Science Gateways Community Institute Incubator Pitch Deck: Success Stories from the 2nd & 3rd Bootcamp

Michael Zentner
HUBzero
Purdue University
West Lafayette, IN
mzentner@purdue.edu

Juliana Casavan
Purdue Foundry
Purdue Research Foundation
West Lafayette, IN
jbcasavan@prf.org

Claire Stirm
HUBzero
Purdue University
West Lafayette, IN
cfrist@purdue.edu

Sandra Gesing
Center for Research
Computing University of
Notre Dame Notre Dame, IN
sandra.gesing@nd.edu

Sean Cleveland
University of Hawai'i
System
Information
Technology Services
seanbc@hawaii.edu

R. Cameron Craddock
The University of Texas at
Austin
Austin, TX
cameron.craddock@austin.ute
xas.edu

Nancy Hoebelheinrich
Knowledge Motifs LLC San
Mateo, CA
nhoebel@kmotifs.com

Anna-Maria Escherich The
University of Texas at Austin
Austin, TX
amescherich@austin.utexas.
edu

Abstract—**The Science Gateway Bootcamp is designed to help teams in any stage for their gateway project - from planning to developing to maintaining their gateway - to learn core business strategy skills, technology best practices, and long-term sustainability strategies. The interactive sessions are planned to get an overview on basic strategies and develop for each project viable means and goals to achieve sustainability. At the end of each Bootcamp, attendees walk away with a pitch deck with their core ideas and business plan and they will have set goals for the next three to six months. We followed up with our second Bootcamp cohort and we share three success stories in this paper: the Data Management Training (DMT) Clearinghouse project, the Coastal Emergency Risks Assessment gateway (CERA) and the Virtual Infrastructure for Data Intensive Analysis (VIDIA) gateway.**

Keywords—science gateways, incubator, pitch deck, SGCI, Bootcamp

I. INTRODUCTION

The Science Gateways Community Institute [1] offers a week-long, intensive Science Gateway Bootcamp [2] for leaders of gateways who want to develop further and scale their work. Throughout the week participants study gateway best practices from consultants, hear from successful gateways, form a network of colleagues, and complete learning exercises. Participants learn about crucial development areas critical to a gateway effort at any stage of its lifestyle. Consultants share experience and expertise on a variety of gateway-related topics, such as techical advice, business planning, usability and user engagement expertise, and campus-based development groups.

At the end of each Bootcamp, each team shares a compiled pitch deck that explains the value proposition of their science gateway and identifies the audience to whom they deliver that value. Teams use the deck to pitch their science gateway to potential funders, users, and stakeholders. The very last day, each team presents their compiled pitch deck and receives feedback on improving the deck along with positive feedback of how the team has progressed throughout the week. The ultimate goal is to teach gateway owners a variety of communication tools to quickly convey their ideas to various stakeholders.

II. PITCH DECK

Each deck contains completed learning exercises as described in more detail below.

A. Napkin Drawing

The Napkin Drawing is the first element in the Pitch Deck and the opportunity for Gateways to effectively communicate the value of their science gateway through verbal and visual communication. It is critical that they be able to share in a clear and concise manner. Another component to sharing effectively is identifying what makes their gateway distinctively different than what already exists. Key to this element is that the intended stakeholder can intuitively understand the value to the user with a minimal verbal explanation

B. Value Proposition

Science Gateways must be able to define and articulate the value that they bring to the customer and who the customer is that they are serving. A value proposition takes the form [MY PROJECT] will help [WHO?] do [WHAT?] by [HOW?]. Participants spend a significant amount of time reducing this statement from generalities to specifics. For example, they may start with "My gateway will help scientists analyze data faster by offering free compute services." In fact, a more specific version of this statement may be, "My gateway will

help scientists generating more than 100 organ scans daily rapidly identify the most effective cancer treatment compounds under investigation by assembling the 3D images and applying machine learning methods that identify tumor reduction." Often this is the most challenging task for our clients. They desire that their technologies have the broadest applicability. However, a more specific statement can dramatically help them focus their limited funds on performing the right developments and selling to the right audiences."

C. Market Landscape

There are many ways to address the problem that a Science Gateway may be trying to solve for their customer. Market Landscaping enables them to identify what it is that the customer genuinely cares about and how do they choose one solution over another. This activity encourages participants to concretely diagram how their proposed approach fits within a space occupied by many competitors, some of which may be direct while others may be indirect (see Figure 1). For example, there may be multiple gateways that solve very similar problems; however, an indirect approach may be performing analysis on a lab computer with longer compute times but less overall complexity.
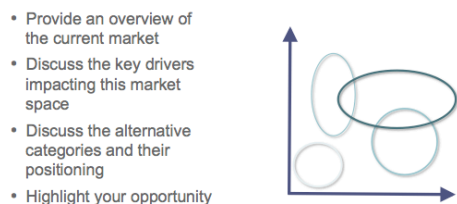

Fig. 1: Current Market Landscape

D. Target Audience and Stakeholders

There are customers that a Science Gateway is going to serve, but they must also know and understand the needs of the stakeholders. Understanding the target customers and stakeholders indicate what activities they need to pursue. For example, the customer that they may be serving is a graduate student or postdoc that completes the tasks and uses their solution. However, the faculty member or PI is the owner of the funds to pay for the solution. Science Gateways not only need to know the value propositions for the users but the payer.

E. Financial Model

At the start of Science Gateway, the traditional funding model is through a grant. Once that grant has run its course, how will the gateway become financially sustainable? Brainstorming and considering new options for funding sources and even potential revenue models are a must, as well as pinpointing what components need to be maintained to continue being valuable to the customer. It is entirely possible that the complexion of a gateway may be very different when it evolves from being funded wholly by research grants to being funded by corporations, users, or other stakeholders.

F. Goal Setting

The last step is for Science Gateways to define their short-term goals. What actions will they take in the next three months and six months to work towards their sustainability? Defining their goals and sharing with the cohort adds accountability to completion of the goals and enables the leadership team to find ways to assist in achieving the goals they have set. Giving everyone actionable steps to continue utilizing the skills they have learned during the Bootcamp.

III. SUCCESS STORIES

The Science Gateways Bootcamp has been offered to three cohorts with the fourth cohort to begin on August 13th, 2018. There have been 29 teams that have attended a Bootcamp, with 62 researchers in attendance overall. During the first Bootcamp, we encouraged attendees to write down goals so they could set milestones for their projects after the Bootcamp. At the first Bootcamp, we had several teams highlight their success stories and achievements during a panel at Gateways 2017 [3]. We saw value in capturing goals directly from all teams that participate in tracking how each group has benefitted from the week-long workshop.

During the second cohort, we had participants add three-month and six-month goals to the end of their slide deck. We captured these goals and followed up with each team in January 2018 and April 2018 to see how they had progressed. We discovered that four teams excelled at completing their goals.

A. Science Gateway for Data Management Education

Lead by Nancy Hoebelheinrich, an Information Analyst, who partnered with Erin Robinson, the Executive Director of the Federation of Earth Science Information Partners (ESIP) [4] Data Stewardship Committee and Data Management Training Working Group, during the second cohort. Nancy and Erin worked on the ESIP Data Management Training (DMT) Clearinghouse project [5] during the Bootcamp. The DMT Clearinghouse is a registry for educational materials about a research data management skill acquisition (see Figure 2). Nancy and Erin submitted their application to attend the Bootcamp with the desire to expand their gateway to offer a set of services for their community. Their initial challenge was to move beyond the initial launch stage of grant funding and volunteer support to a high-functioning gateway with a useful sustainability model.
Nancy and Erin at the end of their Bootcamp pitch deck set three-month, and six-month goals focused on improving their gateway's marketing, usability, and content on the gateway. Starting with the three-month goals, Nancy and Erin set their first goal to plan, prepare, and implement awareness and usability testing event at the American Geophysical Union conference held in December 2017. In January 2018, Nancy reported that they did arrange for workshops, demos, and usability testing at the conference targetting researchers and data users in attendance. They discovered that the workshop format did not work well due to the physical location, but they

did get some people to attend the demos and offer suggestions. The second goal was to increase the inventory of resources by 25-50%. Nancy reported that they met this goal and increased their inventory from 69 resources before the Bootcamp, October 7th, 2017, to 109 resources on January 18th, 2018. Thus, they were able to add 40 new resources within three months. They also hired a student intern to help continue adding new resources.
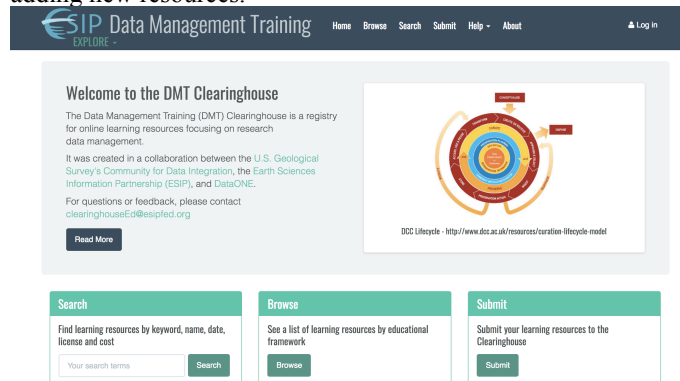

Fig. 2: Screenshot of the DMT Clearinghouse

Their third three-month goal focused on developing and implementing an ongoing marketing plan to raise awareness of the gateway. While they did not have as much success in marketing, they did submit a proposal for grant funding to the Institute for Museum and Library Science (IMLS) which has helped the group receive commitments from people willing to serve on an Advisory Board to help with the marketing initiative. The final fourth goal was related to the American Geophysical Union conference preparation, which they completed successfully. Erin added in her report back on goals that Nancy has made significant progress with other planned goals and has started positioning the Clearinghouse in an international project. Erin reported that this initiative had begun to build fascinating communities of users and contributors.

In April 2018, we checked in with Nancy and Erin again to ask about the progress of their six-month goals. The first six-month goal focused on identifying, inviting, and planning face-to-face meetings of potential Advisory Board members. Nancy reported back that they have not heard back if they were awarded an IMLS grant. Nancy indicated that even if they do not receive the funding, they will invite potential members to attend remotely and kick off an advisory board. Erin and Nancy are also working closely now with a colleague from the University of New Mexico who is a principal investigator on the IMLS grant but is willing to work with the project on an advisory board moving forward. Their second six-month goal focused on usability testing at the ESIP Winter meeting. They did not meet this goal due to insufficient data. Instead, Nancy and Erin conducted informal usability testing at the Americal Geophysical Union in December. They reported that they were in the process of adding enhancements to the web interface and functionality of the Clearinghouse.

Finally, their third six-month goal focused on exploring the options for moving from their current hosting infrastructure to the HUBzero infrastructure. They were able to meet with the HUBzero team and have started a comparison of features in their current system with the HUBzero infrastructure. They plan to make the topic of moving to a sustainable and accommodating infrastructure an item at the Advisory Board meeting in July at the ESIP Summer meeting.

Nancy reported enthusiastically at each check-in. It was also exciting to hear that during the ESIP Winter meeting, Nancy lead a simulation of a Bootcamp and answered questions about the Science Gateways community, which was met with curiosity and inquiries. While the team faced several setbacks, their determination to continue moving forward helped their group complete several of their goals.

B. CERA

Jason Fleming, the Principal Consultant of the Coastal Emergency Risks Assessment gateway (CERA) [6] and Carola Kaiser, an IT Consultant from Louisiana State University, worked on the CERA project during the second Bootcamp. The CERA gateway is a visualization model that displays real-time results from the ADCIRC coastal ocean model. The gateway is used by the US Coast Guard and the National Hurricane Center, among others, during hurricanes and tropical storms to review the latest results produced by Jason and Carola. Their goal upon applying for the Bootcamp was to grow their mandate, expand their user base, and develop a sustainable financial model. In Jason and Carola's pitch deck, they set three-month, and six-month goals focused on using the knowledge they gathered from the Bootcamp and applying it to their overall goal. They also set goals to start working on rebranding CERA and improving the usability of the gateway.

In January 2018, we touched base with the CERA project and their first three-month goal of rebranding the gateway. They reported that the CERA rebranding strategy is going well and 90% done. They were planning a user meeting on April 9th-13th, 2018 with a dedicated session for decision makers, including personnel from FEMA, NOAA, US Coast Guard, to share usability feedback.

Their second three-month goal focused on requesting a Science Gateways Community Institute Incubator consulting service. They reported that they have set-up a contract with Incubator consultant, Dr. Paul Parsons, to complete a usability study on CERA's gateway. Jason and Carola also indicated that they set-up an agreement with the Science Gateways Community Institute Extended Developer Support to move the CERA gateway to use cloud resources, enhance the hardware, and software architecture. Their final three-month goal focused on building out a two-year revenue and budget plan. They reported that they had yet to complete this goal, but started working with the Port of Houston-Galveston, TX which opened up some opportunities with potential funding that they were pursuing. They are also closely working with the Department of Homeland Security to secure funding. However, all of these efforts still need to be written up in a budget plan.

In April 2018, we touched base with Jason and Carola on their six-month goals. They reached out reporting that their first goal of completing final negotiations with the Texas

Department of Transportation was a success to use the CERA gateway. Their second six-month goal to confirm new funding from the United States Department of Homeland Security was a success, and they have commitments of funds from them and are in the final stages of contracting. Finally, their third six-month goal to receive initial funding from the Stephenson Disaster Management Institute at Louisiana State University did not succeed, but that there is still mutual interest. They were excited to report that while this initial goal did not succeed that with the success of other priorities, they do not have the availability to work with the institute at the moment.

Overall, the CERA project was able to report back success on their goals during each check-in. They were also ready to meaningfully start working with the Science Gateways Community Institute's services and have found success from these engagements.

C. VIDIA

Jeanette Sperhac, a Scientific Programmer for the Center for Computational Research at the University of Buffalo, worked on her project, the Virtual Infrastructure for Data Intensive Analysis (VIDIA) gateway [7]. VIDIA is hosted at the Center for Computational Research (CCR), an academic computing facility. VIDIA is designed to support the analysis of large datasets by social science students at Primarily Undergraduate Institutions. She stated after the Bootcamp that attending was "tremendously useful" and that the "Bootcamp instructors were top-notch, completely involved and committed, and full of constructive advice and feedback" [8].

Jeanette set three-month goals with a focus on getting additional resources added to VIDIA and gathering feedback. Her first goal was to solicit feedback from 2017 Fall semester courses. She reported back that she was able to accomplish this task and appropriately gathered input from her targeted audiences to build out her funding model further. Her second goal was focused on implementing job submission to dedicated HPC nodes, which she was able to order and was set to deliver in early January 2018. Her final three-month goal focused on adding a development instance and improve her gateway's disaster recovery plan. She reported back that she was able to start work on this goal but still had plans to continue work related to this goal.

Jeanette also set six-month goals with a focus on initiating her revenue model, improve her gateway's landing page usability, and seek out new gateway users. Jeanette reported back that her first goal of embarking on course support revenue model is underway and is in its second semester of supporting a University at Buffalo Physics department course. She successfully was able to implement her revenue model and acquire her first paying customer. Jeanette also started work on her second goal of redesigning the landing page of her gateway and improving the user experience by investing time in reorganizing content, developing documentation, and uploading new material on VIDIA. Jeanette is also a Foundation member for HUBzero and has invested in .

improving the landing page visually. Finally, Jeanette's third goal of courting new users at University at Buffalo resulted in her submitting an abstract to a SUNY conference on Computing and Educational Technology, to talk about the physics coursework she has started supporting on VIDIA. She plans to continue to work in the direction of improving her outreach and having a sustainable funding income to support VIDIA in the future.

IV. CONCLUSION

Overall, each team from the Science Gateways 2nd Bootcamp was able to accomplish at least half of their applied goals. The Science Gateway for Data Management Education, CERA, and VIDIA teams were able to accomplish many of their goals and utilize their Bootcamp knowledge to gain new paying customers and reach their targeted audiences.

In our panel, we will be sharing updates from our 3rd Bootcamp cohort along with their pitch decks explaining their gateways.

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