you need advice, ask for money.” This saying illustrates another reason why person-to-person exchanges are valuable: They provide folks an opportunity to get advice that’s tailored to their specific contexts.
- Events-based interactions (such as roadshows, conferences, and webinars) tend to be highly rewarding for customers, but NSF often doesn’t drive these events. Conversely, there doesn’t seem to be a way for users to easily discover these events without already having known about them to begin with. We may want to investigate ways of communicating more proactively — and to broader audiences — about these events.
- Unruly sources of data and the lack of an internal customer data management system (CRM) make it difficult for the SBIR team to manage customers for prospecting, targeted marketing, and cohort analysis.
- Customer activities preceding the registration and application processes seem somewhat arbitrary. The sequence and synchronization with the application deadlines are critical, not just during the application phase, but before the application process, as well.
- The portfolio search results and the technology topic areas are the primary ways to winnow prospective applicants. Related to the arbitrary sequence of registration/pre-application activities, the lack of a chronology and limited opportunities to do comparative research on awardees make it hard for potential applicants to determine whether they’re a good fit and ready to apply.

Next steps

Following the synthesis of our workshop findings, we plan to:

- Continue refining our service blueprint and get feedback on it from core NSF SBIR staff to ensure its accuracy. Provide a high-level blueprint with actionable recommendations for possible next steps.
- Sketch out an initial (draft) information architecture that draws on our earlier research and participants’ workshop contributions.
- Develop a testing plan for the new IA; following testing, iterate on our design based on the feedback we gather from our testing.
- Continue communicating with the Brunet-Garcia team to ensure alignment between the visual brand and content voice/tone.
- Revise core content (and write new content) with an increased focus on telling the story of the NSF SBIR program and demonstrating how users can become a part of that story.