

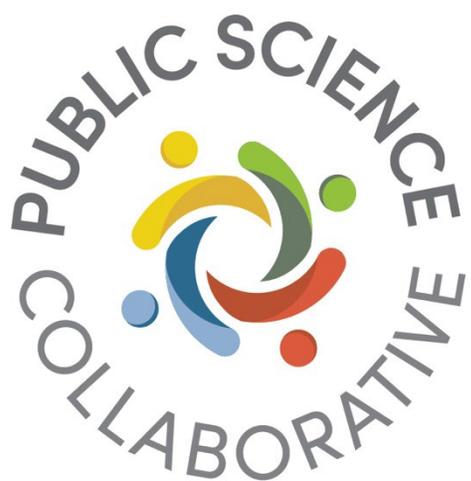


AG2PI Community Workshop

PSC Workshop 2: Ethics, Diversity & Inclusivity in G2P Research - Design Thinking

Cassandra Dorius, Shawn Dorius & Rachael Voas

May 2022



"Science Consulting for the Public Good"

This seed grant project was supported by the Agricultural Genome to Phenome Initiative (AG2PI) which is funded by USDA-NIFA awards 2020-70412-32615 and 2021-70412-35233 as part of a financial assistance award totaling \$19,833 with 100 percent funded by AG2PI. The contents are those of the author(s) and do not necessarily represent the official views of, nor an endorsement by the sponsors.



Table of Contents

TABLE OF CONTENTS	1
EXECUTIVE SUMMARY	2
CONTENT OVERVIEW	3
INTRODUCTION.....	3
PHASE 1. PROVIDE SCOPE	4
PHASE 2. DEFINITION OF ELSEE.....	5
<i>Intentional Incorporation of ELSEE</i>	5
PHASE 3: INTRODUCTION TO AG2PI KEY PERSONAS	6
<i>Personas Discussion</i>	7
PHASE 4. EMPATHY MAPPING.....	8
<i>Introduction to Empathy Mapping</i>	8
<i>Subphase 5: Brainstorming Empathy Maps</i>	10
PHASE 6: JOURNEY MAPPING	11
<i>Introduction to Journey Mapping</i>	11
<i>Subphase 7: Brainstorming Journey Maps</i>	13
FINAL DISCUSSION	14
KEY TAKEAWAYS – WORKSHOP 2	15
DISCUSSION	16
IMPLICATIONS & RECOMMENDATIONS.....	16
REFERENCES	17
PARTICIPANT LIST	18
APPENDICES	20

Executive Summary



On February 24th, 2022 the Public Science Collaborative¹ (PSC) led the second of two workshops for the Community Workshop Series for the Agricultural Genome to Phenome Initiative (AG2PI). This workshop series and corresponding reports were completed in coordination with partners from AG2PI. Project funding came from the AG2PI Seed Grant Program, from USDA-NIFA awards.

Presenters for the workshop included Cass Dorius (principle investigator), Shawn Dorius (co-principle investigator), Rachael Voas (co-principle investigator), along with facilitator Kelsey Van Selous. Workshop details may be viewed through AG2PI website² and the video recording may be viewed through YouTube.³

The workshop focused on four main sections:

- 1. Review of ELSEE**
- 2. AG2PI Key Personas Report**
- 3. Empathy Mapping**
- 4. Journey Mapping**

The goal of the workshop series was to introduce the concepts of diversity and inclusivity in Genome to Phenome (G2P) research, help AG2PI scholars identify key stakeholders to support diverse, equitable, and inclusive science. This workshop led agricultural genome to phenome researchers through several approaches to create more expansive and inclusive teams and ensure that they leverage the knowledge and expertise of marginalized and underrepresented groups. Participants learned how to directly engage with other researchers in networks to create more inclusive and dynamic teams, delved into how to target communication with model stakeholders, employ empathy maps for understanding, and create journey maps of collective experience. Workshop attendees also had a chance to meet other members of the international network, discuss current data sharing and team building practices. The workshop had 86 registrants from 27 countries.

The following pages include a content overview of materials presented during the workshop, as well as a report of the ideas developed during the facilitated discussion. If you have questions or would like additional information about the contents of this report, the workshop, or about promoting diversity and inclusivity in your teams, please contact the principal investigators of this study, Dr. Cassandra Dorius at cdorius@iastate.edu, or Dr. Shawn Dorius at sdorius@iastate.edu.


Cass Dorius, PhD
Iowa State University
Public Science Collaborative


Shawn Dorius, PhD
Iowa State University
Public Science Collaborative

¹ PSC is an Iowa State University research team providing science consulting for the public good.

² <https://www.ag2pi.org/workshops-and-activities/community-workshop-2022-02-24/>

³ <https://www.youtube.com/watch?v=nb7XvBoDiM8>

Content Overview

Introduction

Figure 1: Content Overview



The workshop began with PSC welcoming participants and introducing them to the goals of the workshop series, to think more expansively on the ideas of diversity, equity, and inclusion to solve scientific problems.

Next, PSC provided an overview of the planned activities for the day, in which participants would be guided through six creative thinking phases to introduce concepts of diversity and inclusion integration into their research through understanding their key stakeholder personas, empathy mapping and journey mapping.

Phase 1 Provide Scope: PSC shared that the second workshop will focus on getting participants out of their usual comfort zones, reaching beyond their everyday experience to see AG2PI through the new eyes and perspectives of key personas that had been developed in the previous workshop.

Phase 2 Introduction of ELSEE: PSC reintroduced the ELSEE framework to ground participants in the same theoretical paradigm for the day's activities. This prepared participants to deeply consider stakeholders in their brainstorming, and encouraged participants to consider groups beyond those they may have thought of previously. ELSEE stands for:

1. Ethical
2. Legal
3. Social
4. Environmental/Economic

Phase 3 Introduction of AG2PI Personas: Through taking a human-centered design approach, PSC shared personas that provided tangible individual stakeholder models to help guide user experience decisions and may be utilized when planning research priorities in a way that workshop participants may have never considered before.

Phase 4 Introduction of Empathy Mapping: This session provided visualizations that helped participants build deeper identities for the set of stakeholder personas, allowing participants to think further about, and try to understand, their stakeholders needs, wants, and hopes to foster understanding.

- **Subphase 5 Brainstorming Session:** This interactive session allowed for the participants to see through the eyes of one of four key personas to build their empathy maps.

Phase 6 Introduction of Journey Mapping: This section of the workshop introduced participants to a new way of thinking through their stakeholder’s individualized experience with AG2PI by creating a map of stakeholder experiences and feelings at guided touchpoints. This helped identify areas for improvement & find new opportunities to connect positively.

- **Subphase 7: Brainstorming Session:** Participants created journey maps which offered a new way to understand and reach key stakeholders, by working from the perspective of the stakeholders themselves.

Results of process: The end of this process creates viewpoints from well-defined stakeholders that can encourage thinking and collaboration, as well as defined end-user personas that allow for the focused development of the project in later stages.

What does this report include? The rest of this report will dive into the activities and outputs from the workshop.

Phase 1. Provide Scope



Cass Dorius Shawn Dorius Rachael Voas Kelsey Van Selous



To kick off the activities, PSC shared this was the second workshop in a series of two, and would build upon products that had started to be developed at the first workshop. This tied the work from the first workshop into the second whilst PSC made clear that new attendees would not be disadvantaged if they had not attended the first workshop as no one had seen the fully developed results yet. This ensured that all participants were encourage to contribute on equal footing and encouraged new attendees as strongly as first workshop participants.

PSC noted that it is common to “stay in your own lane” and each participant likely had specific subject expertise, perhaps as a scientist in the very specialized area in which they work day in and day out. These workshops were designed to break participants out of their comfort zones and into new ways of thinking through new perspectives. In the previous workshop, participants were asked to think expansively about AG2PI key users, who they are, recipients of their work, people who are directly or indirectly impacted.

They worked on activities to develop stakeholder maps at a general level, and some model stakeholder-types at the individual level. From the results of those activities, PSC developed four key stakeholders, or ideal-type people,

called personas, who represent groups of people that are impacted by AG2PI members' work or the outcome of their work. The second workshop leveraged the key personas developed. PSC challenged participants to be open to the unfamiliar approaches, to try something new, to think about different ways of doing the work they do, and have a good time creating ideas and seeing things from a different perspective ideating in the interactive sessions that followed.

Phase 2. Definition of ELSEE

PSC reintroduced ELSEE to participants as participant list had changed considerably at the second workshop. The substance of the definition has been recorded in the report of the first workshop, so is included here only as a refresher.

Internationally, ELSI is an acronym that refers to the ethical, legal, and social implications of research. In the USA, ELSI has been expanded to include economic and environmental implications and is referred to as ELSEE. For consistency with their work location, PSC presenters used ELSEE throughout the workshop.

Most often, because there are problems we're trying to solve, we mostly assume only good things will come from innovation. But the challenge is we find that's not always the case. If we haven't thought through some of these dimensions, problems can arise down the road, perhaps unintended consequences that may have ethical implications, or maybe some ecological implications - perhaps too intensive on the input side or not resilient enough on the output side. We recommend thinking through those dimensions as teams are crafted, and work is designed. This will lead to better work. And the work will have greater impact.

- **Ethical** - How can we be sure that this project will produce ethical results through ethical means?
- **Legal** - What are the future and current legal concerns of this project?
- **Social Implications** - How will people and communities be affected by this project?
- **Ecological & Economic** – Should any ecological or economic impacts be anticipated for this project?

Intentional Incorporation of ELSEE

PSC proposed a process of intentionally incorporating the ethical, the legal, and the social dimensions into research. By using the approaches outlined in the workshop, participants learned how to incorporate diverse ideas, perspectives, and backgrounds from the beginning of research projects. When this process is set up early in the research process each step that follows is improved.

Through building a more inclusive and diverse approach that teams may invite underrepresented stakeholders to help shape the scientific approach and goals, and determine which questions to ask, rather than only being the recipients of scientific discovery. This will lead to not just a diversity of people, but to a diversity of ideas and perspectives, all at the front end of research, which can then be leveraged and built on through the lifetime of the research project.

PSC then introduced participants to the personas co-created during activities in the first workshop.

Phase 3: Introduction to AG2PI Key Personas

Figure 2: Four Key Personas

Human Centered Design

Co-created with participants of AG2PI Workshop, November 2021



Who are the stakeholders engaging with AG2PI? What is their experience during interactions?

During the workshop participants learned to incorporate ELSEE by taking a human centered perspective throughout their whole research agenda, not just for one specific research project. This perspective is also known as user experience research. User experience research is much more common in industry and business than it has been so far in the research realm. It is focused on extensively by tech development companies, utilizing cross-disciplinary teams of people who are interested in diving deeply into the user experience and it guides their whole internal research process. PSC takes a similar approach. We use human centered design for our research at the Public Science Collaborative we often coordinate with local, state, and federal governments in thinking through their issues from a human centered perspective.

Workshop participants were likely tangentially familiar with these concepts as applied to branding products or trying to bring a particular technology to market. The transformative revelation of the workshop was that participants can do this with their **whole research design**. Participants saw that even with starting with the four different personas that PSC and AG2PI came up with together, collaboratively in our last workshop, we really diversified the perspectives and the ideas that might push future research forward, which was a learning goal for our workshop.

For the rest of the workshop, participants honed in on the four key personas. PSC then introduced each persona in depth. The full persona sheets are located in appendices 1 – 4 of this report, starting on page 20. Each of the four appendices contain a packet of information containing the persona, their empathy map, and their journey maps so that they may be more fully realized when reviewed one persona at a time with their perspectives pulled out separately as stand-alone references for AG2PI in the future.

Personas Discussion

PSC then led a discussion session over the four presented personas, eliciting feedback widely through verbal or chat messaging. Some of the prompts used:

- What did you think of the personas presented?
- What did we do well and was there anything missing?
- Is there anything you'd like to add?
- What feedback do you have?

Chat responses examples which show depth of participant engagement and creativity are below:

A participant reflecting on using the design thinking approach to help us think about how can we engage with each person and be really respectful of their unique differences noted:

"These look great! I like how you used the same categories across each person to show how they compare. Makes it really easy to see their similarities and differences."

Participants were inspired to think of who else could be an important stakeholder and came up with a variety of ideas including:

"Maybe we need a "Data Daria" who's a feature potential user of the data produced by the research?"

"What about Database Denise"

"The perspective of the database"

"Maybe consumer"

"Research administration is another stakeholder to consider too"

A response to the question "who are we missing" reminded everyone that there are always stakeholders with whom a group interacts that they have likely not planned. This reminded all participants to always be on the lookout for a path to increase diversity and inclusion, as where you find people falling through the cracks, you may potentially be cutting off an entire group of stakeholders.

"There are probably a lot of people who are in between these four well defined personas and they often slip through the cracks of each organization/institution."

To stimulate further reflection, PSC next shared the idea of empathy mapping. From an ELSEE perspective, PSC encouraged participants to become cognizant of their stakeholders needs, motivations, and pain points. Then participants would be able to ask themselves if by engaging with the stakeholder they would be **adding** to any known pain points of the stakeholder or if they would be **helping to reduce** those in some way through an opportunity to work together?

By empathizing with our research users, we can better understand their needs and interests.

The empathy process is iterative, so PSC encouraged participants to add further stakeholder groups in the future. This is one way to drive broader impacts outreach in research disciplines.

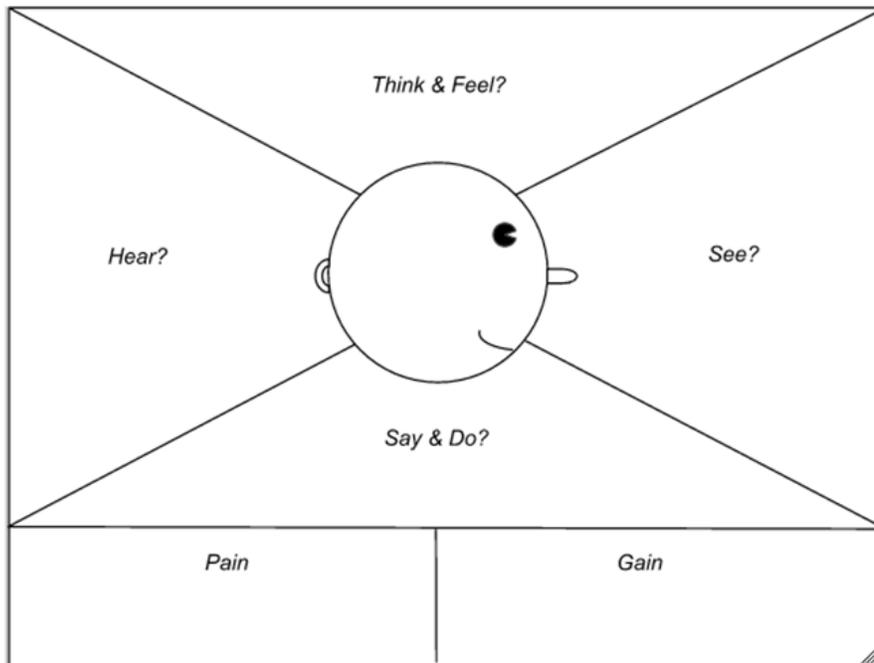
Phase 4. Empathy Mapping

Introduction to Empathy Mapping

Empathy mapping is an engaging visualization tool that lets participants empathize with someone who is different from them. Empathy maps are used to understand user needs, wants, desires, aspirations, habits, rituals and emotions.

For the purposes of the workshop we had a specific goal to encourage participants to step out of their (mostly scientist) shoes and jump into the shoes of somebody else, to see and hear and think and feel the world from a new perspective. Empathy mapping was selected as it is a very powerful method to expand thinking of one's own work and encouraged participants to approach problems in a different way, to think about things from an alternative perspective. This could be especially beneficial when it helps participants think about their problem set from the perspective of someone who is one of the key users/stakeholders, but whose viewpoint is not regularly considered in workshop participant's research streams and thinking.

Figure 3: Empathy Map



An empathy map begins with a Persona. Shown in Figure 3⁴ as a face, the persona is the inspiration and anchor to the activity. In the workshop participants worked with one of the identified personas in mind, either Industry Ian, Farmer Fred, or Government Gloria.

PSC prepared participants for upcoming breakout sessions in which they would discuss as a small group - What does their persona see in their everyday life, what do they say and do, and what they hear?

The exercise required participants to not just think about their assigned persona, but to fully put them in a context, to put them in the walls of Washington for Industry Ian, to put them out on the farm for Fred, to put them into the daily life of a federal funding agency as Government Gloria experiences her day and is pitched new projects.

The exercise can be a big cognitive load, so PSC walked participants through a completed Scientist Susan empathy map to build familiarity with the process.

⁴ Figure courtesy of Tejas Dhadphale - Design Thinking Seminar, November 8, 2020

Figure 4: Review of Empathy Map – Scientist Susan



Empathy Map – Scientist Susan

Think & Feel	See
<ul style="list-style-type: none"> Feels like she has to prove herself all the time - This can be exhausting physically and mentally Loves it when someone stumps her with a viewpoint she hadn't considered before – and is excited to see how that viewpoint could help her answer deep questions and contribute to research Feels invisible when some colleagues somehow seem to dominate a full conversation without noticing her efforts to join Feels like she is flying when she makes a discovery that adds insight to the field Is motivated by success and also by failure – try and try again! 	<ul style="list-style-type: none"> Doesn't see a lot of people who look like her in her meetings. Notices when grad students or new faculty hesitate to contribute in meetings Sees connections that many people miss and has the ability to narrow down what she sees to the core question that will make it reveal insight
Hear	Say & Do
<ul style="list-style-type: none"> Listening to her subordinates tell her she's the best boss they've ever had Sometimes hears colleagues checking with males at the table before including her Hears people assume she cannot follow a conversation in English, thereby talking over her or ignoring her 	<ul style="list-style-type: none"> Reaches out to colleagues to congratulate them on their achievements Attends every conference she can to network in her field Agrees to co-author with new scientists to help mentor them Is inclusive of other viewpoints Shares and encourage others to discuss their failures – it is part of growing knowledge to not always follow a path that leads to success, but sharing the process and the results can help others to not make the same mistakes and is also the ethical approach that encourages truthful transparency from herself and her team.
Pain 😞	Gain 😊
<ul style="list-style-type: none"> Maintaining funding Time Connect her lab and work with other research programs Recruiting and funding high quality grad students and postdocs Navigating stakeholder relationships Project management & disorganization Juggling the diverse tasks of being a research faculty, especially teaching 	<ul style="list-style-type: none"> Passion to do good science and get her job Interested in latest breakthroughs in phenomics/genomics Well compensated for effort Respect amongst scientific colleagues Prospect of discovery: Solve complex problems & participate in exciting discoveries

As PSC reviewed Scientist Susan’s empathy map (Figure 4) they asked participants to keep considering the mapping questions, and walked the group through the persona’s answers:

- How does she think and feel?
- What does she see?
- What does she hear?
- What does she say and do?

How does she think and feel?

Scientist Susan feels like she needs to prove herself all the time. That is exhausting physically, mentally and she never gets a moment's rest. She loves it when someone confronts her with a viewpoint she hasn't thought of, considering it an intellectual challenge. She likes logic problems to be solved. Often though, she feels invisible when some colleagues somehow seem to dominate a conversation without noticing her efforts. On the other hand, she feels exuberant when she makes discovery that moves the knowledge in her field forward. She is motivated by success and also by failure, in that she has that natural experimental thinking style - motivated by the wins *and* the losses.

What does she see?

She has a way of seeing connections in her work, in the data that many people miss, so she’s able to make these really cool breakthroughs. But also, she doesn't see a lot of people who look like her in the meetings and she notices that she’s different than many in her group. She also notices that when grad students are in meetings with

faculty, they often hesitate to contribute. So she is aware that there are some people on the team that are on the margins.

What does she hear?

The kinds of things she hears, well she listens to her subordinates, the people that work in her lab. She hears them saying she's the best boss ever, best boss of all time! But sometimes she hears colleagues checking with males at the table before including her. This is something she is mindful of and it affects her work approach. She hears when people assume she can't follow a conversation in English because it's not her native language, and then they tend to talk over her and ignore her. That can be a really frustrating experience for her.

What does she say and do?

Scientist Susan reaches out to colleagues to congratulate them on their achievements, she is very supportive. Often found attending conferences, she expands her networks to maintain the front end of the latest breakthroughs in research. She agrees to co-author with new scientists to mentor them and she really works hard to be inclusive in her viewpoints because she shares a unique perspective and she sensitive to that.

What are her pains and gains?

Pains and gains are those factors that really motivate when she chooses to push forward, or to stay on the sidelines. She must maintain funding, find time when it doesn't seem to exist, and recruit quality staff. Navigating stakeholder relations is another pain point for her consideration. The gains she feels are significant as she loves her work and it satisfies her passion to do good science. Like many others, compensation motivates her, but she feels the most gains from the respect from her colleagues, and finds the possibility to make a big breakthrough really motivating for her.

Subphase 5: Brainstorming Empathy Maps



Access to Activities:

CONNECT

Go to <http://public-science.org/ag2pi/>
Select the "Slides" option

Participants were then divided into one of three breakout groups with each group being assigned to one of the three remaining personas. Participants began building the empathy maps by connecting online to Google Sheets.

During this phase, the participants focused on one of the three personas. The empathy maps had a set of questions in quadrants in which the participants were able to submit answers

electronically that could be viewed by the rest of the group. By doing so, the participants could brainstorm off of each other's ideas and contribute in an interactive way even with the limitations presented by a virtual format. To assist participants fully developing these maps, the "Pain" and "Gain" sections were pre-filled with information from the persona sheets reviewed earlier. The results from the activity may be found in the appendices, starting on page 20.

Following the Empathy Map brainstorming session, participants were introduced to another effective human centered approach known as Journey Mapping.

Phase 6: Journey Mapping



Journey Map

A Journey Map allows you to generate high quality stakeholder experiences, identifying areas for improvement, and finding new opportunities.

Introduction to Journey Mapping

A Journey Map is a design thinking concept that is used to generate high quality stakeholder experiences, identify areas for improvement, and find new opportunities. It is one of the simplest yet most powerful tools in the design thinking toolbox. It captures stakeholder's journeys **as** they experience them, so we pay particular attention to the emotional highs and lows as we follow the touchpoints through their journey (Liedtka, Salzman, & Azer, 2017).

Journey Mapping, as when you think of any map, starts from one spot and then you end up in a new destination, the following steps (adapted from Wong, 2020) are taken:

Step 1 – Set Your Targets

Have a clear idea of your goals and targets before beginning ensures that strategic planners stay on track and answers questions about stakeholder perspective, experience, and purpose.

Step 2 – Create Personas

A fictional persona can represent a group of stakeholders. These model stakeholder creations consider common demographics, characteristics, and information about a population as gathered from research. Understanding your stakeholders and creating personas is the first step to being able to provide their ideal service, or to solve their real-world issues.

Step 3 - Identify Motivations and Pain Points

Consideration of motivations and pain points are a key part of personas. These insights answer important questions about what a stakeholder needs and how a team can best help.

At this stage of the workshop, the personas started to feel real to participants, especially when accompanied by the empathy mapping exercise, when participants began to identify personally with more of the persona's motivations, their experiences, and how they feel as they go through their day.

Step 4 – Map Out the Journey Experience

The three stages of a stakeholder's journey through any touchpoint are pre-engagement phase; engagement phase, and the post-engagement phase. Through these phases, stakeholders become aware of their options, identify challenges, look for methods or solutions, and make decisions. This experience is ultimately assigned as a positive or negative interaction from stakeholder's perspective on the journey.

Step 5 – Maximize Your Touchpoints

Ensure that all stakeholder interactions make the right impression by focusing on the perspective of the targeted audience in each channel of communication.

Step 6 – Find Your Moments of Truth

Here is where workshop participants were shown that these insights through the journey map would earn their stakeholder's trust. Their trust stems from experiences with AG2PI team members and activities, so ensure that touchpoints stand out, earns loyalty, and creates memorable experiences.

Step 7 – Revise

Refine processes until they are just right, adapt to potentially changing journey experiences, and always work towards ideal outcomes. Keep thinking of new ways to maximize touchpoints, and as further connections are made, and as AG2PI builds into the future, visit these ideas again to keep stakeholders' priorities and concerns front and center, keep moving forward, keep improving.

The three compelling reasons for working on a journey map with a team are shown in Figure 5.

Figure 5: Reasons to Work on A Journey Map



The first is that participants get a chance to visualize something outside of themselves. What is it that stakeholders go through on this journey – not just at one moment, but through an entire process. After the visualization participants found that they could build understanding of how the journey works or doesn't work for the stakeholder. This helps to understand the problems faced by those for whom the research is ultimately going to help, and guides solution development. The final reason is to strategize, how to increase the positive touchpoints? How to fix something that is revealed to be a bottleneck, for example, is an actionable outcome once the full journey map is considered.

Participants were invited to concentrate specifically on the actual experience of their personas as they connect to AG2PI. How do they feel when interacting with AG2PI? Every time there is a touchpoint with someone it is a key opportunity to connect and have a positive outcome. Participants were also encouraged to identify those "Moments of Truth" as they gained insights into building trust, and start to understand where their stakeholders are coming from and learn to meet them where they really are.

Subphase 7: Brainstorming Journey Maps

To begin, PSC walked participants once again through the exercise as it related to Scientist Susan. This allowed participants to see the process in action, and become comfortable with the idea of putting themselves in someone else's shoes through concentrating on a persona who happens to be a researcher, removing the concept of the scientist being them, and showing them how to see through another's perspective.



Access to Activities:

CONNECT

Go to <http://public-science.org/ag2pi/>
Select the "Slides" option

Participants were then invited back to the breakout rooms, focusing on the same persona they had come to know during the empathy mapping to create a journey map of their individual persona's experience.

The individual journey maps are located in the appendices, starting on page 20.

Upon the successful completion of the journey mapping session, participants regrouped together for a final discussion to reflect on the workshop and insights developed through taking the human centered approach.

Final Discussion

The full group of workshop participants then came together for a summation and last group discussion of the workshop.

One participant reflected:

Poor Farmer Fred was hung out to dry.

When encouraged to elaborate, the participant noted:

He didn't have, he had a lot of ways to interact but only in the ways being prescribed by the researchers and the program and didn't have any more. There was no way for him to provide more personal feedback that would like change affect research. No direct way to contact folks.

Participants were asked to reflect on three questions during the final discussion:

1. What insights did you gain about the types of people who will use your research in their work?
2. How might you better coordinate (pre, during, post) with these stakeholders to improve broader impacts of your work?
3. Who can you engage to bring in diverse viewpoints at the touch points we covered in the journey map today?

PSC asked: Did we learn anything from Ian? I'll pick on the Ian group. Industry Ian. that were helpful or unexpected?

I mean, honestly, my biggest insight is just how hard it is to get into inside the, the head of someone that you've never walked a mile in their shoes. So like honest, I've always been an Academia. I've been on the research side of things, I grew up on a farm, I can get inside Farmer Fred's head, but Industry Ian was a pretty big leap for me. I feel like we did a good job filling out our boxes.

PSC next asked a participant from Government Gloria breakout group. What can you share with us?

Well, first I want to go back and make a comment about Farmer Fred because I do have another job that is part of my, my career path has been communicating directly to farmers about research and so it is not an easy task and sometimes there is more than sometimes, there is more than one step and one way. And its several steps to get to the farmer. And so there's times where maybe we're not ready to talk to Farmer Fred yet until some of that research gets done and ready to be directed to him. So I don't think that's a bad thing, that you can't make that direct connection. I really don't cuz maybe we're not, like I said, they were not ready to talk to Farmer Fred yet, but I going back to we were with them Government Gloria. We, uh, trying to make those connections with her. And it's, it's one once again, it's not an easy task either, cuz they're very, very busy and they're getting information from everyone. If you're in the government, maybe your, maybe you're not a science-, obviously maybe you're not a scientist. So you've got to talk with them, talk to them in a language that is simplified. And so sometimes it may be hard to simplify what your research and what you're doing in order for them to understand why it's important. So I think those are good, to me that's the biggest the biggest hurdle.

PSC asked the next question, which is how could you better coordinate with stakeholders to improve broader impacts?

Yeah, I just thinking, I think I wanted, well, boy just giving up all sense of control because I want to say, well, it's really the funding agencies who have a huge hand here. If they don't require it, then it ends up being outside the scope of the research and so much research we do, if needs money to fund it. So I think, I think the funding agencies, yeah, they've got to be at the front end of this of really saying, you must have certain members of your team and the broader impacts is a step in that direction, but it's really easy to craft



research that gives great broader impacts. But that still keeps you on a very narrow, lean, homogeneous team and problem set. So I think this funding is kind of the funding agencies, really have to push us forward and outside of our traditional networks and user groups.

Other participants noted the following:

I was just thinking that it takes at least a decade for things like that to change other. Based on other changes from agencies.

...as someone who is actively trying to reach out to the community, it seems really hard, right, to get people involved when everyone's very overscheduled right, in our work life, in our personal life. So, you know I, I think you need a bit of a culture shift in that sense as well, to be able to participate in some of these bigger projects. Even if it's just, you know, one time or two time, or as some people did for this two-hour meeting. They hop on for 30 minutes and they give their two cents. I would love to see more of that. But if anyone can, you know, crack this nut, I would love to hear it. It's really hard to reach everyone and and hear everyone's voices.

One nice insight that our Industry lan team . . . were really focusing on that frustration for Industry lan with the broader impacts. We're talking about how to do we coordinate with them? And this, this big issue for them is that conflict between IP and profit and academic freedom, and transparency and sharing the knowledge. And for Industry lan, that was a massive issue.

Key Takeaways – Workshop 2

ELSEE

Intentionally incorporating diverse ideas, perspectives, and backgrounds, from the beginning of research projects, will lead to greater participation and relevance of the research.

PERSONAS

Human-centered design is vital for understanding who we are communicating with and for. We dive into specific ideal people to give them personality, concerns, and goals to make them more real to us.

EMPATHY MAPPING

To put yourself in someone else's place to understand what they do, say, think, and feel. Through this experiment we see the world through another's eyes and reveal awareness of challenges and motivations previously obscured by our own viewpoint.

JOURNEY MAPPING

Journey mapping is one of the most powerful tools for Design Thinking. It captures stakeholders' journeys as they experience them, and allows us to discover moments of truth in our processes.

As participants improve their inclusivity of diverse ideas and perspectives, it is expected they will broaden and strengthen their research.

DIVERSITY AND INCLUSION

Offering inclusion in a team is not enough. Working to evolve processes to increase positive touchpoints and understanding for the people involved is transformative as stakeholders connect to each other.

PUTTING IT ALL TOGETHER

Enacting a more inclusive and diverse approach with underrepresented stakeholders helps shape the scientific approach and determine which questions to ask, rather than vital stakeholders only being the recipients of scientific discovery.

Discussion

- Using all English names for the personas, in the future being more international – perhaps Scientist Susan could be renamed to a more international name would be better?
- To stimulate further reflection, it is good to think through a case when AG2PI members initiate contact with a stakeholder, represented by one of these personas. It seems common enough to say: “We want to work with you” and that would be a positive interaction. From an ELSEE perspective, we would encourage some further thought too - by becoming cognizant of the stakeholders needs and asking themselves if they would be adding to any known pain points of the stakeholder or would they be helping to reduce those in some way through this opportunity to work together?

This process is iterative, so it is encouraged to keep thinking of ways to add stakeholder groups that should be considered. This is one way to drive those broader impacts outreach in research disciplines.

- Even though they had already completed the empathy map, people still had a hard time looking through the persona's perspective in the journey mapping – for example, in Gloria there were statements like “When Gloria sends you an email back because she is interested in establishing communication” – which tickles at the promise of understanding but is still from an outside perspective looking at Gloria rather than someone taking her persona on fully and stating something like: “sending emails out to folks whose ideas I find particularly compelling” . . .

Implications & Recommendations

- Thinking in someone else's shoes was super hard especially for participants that do not have social science/interviewing/qualitative research background. The struggle was very real to put them into this context. Recommend exercises such as listening/feedback, explaining research practice through outreach to non-scientists – how would you explain this research to a group of senior citizens at a presentation? How would that change if it were set of middle-schoolers? Thinking of who the audience is is a good step for thinking about other's viewpoints, motivations, (and education level).
- Get out into the field – meet more of those in the broader aspect of researchers' “broader impacts” section of grants. Learn how to connect the science to the end user.

References

Dhadphale, Tejas (2020, November 8). Design Thinking Seminar for the Public Science Collaborative

Liedtka, J., Salzman, R., & Azer, D. (2017). Design Thinking for the Greater Good: Innovation in the Social Sector. Columbia University Press

Wong, A. (2020, May 22). *How to Make a Customer Journey Map in 7 Steps*, Retrieved from <https://marketingcraft.getcraft.com/en-articles/how-to-make-a-customer-journey-map-in-7-steps>

Participant List

AG2PI – 86 Registrants

- Dr. Auvijit Saha Apu, *Bangladesh*
- Rehema Shungu, *Tanzania*
- Olajumoke Akinola, *Nigeria*
- Ghinea Adrian Cristian, *Romania*
- Enoch Wembabazi, *Uganda*
- Tassawar Hussain, *Pakistan*
- Tanzeel Khan, *India*
- San Win, *Myanmar*
- Recep Yavuz, *USA*
- Carmela Rosaria Guadagno, *USA*
- Bayrem Jemmali, *Tunisia*
- Abdullahi Ibrahim, *Nigeria*
- Addisu Getahun, *Ethiopia*
- Serge Edme, *USA*
- Sylvia Mitchell, *Jamaica*
- Fantahun Dugassa, *Ethiopia*
- Raziye Isik, *Brazil*
- Mehdi Momen, *USA*
- Sumaira Mehboob, *Pakistan*
- Ankita Roy, *USA*
- Johnny Li, *USA*
- Kimberly Davenport, *USA*
- Issam Daghari, *Tunisia*
- Abdoulaye Sarr, *Senegal*
- Zhiwu Zhang, *USA*
- Harjot Sidhu, *USA*
- Shashank Dwivedi, *India*
- Abdul-Rauf Malimanga Alhassan, *Ghana*
- Wael Alzyadat, *Jordan*
- Workneh Kenea, *Ethiopia*
- Konstantine Bziava, *Georgia*
- Hamza Saeed, *Pakistan*
- Muhammad Sarwar, *Pakistan*
- Kabeya Kayembe, *South Africa*
- Salman Qamar, *Pakistan*
- Nebiyu Waliyi Tekesa, *Ethiopia*
- Abhisek Shrestha, *Nepal*
- Seyram Tsribi, *Ghana*
- Vishal Singh, *USA*
- Mallory Nielson, *USA*
- Abubakar Hadisu, *South Africa*
- Sunday Ashua, *United Kingdom*
- Abahan Majumdar, *Bangladesh*
- Ibrahim Mosaad, *Egypt*
- Emmanuel Ogunlola, *Nigeria*
- Haimanot Beruk, *Ethiopia*
- Dr Veena Sharma, *India*

- Akintunde Ajulo, *Brazil*
- Alemayehu Kusa Wakuma, *Ethiopia*
- Tiago Celso Baldissera, *Brazil*
- Paola Pesantez, *USA*
- Ashish Kumar Chaturvedi, *India*
- Muhammad Tasneem, *Pakistan*
- Gangadhara K, *India*
- Tesfaye Bogale, *Ethiopia*
- Melkamu Sigaye, *Bulgaria*
- Hamid Mustafa, *Pakistan*
- Ashokkumar Naralasetty, *India*
- Bilal Lone, *India*
- Masoud Andideh, *USA*
- Amparo Córdor, *Ecuador*
- Ehsan Pazouki, *France*
- Syed Ijaz Ul Haq, *Pakistan*
- Dileep Kumar Gupta, *India*
- Erastus Mak-Mensah, *Singapore*
- Megan O'Donnell, *USA*
- Ryan Jay Ogao-ogao, *Singapore*
- Prabina Bhujel, *Nepal*
- Jamshed Haider, *Pakistan*
- Samir Gnawali, *Nepal*
- Mwimangire Cephas, *Uganda*
- Shinye Lee, *Germany*
- Sandra Truong, *USA*
- Jordan Jobe, *USA*
- Dr Alejandro Martinez-Garcia, *USA*
- Moussa Guira, *Burkina Faso*
- Jeff Neyhart, *USA*
- Sachin Kumar, *India*
- Atef Nassar, *Egypt*
- Kwabena Nkansah Darfor, *Ghana*
- Tsegaye Muche, *Ethiopia*
- Atit Parajuli, *USA*
- Chaw Su, *Myanmar*
- Leonore Reiser, *USA*
- Adalberto Perez de Leon, *USA*
- Sarah Naumes, *USA*

PSC

- Cass Dorius
- Shawn Dorius
- Rachael Voas
- Kelsey Van Selous

Appendices



Appendix 1: Scientist Susan

Persona Development	22
Empathy Map	23
Journey Map	24



Scientist Susan

Research Faculty

“My research improves farming by increasing resiliency. I just need funding to give me time to feed the world and end hunger.”

SUMMARY

AGE

45 – 54 years

HIGHEST LEVEL OF EDUCATION

Doctorate (eg. PhD, EdD)

INDUSTRY

Research University, Agriculture

ORGANIZATION SIZE

1001 – 5000 employees

PREFERRED METHODS OF COMMUNICATION

- Email
- Phone
- Face-to-Face
- Zoom

INFLUENCERS

Gains information by reviewing scientific journals, attending conferences and workshops, collecting field data, analyzing data, research collaborations. Strongly influenced by leading scientists and research organizations

MEDIA

Social Networks



JOB ROLE / PRIORITIES

RESEARCH FACULTY

- Goals are to make plants and animals resilient. Provide ethical outcomes to investigations. Improve breeds for future farming. Develop innovations that lead to profitable patents
- Output includes research papers, data, and presentations - summaries for funders
- Job success is measured by publications, citations, patents, exciting discoveries, reputation, making plants and animals resilient
- Susan reports to: Chair of Department, Dean, University Administration

KEY MOTIVATING FACTORS

PASSION POINTS

- Passion to do good science and get her job
- Interested in latest breakthroughs in phenomics/genomics
- Well compensated for effort
- Respect amongst scientific colleagues
- Prospect of discovery: Solve complex problems & participate in exciting discoveries

PAIN POINTS

- Maintaining funding
- Time
- Connect her lab and work with other research programs
- Recruiting and funding high quality grad students and postdocs
- Navigating stakeholder relationships
- Project management & disorganization
- Juggling the diverse tasks of being a research faculty, especially teaching





Scientist Susan

Research Faculty

Empathy Map

PAIN / GAIN POINTS

PAIN

Maintaining Funding
Time

Connecting Work with Other Research
Recruiting and Funding High Quality
Grad Students and Postdocs
Navigating Stakeholder Relationships
Project Management
Juggling Diverse Tasks

HOW DO WE ACCOMMODATE HER PAIN AND ENCOURAGE HER GAIN?

GAIN

Passion for Good Science
Interested in AG2PI Breakthroughs
Well Compensated for Effort
Respected by Colleagues
Desire for Discovery

WHAT DOES SHE DO?

- She reaches out to colleagues to congratulate them on their achievements
- Attends every conference so she can network in her field
- Agrees to co-author with new scientists for mentorship
- Is inclusive of other viewpoints
- Shares and encourages others to discuss their failures. It is part of growing knowledge to not always follow the path that leads to success, but sharing the process and the results can help others to not make the same mistakes.

HOW DOES SHE THINK AND FEEL?

- Feels the need to prove herself all the time. May be emotionally and mentally exhausted.
- Loves it when someone stumps her with a new viewpoint. Wants to know how her research could change.
- May feel invisible during dominated conversations where her efforts to join in are not appreciated.
- Is motivated by both success and failure, she wants to try and try again!
- She feels invincible when she makes a discovery that can add insight to her field. She wants to help create change!

WHAT DOES SHE HEAR AND SEE?

WHAT DOES SHE SEE?

- She doesn't see many people who look like her in her work
- She notices when grad students or new faculty hesitate to contribute in meetings
- She sees the opportunity to new connections that many people may miss. As a result, she has the ability to narrow down what could be the core question and reveal insight.

WHAT DOES SHE HEAR?

- She listens to her subordinates tell her she's the best boss they've ever had
- Sometimes she hears colleagues checking with males at the table before they check in with her and include her in the conversation
- She hears people assume she cannot follow a conversation in English, thereby talking over her or ignoring her in the process



**PUBLIC SCIENCE
COLLABORATIVE**
Science Consulting for the Public Good



Scientist – Susan – Journey Map

Public Science Collaborative

Touchpoints	Pre-Engagement	Engagement	Post-Engagement
AG2PI DISCOVERY AND HOPES	Email outreach, communication with other researchers, looking for funding or research opportunities, or looking for answers to questions regarding USDA.	They might not see the emails, but if they do, the hope is that they spread the word and start to make those further connections with colleagues. They may visit our website, even if they can't attend a conference or a meeting	She might be disappointed that she didn't find AG2PI earlier, and excited to share the information with her colleagues, but she may also feel overwhelmed by the information on the website. Did she find what she wanted?
AG2PI CONTACT	Look to join us through email, phone, listserv, etc., in order to improve their own research and scopes.	They may read emails, make phone calls, set up further interactions, etc., and are likely to come away with impressions from all of these interactions	While she may be excited and hopeful about new contact, she may be apprehensive to getting and sharing her information with the team
FURTHER LEARNING AND ACTIVITIES WITH AG2PI	They can sign up for social media updates via Twitter or Listserv, as well as through communication with colleagues. They may be unsure of what to expect, but through email updates and asking questions, they can keep in contact with AG2PI projects.	In order to further AG2PI learning, she may attend conferences, do her own research, speak with leaders or colleagues, or stay updated on her email. It's important that these emails stand out amongst the hundreds so she has the inclination to read them	May want to stay in contact through emails, stay updated with the website, or through social media. She may feel reassured regarding questions, or she may still have more to ask. Maybe she feels disappointed that her goals aren't being met with the project, or the emails didn't engage her and never reached.
SHARE EXPERTISE	Email connections and ideas, research AG2PI ideas, and social media	She may choose to share via email or phone, or by talking with colleagues	May be happy with contributions, or disappointed that she didn't get the chance to share
SUCCESSFUL INTERACTIONS	The interaction should be easy to access, and should have set preparation steps	The interaction should be clear and offer knowledge on goals and plans for AG2PI in a positive manner	She should be excited for the next interaction, reflect positively on her work, and feel good about her contributions

Appendix 2: Industry lan

Persona Development	26
Empathy Map	27
Journey Map	28



Industry Ian

Representing Ag Interests

“Washington folks need people like me to connect them to real agriculture interests for future-forward and profitable policy making.”

SUMMARY

AGE

35 - 44 years

HIGHEST LEVEL OF EDUCATION

Master degree in a STEM field from reputable land grant

INDUSTRY

Commodities

ORGANIZATION SIZE

501 - 1000 employees

PREFERRED METHODS OF COMMUNICATION

- Phone
- Face-to-Face
- Text Messaging; Slack
- Social Media

INFLUENCERS

- Gains information from proprietary business reports & publicly released data from government sources and university research
- Competitor firms
- Wall Street Journal

MEDIA

Social Networks



JOB ROLE / PRIORITIES

CONSULTING ON AGRICULTURAL INTERESTS

- Goals include representing commodities/farmers interests in Washington DC.
- Provide funds for projects to develop new varieties or products - usually industry-specific.
- Dealing with immigration issues - where is the labor?
- Job is measured by increasing their employer's influence on policy and ultimately the profitability of the sector
- Looking to partner with innovative academic scientists to capture profits flowing from innovation

KEY MOTIVATING FACTORS

PASSION POINTS

- Keeping costs low for agriculture production
- Increase profits
- Increase public support/trust in agriculture
- Increase general public's understanding of GMO production
- Influence policy

PAIN POINTS

- Navigating client relationships & communications
- Not enough resources to advance firm goals
- Identifying the right new ideas to fund
- How to keep costs down
- Look good (genomics)- get to market faster, sell more, make more money
- Public support
- Gap between industry group concerns and public interests/concerns





Industry Ian

Representing Ag Interests

Empathy Map

PAIN / GAIN POINTS

PAIN

Navigating Client Relationships and Communications
Not Enough Resources to Advance Firm Goals
Identifying the Right New Ideas to Fund
Look Good (Genomics) - Get To Market Faster, Sell More, Make More Money
Public Support
Gap Between Industry and Public Concerns

HOW DO WE

ACCOMMODATE HIS PAIN AND ENCOURAGE HIS GAIN?

GAIN

Keeping Costs Low for Agriculture Production
Increasing Profits
Increasing Public Support/Trust in Agriculture
Increasing General Public's Understanding of GMO Production Influence Policy

WHAT DOES HE DO?

- Visits with legislators
- Believes people on the hill are ignorant/trying to make scientific concepts easier for those without training
- Learning to communicate with non-scientists and anti-science people
- Must deal with a variety of different degree holders and non-degree holders
- Communicating across different disciplines
- Having to keep information private, not transparent

HOW DOES HE THINK AND FEEL?

- Frustration! Having to deal with people who do not understand the science is frustrating to him.
- Regretful. Leaving pursuits due to financial or academic concerns makes him feel the weight of the company on his shoulders.
- He's spending a lot of time worrying about making negative connections, rather than appreciating the positive ones.

WHAT DOES HE HEAR AND SEE?

WHAT DOES HE SEE?

- Sees others as a chance for competition, not an opportunity for collaboration
- The insides of a lot of offices
- He sees people making wild statements without the backing of real data.

WHAT DOES HE HEAR?

- People hear him and his words carry the weight of the entire industry in them. He feels like what he says really is taken as the view of the entity, not just his own experiences.
- He knows that he has to be careful of the politics of why and how things are said. He is trying to learn to be careful of how he speaks in order to ensure he gets the correct message across.





Industry Ilan – Journey Map

Public Science Collaborative

Touchpoints	Pre-Engagement	Engagement	Post-Engagement
AG2PI DISCOVERY AND HOPES	Email outreach, communication through social media, or finds out about AG2PI through a booth at a conference for his work	He may know us through LinkedIn, and then follow through to read up on the website. He can attend a field day or a workshop, and keep up with info online	He may look for ways to attend more workshops, try to use his knowledge in AG2PI, or even begin to ask how their industry can make money with this project
AG2PI CONTACT	He may look to join a mailing list, but become frustrated since he wants to protect IP, meets limitations of data	Though he may be on a mailing list, he may run into issues with transparency and IP. He wants to fund research, but there's still that private focus.	Hopefully, he reads the emails and is inspired by the work being done. He may want to volunteer and get involved to help advance science and see a worldly impact
FURTHER LEARNING AND ACTIVITIES WITH AG2PI	He may have found out about us through emails, or through passively scrolling through Twitter. He may even think about following us.	Though he follows us on Twitter, reminders through the calendar on the website may be useful to provide info on upcoming events—emails may get lost.	Ilan may spend special time trying to make sure that he can attend future AG2PI events
SHARE EXPERTISE	Is it information or selling? Knows info from emails, but may not view website	He may email colleagues to get the news out, or fill out community surveys for ideas	Feels great that he is helping to shape research agendas and NIFA allocations
SUCCESSFUL INTERACTIONS	He feels prepared to workshop and gather details. He wants to learn.	He may participate in sessions where he gets to share his viewpoint, and he feels successful afterwards	Ilan can now take information and really work to create change in his industry

Appendix 3: Farmer Fred

Persona Development	30
Empathy Map	31
Journey Map	32



Farmer Fred

Family Farmer

"I know farming. What I want to know is how you plan to help me keep farming into the future."

SUMMARY

AGE

55 -64 Years

HIGHEST LEVEL OF EDUCATION

Some college, no degree

INDUSTRY

Agriculture

ORGANIZATION SIZE

Self-employed

PREFERRED METHOD OF COMMUNICATION

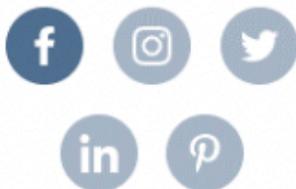
Face-to-Face

INFLUENCERS

- Farmer Fred gains information through consulting with family members & other farmers
- Reads agribusiness reports & trade magazines
- Extension officers
- Agriculture sales reps

MEDIA

Social Networks



JOB ROLE / PRIORITIES

FARMER

- Wants to continue to commit his time, efforts, and energy to the farm
- Goal for working with AG2PI is to maintain his position as an early adopter of emerging technologies
- Efficiency and profitability of the farm
- Wants to know more about how advanced technology can improve his farm operations, but worries about rising costs
- Job is measured by acres tilled, tonnage harvested, and legacy

KEY MOTIVATING FACTORS

PASSION POINTS

- Passionate about his farming operation and the future of farming
- Also passionate about the past, ancestors and long-term local residents, family and townspeople, who have been through the same experiences, sharing resources when needed, community working together after floods, draughts, and wildfires
- Highly knowledgeable about local weather and weather patterns
- Training people especially family members to continue the legacy of being a farmer on this land

PAIN POINTS

- Rising costs of technology
- Scarcity of reliable labor
- Adaptation to changing climate and water scarcity
- Environmental harms of his farm operation
- Increasingly technical requirements of modern agriculture
- Who will take over the farm when he retires?





Farmer Fred

Family Farmer

Empathy Map

PAIN / GAIN POINTS

PAIN

Rising Costs of Technology
Scarcity of Reliable Labor
Adaptation to Changing Climate and Water Scarcity
Environmental Harms of His Farm Operation
Increasingly Technical Requirements of Modern Agriculture
Who will take over the farm when he retires?

HOW DO WE ACCOMMODATE HIS PAIN AND ENCOURAGE HIS GAIN?

GAIN

Passionate About His Farming and Future Farming
Passionate about the Past of Farming, People Who Have Experienced Sharing Resources, Weather, Community, Together
Highly Knowledgeable About Local Weather Patterns
Training Family to Continue his Farming Legacy

WHAT DOES HE DO?

- Talks with neighbors and community members about news, concerns, favorite stories
- Help neighbor harvest their crop
- Planting new varieties, hoping for a bumper crop
- Evaluate different seeds/varieties and treatments each year
- May choose who to vote for and support based on agricultural policies
- Fallowing land
- Receiving offers for companies to purchase or lease his land

HOW DOES HE THINK AND FEEL?

- Worried about the future (self, family, farm, community)
- Anxiety about political impacts on farming
- Anxious about how to stay profitable
- Committed to their community and neighbors
- Passionate about the future of farming
- Pressure to adopt the next technology and “keep up with the jones”
- Worries about the next pest outbreak and herbicide resistant weed
- Proud of his work

WHAT DOES HE HEAR AND SEE?

WHAT DOES HE SEE?

- Less farmers and family owned farms
- Farms getting larger and larger
- A climate that is changing
- Rapid technological advancements
- Climate whiplash
- Less control over what he owns, such as farm equipment locked by manufacturers
- Farming technologies getting more expensive and complex
- Fewer farmers... older as a group

WHAT DOES HE HEAR?

- “Wow, the weather this year is strange” (climate change)
- “The government is dumping water in the ocean.”
- Promises from politicians for more relief, protections from big industry moving in
- Neighbors are using more advanced techniques
- From extension office how to follow new policies, regulations, implement new techniques
- Trade magazines are projecting rising input costs (herbicides, fertilizers, etc.)



PUBLIC SCIENCE COLLABORATIVE
Science Consulting for the Public Good



Farmer Fred – Journey Map

Public Science Collaborative

Touchpoints	Pre-Engagement	Engagement	Post-Engagement
<p>AG2PI DISCOVERY AND HOPES</p>	<p>May find AG2PI through vendors, trade shows, trade magazines, seed sellers, other farmers, radio shows, or his own personal network</p>	<p>He may hope that this project will allow for lower costs, more resilient crops and livestock, higher profits, and more sustainable operation</p>	<p>He can choose whether or not to continue to buying products, allowing for further demographic research. He can also tell other farmers about AG2PI or join in on the research through field sensors</p>
<p>AG2PI CONTACT</p>	<p>He can stay in touch through a sales rep, an extension officer, or an intern/student who keeps contact</p>	<p>Though some of the contact may be done through extension officers, social media, or mail, he may also do test plots to further the conversation</p>	<p>He may not know how to stay in contact. Maybe he can email researchers, or maybe he just lets other farmers know what he experienced</p>
<p>FURTHER LEARNING AND ACTIVITIES WITH AG2PI</p>	<p>He can keep up on activities through the sales rep, word of mouth, extension/outreach efforts, or even through ads in trade publications</p>	<p>He can continue to learn about AG2PI through mailing lists, social media, training events, or field days hosted by industry or extension workers</p>	<p>If he has access to science/nature publications, he may see new AG2PI developments in there, or in other kinds of press releases. He may also hear about new work in a community practice network that spreads the word</p>
<p>SHARE EXPERTISE</p>	<p>Without a feedback system, he uses word of mouth, reps, or online forms</p>	<p>He may feel distanced due to scientific jargon and a lack of space for farmers on the site</p>	<p>He may feel left out and like he can't shape the research. He wants more ways to contribute</p>
<p>SUCCESSFUL INTERACTIONS</p>	<p>The information should be easily accessible, and he should know which technologies to adopt for operation</p>	<p>He gets to test out products and give feedback in interviews. Hopefully he has an understanding of the data and wants to keep participating</p>	<p>He may be using an AG2PI product that makes production easier, but he may want better access to research results in the future, including his own data</p>

Appendix 4: Government Gloria

Persona Development	34
Empathy Map	35
Journey Map	36



Government Gloria

Director

“I don’t have time to do this research myself, so show me clearly why you need these funds, and what you can achieve.”

SUMMARY

AGE

35 - 44 years

HIGHEST LEVEL OF EDUCATION

Master’s Degree (eg. MA, MS)

INDUSTRY

Government

ORGANIZATION SIZE

10,000+ employees

PREFERRED METHODS OF COMMUNICATION

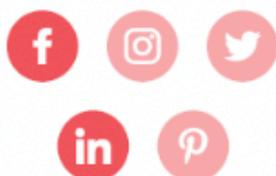
- Email
- Phone

INFLUENCERS

- Gains information by reviewing reports provided to them by their programs; from government agenda and priority notifications
- Institutional knowledge sources
- Other directors
- Professional conferences

MEDIA

Social Networks



JOB ROLE / PRIORITIES

DIRECTOR OF PROGRAM

- Reports to State and Federal Government and Agencies
- Distribution of funds for programs
- Policy development or advisement
- Ensure federal funds advance science and align with executive objectives
- Communicating between science community and decision-makers
- Job is measured by Federal or State Appropriations, Profitability - Return on Investment, Positive PR regarding their projects / news reports

KEY MOTIVATING FACTORS

PASSION POINTS

- Passionate about responsibility to shape policies and programs to align with big picture interest of the government
- Desire for USA to be the leader of cutting edge research & programs worldwide
- Passionate about using science to achieve end goals – needs simple and effective graphics to communicate science succinctly

PAIN POINTS

- Limited Scientific Background
- Navigating Client Relationships & Communications
- Resource Allocation & Appropriation
- Change Management
- Employee Morale
- Communication
- Project Management & Disorganization





Government Gloria Empathy Map

Director

PAIN / GAIN POINTS

PAIN

Limited Scientific Background
Navigating Client Relationships & Communications
Resource Allocation & Appropriation
Change Management
Employee Morale
Communication
Project Management & Disorganization

HOW DO WE ACCOMMODATE HER PAIN AND ENCOURAGE HER GAIN?

GAIN

Passionate about responsibility to shape policies and programs to align with big picture interest of the government
Desire for USA to be the leader of cutting edge research & programs worldwide
Passionate about using science to achieve end goals – needs simple and effective graphics to communicate science succinctly

WHAT DOES SHE DO?

- This is a fundamental project and I want to support that idea
- I am dependent to my boss, so I should not make mistakes

HOW DOES SHE THINK AND FEEL?

- I love the opportunity to make significant change!
- Unfunded mandates are really stressful
- I am not useful for the world that I have some opportunities such as money to fund the project
- Which idea or project is fundamental, am I too worried to decide?
- Stressed because they don't understand all of the science. They can't know everything! Gloria needs some high-level information to understand what we are doing (or their aide). Need someone to give them something brief that helps them understand complex issues.
- Pressure to perform- they want to be successful for their boss

WHAT DOES SHE HEAR AND SEE?

WHAT DOES SHE SEE?

- Scientific advancement is critical for success
- Seeing colleagues who are successful in their investments and projects and wants to keep up!
- Lots of meetings with different people (how you decide what is important to follow up on)
- Seeing results of the projects they fund and they are positive and negative

WHAT DOES SHE HEAR?

- You should find more good projects to fund
- You should be aware of current improvement of agriculture





Government Gloria – Journey Map

Touchpoints	Pre-Engagement	Engagement	Post-Engagement
AG2PI DISCOVERY AND HOPES	She may have found us online or through peer networking, or she may reach out to academic contacts to advise, and they recommend our project	She may find it difficult sifting through so many emails and projects, AG2PI should stand out and contact the correct government officials for us	She may feel really good about having a partnership and being able to report back to her colleagues about what she learned and consulted on
AG2PI CONTACT	She can stay in contact through email, phone, listserv, social media, or by reading our updates	She can attend workshops or other events, or stay updated with social media and make outreach attempts to stay updated on AG2PI goals	While she may be excited about the contact and hopeful for the future, she may be worried that things won't pan out
FURTHER LEARNING AND ACTIVITIES WITH AG2PI	She may be getting new information by presentations done to committees, finding out more on our website, or through various events, like workshops, that she may attend	She may find short videos or documentaries of our work to be useful, as well as field days and workshops where she gets to hear about new activities in the upcoming weeks. Of course, email should always keep her updated as well	She may be thinking about doing presentations to scientists so they know what she and her colleagues want. She wants to make sure that we can use Design Thinking to really incorporate research into policy
SHARE EXPERTISE	She networks with the right scientists, so she can help dialogue with colleagues	May join a presentation, work together, and also network to help AG2PI	She's excited about her partners, may be looking into publication, research briefs, or white papers
SUCCESSFUL INTERACTIONS	She may be excited to work with us and email us back, asking us to be put on her agenda	If she likes it, we keep getting funded. Hopefully, she has a clear knowledge of our goals because of our clear communication	She decides to provide additional funding for scholarships and related activities that build the field