NASA TOPS Community Panel June...3 - Day 3 2023-06-16-12-02-04b

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SPEAKERS

Fernando Perez, Pen-Yuan Hsing, Holly Norton, Amanda Adams, Paul Bremner, Qiusheng Wu, Jim Colliander, Malcolm Glover, Justin Ballenger, Monica Granados, Logan Kilpatrick, SherAaron Hurt, Malvika Sharan, Chelle L. Gentemann, James Colliander, Steve Crawford

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Chelle L. Gentemann 00:00

We've focused on some hard Diversity, Equity and Inclusion engagement efforts. And, as I'd like to introduce both Holly and Malcolm, who are here with me again today, who will be presenting, and Holly, I'm gonna hand it to you.

H **Holly Norton** 00:16

Thanks, Chelle. So for day three, we are going to be discussing doubling participation. So what we have for you today is going to start with Amanda Adams, our tops complete, and she's going to discuss tops recruitment and outreach. And then Amanda and Paul are going to discuss the 2024 engagement strategy. And then we're going to turn it over to Malcolm who is going to discuss HQ D EIA engagement strategy. And then we're going to have a bit of a break. And then I'm going to take over and go through our strengths, weaknesses, opportunities and threats, threats, analysis activity. And then we're gonna have a little bit of break after that. At the end there, we're going to open it up to discussion, any feedback that the panel or our attendees have for any part of the panel, I encourage at that time to discuss, and then I will turn it over to shell for a wrap up. And that will conclude our panels for June. As a reminder, we just want to encourage everybody to use our to open site and I heart open site hashtags here if you would like to share on social media. And if you'd like to submit any feedback or suggestions, they are essential to our process here. And you can do so by using our QR code. And again, Malcolm will share that periodically through the chat so you'll always have access to that. And with that, I'm going to turn it over to Amanda Adams and whenever you're ready, Amanda.

A **Amanda Adams** 01:55

Thank you, Holly. Good morning. My name is Amanda Adams and I'm the Communications lead for tops sitting at the project office at Marshall Space Flight Center. I joined tops back in April and I've been at NASA for about six years in different communications capacities. Next slide please. Thank you. I want to take a second Taylor to use our comms team. I'm very lucky to lead a strong group of communicators to help spread the tops message. Adam Farragut it works as our as our stret calm and he works with conferences and engagement and outreach. So if you stop by at tops booth at Advanced, you'll see a lot of Adams handiwork getting that set up and he will more than likely be around. So if you are at a conference stop by and say hi to Adam, Jacqueline stars. Matt works with our internal tops communication with our current communications with our current tops community. So you will see messages from her in our newsletter and on our monthly forums. And then Brian Ressler is our GitHub guru and our web editor. Brian is the newest member of our team. So we are excited to get him rolling with all of our fun GitHub activities and engaging with our community there. Next slide, please. Here you can see the goals of our communications efforts. They really reflect the top KPIs at a larger scale, to recruit 20,000 researchers and scientists to complete a list 101 to increase the overall awareness of our open science principles on a broader scale, and to grow and increase engagement of our open science community to increase participation of historically underrepresented groups and to engage with other federal agencies participating in Europe science efforts, we've learned that we're stronger voice when you're on it when we are united. So we've been working with the other year of science agencies, to piggyback on each other's efforts as well. Next slide, please. In communications, we always start with our key audience, it's really important to understand the communities that you're trying to reach, so that you can meet them where they are. A top says two primary audiences and one secondary audience. Our primary audiences include our future tops, communities, these are the university students, the professional researchers, or citizen science, anyone doing scientific research. This group may be new to the idea of open science and just starting on their open science journey. These are the ones that we're reaching at conferences and events, and through our larger or larger, outgoing communications efforts. The other arm of our primary audience is our current current tops community. These are community researchers who have already become champions of open science and may have been doing open science for years and they're still just hearing about so up, they may have even already taken the first module at a conference and are excited about about open science. And then our secondary audience would be open science advocates. This would be your science, focus media, your influencers, this group may not ever enroll in a less one on one and they may not be practicing researchers, but they host a unique platform that where they are uniquely positioned to help champion open science to their broader audience. Next slide, please. So how are we going to reach these audiences? For future community members, we're going to take more of a recruitment approach. These were like I said, this is where we will be attending the professional conferences, or utilizing our tops blog for announcements and to highlight our success stories, or taking advantage of current NASA agency tools such as the MSI engagement newsletter, or STM newsletter and internal newsletters that each of our centers host our NASA centers has, we are seeking opportunities to engage in the broader NASA Oh calm initiated services such as Earth Day and world's ocean mod, which will have a feature coming out on nasa.gov closer to the end of the month about success stories involving the world's oceans. This will help us create a broader platform to raise that awareness. Additionally, we will pitch a pitch traditional media when we have major news like we did with the tops T flick these and like we will be doing with upcoming curriculum announcement. We will also be collaborating with agencies social media accounts that help spread this the tops message. And if you go to the next slide, we'll talk a little bit more about that. Here's an example of how we are utilizing different social media accounts. This throughout the NASA agency to help promote what we're doing in tops. This is an example you see on the left from Earth Day where we created a feature that was posted on nasa.gov highlighting

different ways that open science is benefiting the planet that we live on. So you would you'll see that we had engagements from several accounts, I picked out a few highlights Dr. Nikki Fox, the the science AAA for NASA tweeted about this, our Earth Science Data account, tweeted about this as well as NASA NASA Earth. Additionally, it was shared on the headquarters agency, social media platform, the Twitter the main at NASA, as well as other ones like Oh, Sam, accounts across the agency. So when when we approach these accounts where we're pitching stories like our success stories, or free training opportunities, or forums, funding announcements, that the idea is that they have an existing audiences are quite large, and it helps us have a broader reach we utilize those accounts. Next slide please. Switching gears a little bit to talk about our current community, which is our second arm of our primary audience. Our current community tactics are about strengthening and engaging the community. And we think that is crucial to not only moving participants through the entirety of the curriculum to course completion, but also to creating a big enough wave that open sights becomes normalized and is here to stay. Once participants are moved into this funnel, we encourage them to become active members of the community through channels like inviting them to contribute to our GitHub and LinkedIn groups to share open science success stories with us so that we can then post them on our blog or in our newsletter. We encourage them to participate in our monthly forums, and then to subscribe to our monthly newsletter for updates on where we will be our events, events within the community and highlights each month. Next slide, please. Finally, how will we know when we're successful with our communications tactics? This one's pretty straightforward. We'll be able to see growth in the number of participants enrolling in ls 101 and growth in the community of our tops control platforms like our GitHub, and our LinkedIn groups. We are also capturing metrics when we attend con, attend conferences through QR codes, so that we can measure which conferences are most effective. And as well as monitoring how many registrants we have subscribing to our tops newsletter. I believe that that's my last slide. So I would be happy to take questions.

P Pen-Yuan Hsing 10:01
with Jim,

J James Colliander 10:03
thank you very much for the presentation, I have some questions about the audiences that you identified. Within the audiences, do you identify any personas or archetypes of individuals that you're trying to achieve? I'm especially curious if you have a strategy for communication targeting possible opponents to open science and attempts to try to convert them. And then the other comment that I have, which echoes what I said yesterday, in conversations with Paul Bremner is does the communication strategy. Incorporate the network of universities in some way, it feels like an audience of students and young researchers employed at universities is a natural, there's a natural synergy in using existing communications channels inside universities to reach the target audiences.

A Amanda Adams 10:59
Sure, so I will tackle them one at a time. The first one on the personas. Currently, our persona is anyone that is, is looking for NASA funding, or could be looking for NASA funding, with a primary research with a primary strategy on researchers, students and citizen scientist. So we

are looking right now for people that are or could be advocates, not necessarily, in our first year on converting those that are that are currently naysayers, although, as we are, as we are encountering them at conferences and stuff, of course, we are trying to have that conversation with them and build them build relationships with them as well. However, they're not our primary audience for our first year, we think that it'd be a better approach to reach out to those that could and already are advocates, to be able to build our network stronger so that we have reinforcements behind that and they are able to see more success stories as more people are being are becoming involved in open science. And as far as the university approach right now are right now our strategy is to go to the wheel. You'll actually say a little bit more about this next one, Paul in our present. But right now we are working to do more outreach, specifically to MSOs and HBCUs. And go to those universities. NASA has a roadshow around tour that we'll talk about in a little bit that incorporates some of that. We have not looked into networks that the universities already have, including their own newsletters, like we're doing at NASA centers. But I think that is a great idea that we could look into and especially something that we can act that we can ask about at these conferences as we're meeting professors

L **Logan Kilpatrick** 12:51

Yeah, this was this was awesome to see and also see how it's developed over the last year as far as what the communication strategy looks like, interested to know, I 20,000 Is the goal and like what, what led us to there, why not shoot for something higher, I just my initial reaction was I feel like if by 2027, if I just spent full time going to researchers, one on one, I could probably convince 20,000 people to start, like, adopt open science principles and everything. And I feel like with all the resources and all the folks who are involved in this, the the goal is at least my initial reaction to the goal can be a lot larger and more ambitious. So I'm wondering what led us to that 20,000 Sure, I'm

A **Amanda Adams** 13:33

gonna toss to shell or Steve, for that. Our communications goals are based on the KPIs that were set by the tops leadership team. So I will pass this, Dave, our show for that.

Chelle L. Gentemann 13:44

So I'll jump in here. We've discussed this, I think, several times in public that we sort of came with the 20k. Base based on a couple of different numbers. And the first was is that sort of the full NASA research community, if you count every one that we're funding is about 20,000. Also, and so we thought, well, if we just we know, we're not going to get all of them. And we also want to bring new people into the NASA community. So that's part of our goal is to broaden that proceed. But if we got everyone it would be around 20,000. So let's, that was where part of that number came from. The other way that that number sort of resonated with us is we looked at the membership for the American Geophysical Union in it's about 60,000 members. And that is for the earth and space sciences, which is a large portion of the NASA research community. And we know that there's a lot of there are a number of research studies that show when you get to about 25 or 30% of your community starting to change their behavior. It's when you start to rapidly enable a cultural shift. And so Things happen slowly. And then all of a sudden, things start to snowball. And so 20,000 is about 1/3 of that community. And that was the other reason

to target that number. We, I love Logan, that you think that we're going to be very successful very easily. It's, it's, it's really a struggle to, I think get people to sit through 12 hours of curriculum. And I'm not sure how many of you have to take security trainings, but my joining of NASA has now involved a lot of mandatory trainings. And it's, sometimes it can be hard to get people to learn new skills and to spend that time learning those new skills. So I really hope that we get to 20,000 quite quickly. And then we were having this conversation between Kevin Steve and I. And we feel like it's either going to be like pulling teeth, or we're going to be so successful, that will shoot past 20,000 very quickly. And we're not quite sure what direction it could go it but any ideas that you have about, you know, communicating with the community, so that we can really get this message out about how important it is to have these basic skills would be really helpful.

Logan Kilpatrick 16:22

I think just one really quick reaction, which is, and this goes back to the curriculum conversation from yesterday, but having the tops curriculum and like all the pieces of it accessible on as many platforms, like as humanly possible is like, in my mind, the easiest way to get to 20,000. Like if the tops, Greg, the one was not only available through the hosted MOOC and all that infrastructure, but on edX, and Udemy. And like at Coursera. And like every other platform, which seemingly it wouldn't be a huge lift to do that. Like it would, I would imagine you would much, much more quickly get to that 20,000 It's just a matter of like, the logistics of putting the course into all those places.

Chelle L. Gentemann 17:05

So I want to take well, let's keep focused, I'm gonna have more questions for you. I think that about that in the afternoon when we do our SWOT analysis, but I want to allow space for a man that asked more questions and talk to you more about communications. I think Monica has her hand up. Monica, Monica, you're so amazing.

Monica Granados 17:37

Thank you. Thank you, Amanda. Really great work. I'm really jealous of the capacity that you have on his team. It's, it's pretty. There's a lot of potential here for from getting that that outreach that you want to do. So I have two comments. And I think I'm echoing a couple of ideas too, in the chat. What if there's like a strategy for like how you build a kind of a, like a, like a network of different groups who have similar, like interests, to get open signs to become the norm. And so how do you is there like a, like an ambassador package that you could give to the University of Toronto's Open Science Group, like, you know, like, it's got a pitch deck and some like handouts, and they basically do the work for you. So you don't have to go travel to the University of Toronto to go and pitch this training to all of the potential interested parties at that university. And so it could just be it could be universities, it could be like, open hardware groups, it could be so many different like, drilling into the communities that are like tapping into the communities that are already there, and empowering them to share your message. And I'm thinking a lot about that, too, because our mission of the open climate campaign really intersects strongly with what you folks are doing. And so I would love to have a kit where in order to get more people to do open science, I could, you know, pitch go and take, you know,

do open science and you're then wondering, okay, well how do I do open science here is an amazing program that you can take that's absolutely free. It's with NASA, you get a badge. So if you'd like quick, me to share your message, and then do that in so many of the different places where there is already an open science community seated. I think that you could spread that message pretty pretty quickly.

A Amanda Adams 19:46

Sure, thank you. And you kind of presented one of our next slides in our next in our next presentation, but so that is definitely something that we are working towards. I think one of the goals right now is to have the curriculum completely finished. So that we could complete that package. Makes sense. And but, for example, last week, when we were at WTF, we met a guy that was working with James Webb Space Telescope. And he, they are working on their own type of curriculum, not not through NASA that will help engage open scientists, and he came in to talk to us about what we're doing. He's like, Well, this is great, I would love to be able to teach this. So that is something that we're working on. We are developing pitch decks that can be sent broader. And we are going to, as you'll see, in our next presentation, will we're kind of shifting an approach for 2024 Compared to 2023. Something that we will be doing is relying on our network more to broaden our it's broaden our reach.

M Monica Granados 20:44

Sure, that sounds great. Yeah, I'm excited to that.

A Amanda Adams 20:49

Thank you, I did want to touch on something I saw on the chat about the about Twitter. Currently, the direct the direction from NASA as an agency is that we do need to rely on the agency Twitter accounts that are already existing rather than creating our own. And there's a couple of reasons for that. Starting with the landscape, that is Twitter right now and the process to get verified, what is verification, what verifications count, is also with the algorithm that exists right now with Twitter, we currently tops or not, do not have enough content that we're producing on a regular basis or have the capacity to pet to be able to post twice a day and have content behind that, because you're not just creating a post right, every post has to be linked to content that is behind that. So right now our focus is on the the the messaging and going out into the communities and relying on our partners at NASA to spread that through social media. Additional asked all that somebody had posted about the app to tops, open science, the last week was October 2022. I that account does not belong to NASA that happened before I came on board. But I do believe that it sits with a GPU and then does not an official NASA tops account. Somebody else might be able to speak more to that account. And so that was before I came on board.

Chelle L. Gentemann 22:17

Amanda, I'm gonna jump in because we have five minutes left for this session, and three people have their hands up. So maybe if I can ask the three of you to go quickly through and ask your questions, one after another. So at least we have them on the record. If we can't

Q Qiusheng Wu 22:43

Yeah, that's a common, I was thinking about like, so just in the academic setting, when you have a cause, like this either require or is optional. So I'm thinking that you need to have some incentive or motivation for people to taggie if these require. So I mean, some of the stakeholders will be NASA, for example, who let's get funding for NASA, you may have a question, when people submit a proposal, they have you take the open science curriculum, if not, I mean, within the first year, when you're doing reporting, you may be able to require some of those like for those people receiving money, like ask them to take you in the first year. And then they can go back to teach other people that within the university. And the other will be to collaborate with some of the University Libraries, because is faculty or students in the university, we have to take required training every, every year security training, all kinds of training, I mean, our Envision in the future like oh, you open science, also part of curriculum, you also need to take this one, if you have funding or anything related to NASA science or other federal agencies, and they will become a norm, I mean, veggie will become a norm in the future. Thank you, thank you.

P Pen-Yuan Hsing 23:58

Hi, thank you. Um, maybe I can just put this out there, and we can maybe bookmark it to come back to it later. So I'm, my comment is regarding the fourth go in that slide about engagement with historically excluded groups. And the historically excluded group I have in mind right now are a lot of non academic researchers and non academic scientists. For example, I know what's historically been called, you know, kind of like the hobbyist slash amateur astronomy community. They've done some pretty advanced things and some scientific discoveries come from these non academics. And I'd be curious about whether there's a way to engage you know, in kind of like a two way exchange with these non academic communities. I'll just leave it here for now to bookmark to come back later. Thank you.

M Malcolm Glover 24:54

And Logan?

L Logan Kilpatrick 24:57

Yeah, Amanda just wanted to make one other suggestion as far as like good Think penetration with people who are actually doing science, I think it would, you would actually probably have a lot of success. And again, this is just from the world that I live in right now, I think you'd have a lot of success with going to the 50 most popular open source projects that scientists in the domains that we care about are using, make them a $1,000 donation or whatever the amount of money is, or even just ask them I think there's probably a nonzero number of projects who if you use asked and said, Hey, can you put this badge in your GitHub readme or in your documentation that says, you know, this project repository or project is part of the NASA open

science community, whatever the framing and wording is, and like, have people sort of use that as a mechanism, a top of funnel mechanism to get a bunch more people aware that this course exists, I think you would have a ton of success doing that. And like, millions of people go and look at all these top repositories, especially on GitHub, and having like a direct little like badge on the repo. Linking to the course would be would be super awesome. And I'm happy to add that in to as many repos that I'm involved with. And we have a bunch of people here that are involved with a bunch of open source projects. So you could get a lot of visibility with that with without us on the left.

A Amanda Adams 26:17
I think you log in, that's an approach that I've actually not heard before. I'd love to take that offline and tell more about it when we have some time.

Chelle L. Gentemann 26:29
Okay, we are now going to move into Amanda and Paul's discussion of the 2024 engagement strategy.

P Pen-Yuan Hsing 26:42
Okay, are you ready?

P Paul Bremner 26:44
Yes. Can you all hear me? All right. Great. Hello, again, everybody. So I'm Paul Bremner, the project scientist over at Marshall Space Flight Center. And so what we're going to go through here in this section is, is, to a certain extent, an extension of what Amanda just covered, but also extending what we started talking about yesterday. And so this really gets into the recruitment strategy. And I wanted to just start off with, you know, the, the change that, that we're all seeking to normalize open science as a, as a practice as a philosophy, and all the benefits that it brings, you know, that had to be put down into achievable goals for the NASA mission. And so, I've gone ahead, and I've listed them here, just for we've already been talking about them, but I've gone ahead and just listed them here. So we have our three KPIs. We have 20,000 researchers that we want to award an open science badge. We want to double the participation of historically excluded groups, and also enable major scientific discoveries through open science principles. And the first two are the ones that this recruitment strategy is really gearing toward. So I've also gone ahead and listed the explicit audience for for tops that we're targeting. So we're looking at the general scientific community, as well as focusing on underrepresented groups. We have a priority audience of anyone that could or does receive NASA SMD funding for science activities. Next slide, please. Great, thank you. All right here in a moment, I'll go ahead and toss to Amanda again, but just introducing this slide. So 2023 was special or is special. We're still in 2023. I guess I'm very forward looking. So using past tense, even though we're only halfway through 2023. But it's special. It's the first year of open science. And along with that, as we discussed yesterday, we've really put a lot of effort into spreading the word about Open Science spreading the word about the curriculum that's coming

and getting people excited building momentum. Of course, we do not have infinite resources, people time money, and so we've been successful enough at spreading the word 2024 is the right time to We shift that strategy and focus on the product, the output, things such as the curriculum and how we how we engage with the community. And so, for that, I'm going to go ahead and toss it back over to Amanda. Thanks, Paul.

A Amanda Adams 30:20

So in 2024, you will see a second more selective approach to our travel, and our conferences within the tops team. I will be focusing more on conferences where STM D or sorry, SMD already has an exhibit presence. This gives us a bigger footprint and offers more visibility. When we're at these conferences, it will also allow us to take advantage of their hacker wall presentations that are that will be available to us within the exhibit space itself. And silence my voice. And it provides us the opportunity to focus on network building at conferences. For example, last week, we mentioned a little bit earlier, but we met several people at ws that represent networks of people interested in taking LS one due to their own adventures and up in science. We met people from observatories wanting to show their work was found and cited correctly, we met people that represented groups of undergraduate students looking for ways to get involved in open science now to be able to be published earlier before they even start their their career in research. And we met groups of researchers applying for funding looking to be able to strengthen their strengthen their proposal and their open science plan. So being available at the exhibit space more actively rather than an in different talks ourselves, affords us that opportunity to build those networks. Also collaborating with tops champions, to network who are already attending these events who are already doing their own their own talks. By incorporating the top the text message into their existing content, and presentations broadens our reach. And I'm not when I say top champions are not only talking about our capital city, Top Champions, but I'm talking about our tops network and to not only the NASA tops champions in the NASA leadership, but as Paul says our friends of friends of tops are passionate about open science and are willing to help spread the word. So going back to what Monica was talking about earlier, when we have people that are willing to share our message, we will have standardized pitch decks that we can give that will slide into their presentation, as well as, as well as onto a poster that you may be already presenting. So doing doing this, I think really helps expand our reach. Without with being able to stay within the resources that we currently have. So selfish plug if you're interested in including a slot or tunes and upcoming presentation, please reach out to us at HQ dash open science@nasa.gov. And I will post that into the chat. And when we get the next slide, please. So I spoke a little bit earlier about MSI and HBCU direct engagement, we want to be able to while we're not attending conferences to go directly to the two institutions and work with their research departments directly. Also NASA host there on the HBCU and MSI road tour through Europe, we have been collaborating with the Europe group to make sure that we're involved in that planning and be able to present to the students when they are going. They do those twice a year, one in the fall and one in the spring. So we will be presenting in those going forward as well as looking for opportunities to host workshops in the area while we're there. Next slide, please. Oh, I'm sorry, one thing I didn't want to add to going back to that is the map. So if you could go back for one second. Thank you, you'll see a map here that is the geographic distribution of the HBCUs. And emphasize in in the United States. One really key thing about our tops champions as they are juggling, geographically dispersed across all of the NASA centers. So this really gives us an opportunity to be able to send our tops, champions to different institutions, with a driving business of where they're currently

located, to be able to expand our reach within the resource sources that we currently have and be able to really take advantage of locations. Thank you. And then I will pass it back to Paul to talk about our instructor led trainings.

P Paul Bremner 34:47

Here we go. All right, thank you. And so, you know, something that we've touched on a little bit is the ability to to engage with larger communities. There are communities that have reached out to us and expressed interest desire to, to get the curriculum. They are seeking badges. I've listed a few of them here. So we have NASA Data Centers, for example. There's EZRI, there are groups that work with NASA scientist, impact severe are a couple of them. These are, these are groups that in our shift to our strategy shift in 2024. We're looking for the ability to engage with these people at a at a, at a at a level that we've currently just don't have the ability to do. And so these groups represent people who are advocates for open science, they desire to receive the curriculum, and we definitely want to work with them. And progress progress, the the Open Science to, to larger groups. So the second bullet here, online instructor led public trainings, we've talked a little bit about tops, T virtual courts. What we haven't touched on is that the tops champions also have the ability to lead virtual sessions. And that's something that we're going to be looking at going forward as the tops champions, transition away from curriculum development into leading workshops, both at their centers. And otherwise, these virtual sessions offer a way for them to have a broad reach to the public, to anybody interested in the in the curriculum.

P Pen-Yuan Hsing 37:00

Next slide, please.

P Paul Bremner 37:07

Thank you. So we've talked a lot about the MOOC. The MOOC, again, offers offers a lot. And one of the things that it allows us to do is to reach audiences that we otherwise couldn't do. So we are looking, you know, as, as the discussions have pointed out, we are looking at various different platforms in order to reach people, and the MOOC is is a powerful way of being able to do that. So, I've listed some of these, some of these groups that maybe would not attend an in person workshop, or perhaps would not be in a virtual cohort. They could, of course, but not everybody. And so the MOOC offers a way to be able to reach them, students, Nan r1, universities and institutions, commercial entities, nonprofit organizations. These are these are all people that we wish to reach. Somebody who's not actually listed on here is actually just professionals, researchers that simply don't have the time to go through an instructor led course. So the MOOC offers them a way of being able to do that as self paced. It's a self paced option, excuse me. And it offers them a way to be able to fit it into their schedules a lot easier, because we're not trying to exclude them, either. We want them a part of this, this movement. So the MOOC offers us a way to be able to do that. And I believe that I didn't say that the at the beginning, but this is my last slide. So from here, I would love to hear your input. I open it up to the floor. And ways that we might be able to improve or gaps then that you see. Thank you.

Malcolm Glover 39:12

Thank you so much, Paul. We'll pause right now to hear from our panelists based on the remarks from both Paul and Amanda. Sher?

SherAaron Hurt 39:51

Yes. Hey, everyone, this is share. So this is actually really great. shall tell you this is something I've definitely been interested in and know You know, particularly as a panelist, what are ways that, you know, the panelists can get involved, I know that I do travel quite a bit, you know, with the carpentry. So trying to see if there's ever a way in which, you know, I can pair that with making sure that I'm promoting, you know, Thompson, what's happening are, you know, at various conferences and things of that nature. So I definitely am interested in I think, for me, personally, knowing the role that I played with the carpenters, and I am in front of a lot of organizations, a lot of you know, universities that are requesting workshops from the carpentry, this is a great, you know, I think low hanging fruit on our end, that I could contribute as a panelist to help spread the word. So you know, it's kind of double dipping, and having that content and having the, I think somewhat, you know, mentioned that package, having that readily available, so that I can easily infiltrate that with the workflows that we have at the carpenters will be absolutely phenomenal. And for me, again, I'm that person that likes to travel. So whenever you say, hey, you need a spokesperson, you know, sign me up, I'm good and ready to go on behind on your behalf.

Paul Bremner 41:17

Yeah, that's excellent. Thank you. And Amanda's posted in the chat, we'd love to, we'd love to send you materials. And so please tell us tell us where you're going.

Amanda Adams 41:31

Yeah, yes, I added that email address to the chat. So please take it down. And let us know where you're going. We'd love to help you help us.

Paul Bremner 41:46

One thing, if I can't see if there are hands currently, but if if there are none one thing that I would really like to hear feedback on? Sorry? We do. Okay. All right. Sorry.

Qiusheng Wu 42:05

I was just want to provide some of the you talk about somebody ambassador or somebody advocate for open science. So I can give an example. Some of the other companies how they're doing it, for example, Google, strangely, so I'm part of the Google Developer expert, both engine so they have this kind of program, it just goes started last year. So the first year we could, for example, 2025 people. And then so they have a program they allow people to read

for. So in the first year, you recruit, for example, you say we have 2030, or even 100 advocates for open science. And then solos advocates can leave for other people that they know in enable other people doing also similar work or an export and refer to the program. And they also went through the interview. So one of the it's kind of recognition, but you also have some benefits, because you get to connect to people like within the company. So for example, with the program here, we can have connection to people within the tops program. And then they can have when people go to the conferences, and they can also somehow sponsor some of those people to come to conference when you're talking about relevant technology used by Google or whatever. So I'm thinking they might be some of the lessons you can learn from those companies. Or even if you don't have to, like, support financially, you have this program, and then they get together monthly, or every one to two months, and then can share some of the experiences and love people to talk about what they have accomplished in terms of doing something very different to the technology, in this case will be like more concise, and more custom kind of forum for people to connect together and share some of the best practices. Yeah, that's why I want to share.

P   Paul Bremner   43:58
Yeah, thank you for that. And so, so there's quite a bit there. I think it would be it would be great to to be able to have a further discussion, maybe even offline for getting some more details on this. So yeah, thank you very much.

M   Malcolm Glover   44:18
We have Malvika.

M   Malvika Sharan   44:23
have actually a question than any comment. quite interested in understanding based on the NASA tops KPI. What are the selection criteria? also interested in knowing? Have you narrowed down on the field of research or interdisciplinary research area where you're trying to advance scientific discovery? Basically keep a tree and your point around being selective about where NASA tops teams are represented.

P   Paul Bremner   44:59
Yeah, so Um, that selection criteria is something that I will admit we're developing those criteria currently. But you know, the qualities that we're looking for, we want to reach as diverse an audience as possible. And we're, we are looking to reach as many people as possible. And also, you know, there, there are five different directorate science directorates for NASA SMD. And so being able to reach each of those as much as we can, until we don't want to play favoritism to earth science over say, planetary science, for example, we want we want to reach them all. So those are the qualities, the nailing down the exact metrics for what conferences, for example, meet that over another one, that's still being worked out. Paul, I just want to jump in

Chelle L. Gentemann 46:05

and whether you inadvertently gave the examples and because I'm Earth Science and your planetary science, I thought it was really a discussion on

Paul Bremner 46:15

their top of mind. Right, so. So full disclosure, I am a planetary scientist.

Malvika Sharan 46:26

Is that okay? If I do a follow up, I know Jim has had his hand. So the reason I'm asking is that, generally being too open doesn't really help to help the communities that are never going to engage. Therefore, I think my steer would be to actually identify some level of evidence. And by saying, These are the field where open sciences, low adopted and with their, that's where we want to put some of our extra attention towards, I think it might really align well with EDI session we would have right after, because I think, although, you know, saying that open to all, this is like a very remote statement that we say open to all, it's actually not open to all, it's open to only those who are willing to participate. So my steer would be to have really, some priority areas, maybe divide them based on the year one, year two, year three, year four. And possibly, if we just narrowed down to year one, it would allow us to see what what other opportunities exist in the coming years. I'd be keen to see that and see that really, and I think the panelists can also support in developing those.

Paul Bremner 47:39

Yeah, thank you. That's, that's really interesting. And, you know, I guess, I guess, uh, you know, the end strategy, of course, is to reach as many people as possible. And, and so, you know, what, what you're giving an example of is, you know, perhaps a different way of getting there. And, you know, in terms of who we reach out to, first, who we spend our priorities reaching out to first. And that's, that's not an option that we've thought about. So that that's an interesting one to think about. The, you know, that I guess, I guess, then you would be left with the question of trying to figure out who, who to reach out to first and in the, you know, the planetary community, for example, I would argue, as embraced open science, or the community would, would argue that they've embraced open science. And, and so, you know, it is it is perhaps difficult to play a little favoritism to one community over another. We don't, we don't want people to feel left out of the movement. We want everybody to sort of be brought up together. Jim,

James Colliander 49:11

thank you. So I want to make an observation about the communications and engagement strategy, the KPIs and the larger goal of tops. So as I understand it, the large goal of tops is really to catalyze a cultural shift in kind of the national if not global, enterprise of science. Their KPIs are proxies towards that larger cultural shift, whether or not it's 20,000, or 10,000, or

100,000, badge scientists, those are really precursors to this larger change, of thinking about a new way that we're going to do science. What I don't see in the communication strategy, are coordinations or collaborations with all of The other federal agency synergies around the year of open science. So is there some way to engage either with the universities or the National Academy to bring these larger open science conversations around culture? Or is the near term target really to focus on NASA affiliated scientists exclusively with NASA has more narrow notions. So I feel like there's an opportunity at a larger scale there.

S Steve Crawford 50:30

Jen, I'll take this one. Tops is one part of the overall open source Science Initiative. And in particular, with how we've actually started to evolve and set up the different groups, we really encourage the Topps project office to to really focus on that top KPI and the training. And so this is a presentation from the tops project office. And their focus on that. And you know, they have touched on other things. Shell and her team at headquarters as part of the overall open source science initiative, our focus more on year of open science and activities, which are actually touching on that broader broader focus that you kind of mentioned there, how do we actually collaborate with other agencies? How do we actually collaborate with other groups within the community? And so to kind of help will help our own workload, we've kind of divided those responsibilities up. And so that's, you know, and so that's where this and Amanda and her team and Paul are really focused on that training x aspect.

J Jim Colliander 51:46

Thanks a lot. That makes sense. I just wanted to understand the scale that we're exploring here.

Chelle L. Gentemann 51:52

And you'll be hearing some more from Malcolm's presentation later about some of these other efforts. But thank you for Yeah, we're, we are trying to make sure that, you know, the Topps team and their efforts are, you know, we have this, like you said, it's a big plan. It's an ambitious plan. And Fernando, you have your hand up?

F Fernando Perez 52:19

Yes, thank you. And I apologize that I realized I picked up the exactly wrong spatial frequency on my shirt to make everybody motion sick with RA. You never know until you're on webcam. Um, I was wondering what engagement strategy you folks have with state science agencies, I know there's a lot of variability. But I was thinking, for example, California actually has a significant amount of engagement with with activities that are funded by the state, especially around climate, and states tend to have a different kind of usage of science, but it is there, they have agencies that engage a lot with the local communities with the citizenry with the cities. And so I was thinking states and museums are kind of the two the two pieces of the

ecosystem that I think are in California as being very active in something that intersects and I don't know, if they're aware of you, if you have activities with them. And the landscape. I'm sure it's complicated across the country, but at least I wanted to put that out there.

Paul Bremner 53:22

Yeah, and I'll, I'll just, I'll just add something real quick. So I've actually worked at a state agency in the past myself, and, you know, they they are actually very dependent, depending on what the agency is. They're very dependent. A lot of times on, on accessible data. So from NASA, Earth facing satellites, for example, or otherwise, and, and so, you know, they definitely are beneficiaries of open data, and, and any, any sort of open results that we can bring to them. That's something that that states benefit from quite a bit. In terms of actual engagement with the state agencies, through through the project office ourselves, we are not doing that. But I don't know if there's any engagement from Michelle or Steve, the Tom's at headquarters.

Steve Crawford 54:29

Yeah, I'll comment on that. Kind of the, the first response is, you and I, you know, Paul does raise a really good point and aspect where a lot of people do use NASA data. And it's useful in a lot of different ways. And so, we do have some different and general engagement, but for the tops project, and particularly for OSI there, you know, you have to feel Because on something and so for tops, I know SSI itself, state agencies are not a priority of ours. Nonetheless, there has been engagement with groups, you know, NASA does have the space Grants Program, which is, you know, has representation in every state, and we have engaged with them before. And, you know, on an individual given case, we may engage with different groups, but we can't focus on everything. And so the the state agencies would be beyond the scope of of OSI or tops. And then, as, as mentioned, also, like, there's other groups, which are part of the Europe open science. And you do we do engage with them through things like the subcommittee of open science, but they're with with our focus, you know, we will engage with institutes as in terms of being research institutes, but there is also only so much we can do. And yeah, Fernanda.

Fernando Perez 56:12

Yeah, and this has already been mentioned a little bit by Xu Chang and others. And I saw yesterday, the Esri representative was was speaking in the chat, and they are here today. But I wonder, the relationship between industry and open science historically has been a complicated one, it's a mix, right with the publishers, sometimes it has been very contentious. I'm at UC Berkeley, we're our librarians we have one of them, we have our open science librarian in the audience, or the Sam was here yesterday, Berkeley has kind of led led one of the big battles with with Elsevier in a very public way. But there are also industrial partners who are very active in open source in open science and who are willing to engage. And I wonder if you have sort of a structured approach to industrial partnerships and engagement or is it more of an kind of as the opportunity arises, which is, which is fine, I know, these things are hard. But at least I wanted to kind of wonder and think, five years out a lot of open source today really only exists because of industry and open source has won the battle, in a way with industry in the sense that all companies these days, if they want something to gain a strategic

foothold, they know they have to open source it because even their competitors will not it's a way of getting their competitors to use things. But the the way in which companies are contributors and positive actors in other ways, with open source and open science is more nuanced. And it's complex, it's difficult. And I think having a program like this be part of the conversation help create relationships in that way that are that are healthy. It's also true that many of the scientists we trained end up with building their professional careers in industry, and not only in academically funded kind of scientifically funded sources. So having a strategy where that is part of the picture, I think would be important.

S Steve Crawford 58:08

Yeah, and, you know, even in the original strategy for data management and computing for groundbreaking science, which was released in 2019, which is, you know, our guiding document to the overall open source Science Initiative. Strategic Partnerships and engagement with partners and organizations across the full sector, from nonprofit to for profit, are part of that strategy. And so part of the overall open source Science Initiative, one of our activities is Space Act Agreements and forming Space Act agreements with private sector partners to help advance open science, along with a number of private sector partners, or private sector organizations also have been awarded grants to advance open science. I think that's actually a great cost question, particularly on tops and that engagement with private sector organizations. And I think that is something that will be a continuing and ongoing discussion. We really like to think about collaborations and opportunities as we think open sciences is beneficial to to all of our different parties. But from with all the different groups, we continue conversations and figuring out what would be mutually beneficial to both communities.

P Paul Bremner 59:47

And, and one thing I'll add to that is, you know, from a curriculum standpoint, one of the things that that we've identified is the ability to basically train trainers Through the carpentries. If if we as as tops are not able to go and train, you know, everybody at a particular private corporation, perhaps that corporation has people that can and if they are, if they are trained in the curriculum, and how to instruct it through the carpentries, that gives them the opportunity to be able to do that. So that that is one one avenue that has been identified.

H Holly Norton 1:00:35

Great, thank you, Paul. And thank you, Steve and panelists for a great discussion. Now we're going to move on to HQ DEIA engagement strategy with Malcolm.

M Malcolm Glover 1:00:49

Hi, everyone. I'm Malcolm Glover. I know we've been going kind of long, but we really enjoy the engagement. And for those of you who have been putting in questions and responses on the IO tool, we want you to know we are tracking with those, we'll get responses to those as well. And we'll make sure to connect with Paul and Amanda, to get some specific answers to the specific questions that are there. Thanks, Holly. For putting up the next slide, we see that NASA is fully

committed to diversity, equity, inclusion, and accessibility. And this is really important because as we've heard, over the last few days, we live in an interdependent world. And we recognize that what impacts someone somewhere else in the globe, can have an effect on all of us, no matter where we are. Our various cultures and communities interact in both physical and virtual spaces, and workspaces. And so di is in assessing. And so one of the things that we want to do in this section is we want to not only hear from our panelists, but we want to hear from all of you because we're going to be thinking about those activities and institutions and organizations that all of you may have worked with, or that you know of that can be an asset to some of the goals that we'll talk about later. We also recognize at NASA that by developing programs and policies that really encourage engagement and inspire a sense of belonging, that NASA and other organizations and our communities can demonstrate that sincere commitment to addressing institutional as well as social concerns that far too often impact our well being. If we go to the next slide. One of the things that's been really helpful is that our NASA Administrator, Bill Nelson, and a statement in March of this year, kind of outlined for us how NASA defines diversity, equity, inclusion and accessibility. You'll see that on your screen. And I think this is really helpful because we know that so many different institutions will define the EIA in different ways. But this is kind of how we're operating. With these words and definitions in all of the work that we do. Beyond these definitions, though, we recognize that there is also a clear business case for dia, there have been studies by Harvard Business Review, McKinsey and Company, the World Economic Forum that show dia has a strong correlation with organizational performance in organizations with diversity of gender and ethnicity organizations that recognize the importance of neuro diversity, and diversity in all of its forms are often more innovative, and even more profitable, if that's necessary. For some and I know, earlier this week, I had a wonderful conversation with Paul, who just finished talking with us. And we talked about the importance of recognizing the EIA in all of its forms. And so as we started thinking about this work, I want you to think about, as I said before, the connections that you've made, the things you've been working on the institutions that you know about that can be an asset for us. We know that dia strategies, embrace and encourage differences in all forms. Often we talk about race and ethnicity, or gender identity and expression. But we also know that language, national origin, physical and mental ability, as I mentioned earlier, newer diversity, social and economic status, veteran status, and countless other elements are things that we need to consider as well. And so hopefully, as we engage in activities to meet certain goals, we'll make sure that we're touching on some of these key areas. Next slide, please. So, let's come back to the very beginning, a very good place to start. Tops vision and mission is on your screen. It's so important to be reminded of these areas before we move forward and continue our discussion. If we can go to the next slide. And I was excited hearing the conversation yesterday, because in our discussion, I know that our fearless panel chimed in over and over again, I remember hearing from Monica Malvika, Jim and some of our other dynamic panelists about the importance of creating a sense of belonging, recognizing the importance of community with this work. And show believes that community and building a sense of community creating a sense of belonging is a fundamental component of all of this. And so we wanted to just talk a little bit about belonging, you see some information on your screen here. And we have also some select components of belonging. We'll talk more about each of these, or all these five components. But if we pause here for a second thinking about how to create a sense of belonging with the work that we're trying to do some of what we started talking about yesterday, I'm wondering from our panelists, is there anything else that you'd like to add? Maybe it's institutions, activities, organizations that you know, who are doing this? Well, when it comes to the scientists creating a sense of belonging, that encourages people not only to be a part of those efforts, but to that also they retain those people as well, they not only can recruit, but they can retain those people. And those people feel like they have a space in this work, anything that you're hearing about anything that you've read, anything that you're currently

doing, feel free to come off, and you can share that with us. For those who are attending, if you know of great initiatives, please feel free to share that via the IO tool. And it was some people mentioned earlier that they might have had some issues with the IO tool. So we want to capture that information anyway. So make sure to share it in the chat if you can't get it through the aisles. But just creating a sense of belonging is there anything anyone would like to share from our panel? Maybe it's things we're already doing that you think are important things that you think we should be aware of? To advance that as well.

M Malvika Sharan 1:07:33

Think that's a really big question to ask on spot, I'm going to try, nevertheless, respond to a little bit about, you know, what we mean by sense of belonging. And I think the biggest thing that you all are doing really well as well is to recognize that open science communities is less so not just people who are coming into your courses and conversation, but people who exist outside, because by inherently calling them open science, you become part of this much more global movement, where your actions and the values you're putting out there will have an impact and really, really huge impact. Like I keep saying how much privilege this organization brings. This is people hear you people hear you much louder than other people who have been saying this for several years. And I think you're really valuing that space, and you're elevating other people's voices, which is really important. irrespective of who exist outside that landscape or not. But within the core mission of delivering programs. One thing is really important is how who is involved, of course, that you're paying a lot of attention to, how are they involved, you're building that spaces for and activities that you're creating, but the retention will happen if you are putting a lot of roles, you're naming the roles, what do you need? What Where do you need people to be involved and not just saying that get involved, but really giving that pathway? For here it is, here are the things that you can do. Also the rewards and recognition that that you will get. And I'm saying rewards and recognition not just in terms of money, because I know it's not always possibility but in terms of just visibility, and sending them to give talks rather than you know, yet again, famous person who's already been given the chance to be in the event that they're saying, but also really thinking about building governance. Not right now. I think you're the community isn't there. But when the committee starts to build momentum, think governance, you've already started. I mean, you're you're thinking of the reason we are here is really the example of governance. I think exemplification is very important. I'm going to bring examples from the places that I operate and where I see other people. If the leaders are exemplifying what they want the learners to do is really important too. To do it really, really well. So your actions have a lot of impact. And not just you as the core team, but the people who you're empowering to teach the code of conduct the policies and participation guidelines you're applying in those spaces. And which is why I said it's a very nuanced conversation to have on the spot, and you can have some, and you are an expert of that. And I really appreciate that you're opening that conversation here for a wider community to respond to.

M Malcolm Glover 1:10:29

We really appreciate it that might begin, we're taking notes as well, if we can go to the next slide. And as that next slide is, I'll go to Monica, it just dives into those selected components and kind of defined some more monitoring.

M Monica Granados 1:10:44

Yeah, I'm just gonna, I think this is quite comprehensive, again, for something that is pretty difficult to try to, to make tangible. I think the only thing I see that's missing is I see focus on wellbeing, but I almost want to see the word safe. Safe is something we think a lot about at pre review, particularly because we deal with open peer review. And when people engage in those kinds of activities, and even in like open science, too, there's there's there is a need to recognize there's some fear that particularly new participants will come in with, and we have to acknowledge that fear. And then say, here are the steps we are taking to ensure that you feel safe in these practices, but also in these communities. So you know, having a code of conduct, having a way to also anonymously report violations of the Code of Conduct, but also thinking about practices that you can, that you can implement in the practice of open science to feeling safe. So in peer review, for example, we have pseudo anonymity. So for participants who want to review something, but they feel that they cannot put their name, or sign their name in the review, because they're reviewing somebody who's like pretty powerful in their fields, there's an option for them to feel safe. So you know, I think underneath the focus on well being, you know, thinking about about feelings, it's feeling safe in this community.

M Malcolm Glover 1:12:16

Thank you for sharing that. Thanks to those who've also been responding via the IO tool. I know that one person in particular, put the acronyms of some organizations that do a lot of work with underrepresented groups and minoritized students in the sciences, that might be great for us to collaborate with. So we appreciate that as well into our panelists as you continue thinking about this, because we know it's definitely a question as well, Vegas's that you really want to have some time to think about, please feel free to get more information to us about that. A shell was mentioning earlier, there's a variety of activities that are going to be a part of our efforts to fulfill different goals. We'll speak more about those goals later. But on the next slide, some of you may have heard of Europe deep headed, so we have defined it here for you. And we're going to get into some of what has happened so far with that. So this is the minority University Research and Education Project. And in terms of the data science, equity, access, and priority in research and education opportunity, there were several HBCUs who are receiving funding. And so on our next few slides, we just wanted to highlight those HBCUs starting off with Bethune Cookman University in Florida, Fayetteville State University in North Carolina, Florida a&m University rattlers on one day, Lincoln University in Missouri, and you'll see these brief blurbs on how they were funded. But also, for more detailed information on their initiatives, you'll be able to click that hyperlink. And on the next slide, we'll see the other four institutions Morgan State University in Maryland, North Carolina a&t sister graduated from North Carolina Central University in Durham, North Carolina and Prairie View a&m university in Texas, and so take some time both to our panelists and attendees to read up on those institutions. But we know that there are so many more organizations and institutions that we want to collaborate with throughout all of our activities. And so that's something that we'll be working on. If we go to the next slide. This I think gets to some of what Shell was mentioning earlier. We're thinking of a variety of activities to kick off a year ago Good science. And these are our year of open science goals. sigh use has four goals. And we are looking at what we can do to meet these four goals that are on the screen. We were actually planning activities under all of these. But one of the things that will do just in this portion of the conversation is really focusing in on goal number two, engage underrepresented communities in open science and research. And so in this portion that we aren't focusing on goal one, three, and four, as you to

our panelists, as you see those titles, if you think about some of the elements that may be necessary in those areas, feel free to share that information with us, as well. But if we go to the next slide, just highlighting what's under Goal two, you'll see some of the work right now. And as you can see, this is really just draft work, tentative plan, really for sake of discussion. And as I mentioned before, we're going to kind of just focus in on on the next couple of slides. We know that you have the PDF version of this. And so at your leisure, we had an opportunity to peruse some of these activities. Feel free to share with us your thoughts on the activity? Let us know if there's something that you think we need to be thinking about here. Are there other activities or events that are happening in your communities that we should know about? Both to our panelists, and even to our attendees? We want to know about those items as well. And I would say even when it comes to areas like performance measures are there other things we should be looking into, as we seek to hear from others. So thanks to Holly, we have this screen up now. Let's go to the next one, Holly, we'll, we'll keep that up for a second. You'll see here one of our other goals develop co lead initiatives with existing NASA organizations with the line of missions and engaging underserved groups. The one right before that was study barriers and biases and NASA Science engagement with underserved communities in science. The information there will just stay on this one for a brief moment. We go to the next one. If see the main goal here is to establish and CO develop initiatives with external organizations with missions that align to broaden participation in science by underserved communities. Some of our activities that are outlined there. As we mentioned earlier, this is all a work in progress, one of the things we're going to be doing is meeting and coming up with some additional benchmarks to make sure that we're fulfilling these goals, but we recognize there may be other opportunities for collaboration and connection, based off of what we're learning from all of you, over the last two days, seem to be three days. And so all information is helpful. And thank you so much, Holly. And on this last one, the main line goal is establishing co develop initiatives with external organizations with missions aligned to broaden participation in science by undeserved. elements here wanted to I know that went a little bit fast at the tail end. And as before with the conversation about belonging, we recognize that you may want to take some more time to kind of look over these grids. And that might then encourage some additional points that you want to bring up. But I mean, turning to Jim

James Colliander 1:19:30

I wonder if there might be a way to connect students at the mihrab institutions with other tops funded or OSI funded projects. So for example, if an organization gets tops T or HP OSS funding, could there be a program where a student that has passed through the OS 101 curriculum can be engaged in a mentoring relationship with these other funded projects. So I'm trying to find a way to build synergies between projects that are at the research frontier or working in the research direction. And these efforts that outreach, and bring young talent into research projects from institutions that are typically underserved. I don't know what that looks like, but some sort of a vetting process, maybe involving the OS 101 can elevate these students that are aligned with the open source efforts into prospective mentees. For other NASA research projects, it could be really complex to, I want to acknowledge that PIs that are working hard on a research project may not have the bandwidth to engage in mentorship. So there's work to be done and figuring out how to solve that challenge.

Steve Crawford 1:21:01

Hi, Jim, I'm just gonna jump in one of the things I think, that's we have done in the past year is

partnering with Europe on the data equity and access program. This is actually funding about eight different programs or hubs at different HBCUs. With a focus on data science related to SMD science, one of the key parts of this is actually mentorship with NASA centers. And so that you actually build those kinds of networks. And this is, you know, we'll also be actually providing tops training and those one to one to all of those groups. And so this is actually some of the things that we are trying to do. But I think it is actually a really good point about how we actually further grow networks, and use these activities and opportunities to to, to provide more opportunities.

H   Holly Norton   1:22:10

Any other additional questions from the panel? Or comments? Yeah.

Chelle L. Gentemann   1:22:17

I want to just jump in and ask the panelists, because you'll have these you have the slide decks. And if, you know, sometimes it takes a little bit of time to do. And I know, it's about 2am, when I come up with the idea that I thought wish I had thought of at the time. But if you have other ideas, when you reflect on these activities that we're proposing, or other things that you think of that we might be able to do, you know, please feel free to reach out to us and suggest we are, we're really trying to use this open. You know, this is, for a year of open science, there are four different goals. This is just talking about the activities in goal two. And goal two is really to try, we want to try and be very intentional and thoughtful and strategic here. So any experiences that you've had that have worked for you any other ideas you have, or things that we should be thinking about, we really would like to hear those suggestions. We want to use this year as a spark, right for the era of open science where we really are engaging with these underserved communities.

M   Malcolm Glover   1:23:32

And when I asked one thing show up, there was a question that came up during the start of some of the DEI conversation yesterday when we were talking about belonging and it was one of the questions we didn't get to. And so I did want to pose it to the panel. And if any of the attendees have great ideas, feel free to add those to the IO tool in the chat. What measures or practices can be implemented to enhance dia within open science? And I see your hand about big I know, it might have been four different comments, but go ahead.

M   Malvika Sharan   1:24:08

Yeah, it's a different comment. I agree with you shall I think these these conversations are emotional. I think this is not something that we can have on an open call and you know, people are being really brave and vulnerable. But still, I think one thing I would like to share from the places that we're working on the structural issues, I think you are trying to build Institute through funding which is great. You are definitely thinking about sustainability and long term impact the legacy this five years would leave. But some of the things that we have done our as simple as providing headphones or childcare costs or means for people to participate. We have

learned a lot from My colleagues in in Africa and Latin America, which, which is, of course, you know, different contexts, but I can, I can imagine that they're applicable also for minority groups that you're targeting. It's not it's one thing to say that here are 60 things that we are offering you. But if we don't solve the problem of bringing them, giving them the right incentive game, bringing them, giving them the opportunity to make it meaningful for them, right, so it's enough for us to think about, or we can offer this, but if it's not meaningful for them, they won't engage, they would rather do a waitress job, because that pays the money, right? Why would they come to this room? Because they need to pay their bill, they need to pay their, you know, childcare, it's, it's a tough thing. So I think the structural elements should be available for all of this. Allow people to ask for what they want and make it easy for make it happen sometimes being too fuzzy about oh, do I want to give them an internet? Everybody should have internet? Why do I need to pay for it? I think sometimes it's just enough that you say great, we asked you, you told us what you need. And here's how we're going to give it to you. I think this first free and I am saying this, that it's very easy to do in places like OLS, open like science or other organization where you know, policy or legality is restricted only for people. But it would be really hard for NASA because you have so many policies, so many infrastructural limitation, where you know, getting 50 pounds is not worth the effort of an admin person who's super busy. So think, think about how you would handle that. What does that look like, I'm very happy to have this conversation in detail and share the knowledge that we have. But I know that it looks very different. But I can also share from my own experience in in the Alan Turing Institute where I lead a community project where it's so hard to give honoraria to people because it's not worth the time for our an admin, our admins are a lot more expensive than to give 20 $100 honoraria. But yeah, the only thing I would say, add structural element, give people reasons and rewards to be in the room, provide them things that they need, not the things that we think they need.

Chelle L. Gentemann 1:27:24

That's Novica, I, thank you so much for making this comment. And I just want to want to really thank everyone for participating in this conversation, especially as we talked about safety earlier, because I do know that every time we have these conversations, they're sort of, you know, it hurts, it actually hurts to participate in these conversations, because it brings up things that many of us have experienced. So thank you, everyone for being part of this. And melody, I think you make a really great suggestion, which is just as you know, and Steve was definitely part of this with OSI is, you know, really pushing forward and developing a code of conduct that we could put out publicly and have, we could also do something similar. Another activity that we could do within this goal would be to actually provide those list of resources that you should, you know, and make sure that what we are providing includes things like this, so that we make sure people are able to be there and be present, and that we're really being inclusive in that way of, you know, providing childcare and things like that. And not just that, but like the ability for them to participate. And I think often, it's one of those things that privileged can sort of blind you to is that having headphones, for example, or even having a room to meet in. So really trying to check what we're assuming about the participants is incredibly important. And so thank you for bringing that up. And let's think about trying to add that as a, one of our deliverables.

Holly Norton 1:29:20

Think that's good for the questions. Do you have any from the IoT? They wanted to tell me? Oh,

yeah. All right. Time for the break. Actually. Perfect time for the branching. Thank you. We'll go ahead.

Chelle L. Gentemann 1:29:36

Okay. Put it down. Let's go to the break. Yes. Thank you, everyone. This was a wonderful, wonderful discussion, and it's truly at the core of open science and how we can get everyone involved and I really do appreciate everyone's input. So for now, it is 130 We will take our 15 minute coffee break right now. And I'll be back at 145 Eastern time. And at that time, we will then move into our spot activity. So remember, keep thinking of your strengths, weaknesses, opportunities and threats. We're going to go through the last three days of discussions, and I will give the opportunity for everyone to share inputs on those categories. So we'll see you back in 15 minutes. Thank you. Thank you. Okay, welcome back, everyone, I am going to get started in just a second on our SWOT analysis activity that I'm gonna hold just a second to see if we have some of our panelists back, I see some of the cameras being turned back on just a bit of an introduction of what we are going to be discussing here. As many of you have already been through the panel process before, as you know, we are going to at the end of this process, develop a report on all of the strengths, weaknesses, opportunities and threats. And I know the word threat sounds scary, but really, we're just going to be considering challenges. So we thought it was a good idea to walk through what those strengths, weaknesses, opportunities and threats will be. So as we're going through this process, some things to consider, first, what works from what you've heard over the past three days, I'm going to walk us through the agenda over the past three days, and we're going to go through it sequentially. But as we're doing that, think of the strengths. So what works and the weaknesses, what didn't work, potential obstacles, also opportunities, what are some potential opportunities that you've heard with some of the things that you've heard over the past few days? Also, are there external factors that could help some of the things that you have heard? Also, are there any external factors that could pose challenges to what you've heard over the past few days? So these are some of the questions that can prompt in the back of your mind as we're going through this process. So to start out on day one, day one was our tops update and the creation of the curriculum. This is the day where we went through one arthouse update to our year of open science, three, open science one on one module content development and for the Open Science 101 Move development. So to start out, I would ask our panel to mention any strengths that you have for any of these four categories that we discussed day one, and as your as you're weighing in, I will be monitoring the participant for any hands here. And we can just go through sequentially through our SWOT categories. So does anybody know of any strengths or can think of any strengths from any of these four sections that we discussed? And if it will help, I could also bring up the slides or we can also bring in some of our speakers from day one. So that would be Diana? Oh, I see Logan. Yeah,

Logan Kilpatrick 1:33:34

I think the biggest strength and takeaway for me has been that it's like incredibly awesome to see the development from like the tops team perspective internally at NASA. I think my perspective, and maybe the perspective of other folks initially was, you know, shell and a few other folks were really stretched, much too thin trying to make all this happen. And it seems like within the just the stretch of the last panel today, there's like an incredibly addition of an incredibly large amount of capable folks at NASA like helping push this forward. And I think,

from my perspective, it gives me much more confidence that like the overall mission is going to be successful with all these new folks across many NASA centers like helping push this I'm super excited. And I'm sure that it's made a lot of things easier to do as well to not have to put everything on such a small group of people.

Chelle L. Gentemann 1:34:28

So you know, much happier and more relaxed I am now.

H **Holly Norton** 1:34:34

Great, thank you. Anyone else and it can be in any one of these are outbreak. Che. Any strike?

Q **Qiusheng Wu** 1:34:43

Yeah, I just want to reiterate what I said. During the first state machine right now there is a momentum in the that is pushing you towards open science and locked up a federal agency. I'm very happy to see that right now. We have a long list of federal agencies participate in this compared to when we was originally started a year ago, like NASA was the only ones doing it. And now with all the funding opportunities available, and also, NSF and also other agencies also joining this momentum to provide more funding and more incentive for people doing open science, I think it was very well, and also at SU conference and other like ICs, the interagency conference on watershed, they are aware of this. And they're also trying to promote, and also have walks of in others trying to educate people, and also a lot of sections at ECU related to open science, open source, stab. So I'm very happy to see that the top teams walked in right now, I mean, become a center that everyone's surrounding this, and then trying to push towards open science. So it works, I think we will. And some of the potential opportunities, I think, will be to maybe get more connected with universities, and also local communities. Because right now mostly, for example, in from the top level, but eventually we need to get into each individual University, and then to have these advocates or ambassadors to actually help also pushing forward because there's only so much that the federal agency from the top can do, but at the end of the day, they need to everyone need to do something, if everyone have something have the motivation and the incentive to do it. And then it was much stronger momentum for everyone to push towards open sight. Thank you.

H **Holly Norton** 1:36:33

Thank you. Next up, we have Pen.

P **Pen-Yuan Hsing** 1:36:37

Thank you, I, first of all, I I echo, assertions sentiment that, you know, it's wonderful that part of the year of open science, there's so much national level support across different agencies for roping science, I can only say that I'm envious, and only wish that not the other countries that I live work in, would have this kind of national level support. My main comment with regard to

strings is that, again, reiterating what I said on day one, which is that you've brought in professional support from, you know, from people who actually develop online courses to help make the MOOC, a success, I think that really distinguishes this curriculum from so many other open science curricula, I don't see where it's just academics developing them, and they might not have the education and pedagogical skills to make it a success. So I think that's a huge screen for that. Thank you.

H Holly Norton 1:37:40
Thank you very much. Next up, we have Sher.

S SherAaron Hurt 1:37:47
Yes, to add on to what has been said, it's very the strength of not reinventing the wheel, but using a lot of the organizations that have the framework. And particularly, you know, I might be biased, but with the Cochrane juries, you know, you know, getting in on those organizations that have done the work and allowing, you know, and using those frameworks and not having, you know, to, as I said, reinvent the wheel, but, you know, using that collaboration and looking at all the different platforms that are available in these organizations that we're working with, to see what their strengths are, and tapping into those is definitely a strength. And I'm really excited that the carpentries could, you know, have a large impact in that, especially with that trend? VPS.

H Holly Norton 1:38:35
Absolutely. Great. Thank you so much. Next up, we have Monica.

M Monica Granados 1:38:41
I think I've said this before, but there's just so much power in the NASA name, and that people will organize around you, I think in the same way that United States showing the leadership role in open science, I think will draw other countries to move forward and open science, but it Yeah, it's such a such a strength, and people will look towards you for that for that leadership at many different levels. So, you know, at the national level, but also even, you know, within the United States, they're they're sort of looking at NASA, see, what are they going to do? And how can we sort of jump on this project and assist them, and to remember that to remember, like, the power that the name has, the consistent number of people that show up to these events cannot be replicated in any other venue than these community forums that that NASA holds because of the power that the name has. And so you have a lot of, there's just a lot of potential there. Huge strength.

H Holly Norton 1:39:48
Great, thank you. And, and again, to add on to that we have the 15 government agencies with the year of open science and building momentum there. So I I agree, thank you very much. Next up is Malvika

Next up is Malvika.

M Malvika Sharan 1:40:03

Yeah, I just want to echo everyone's point. But also like specifically Logan, I, we we definitely see the tops team doing so much. And I compare constantly with our previous panel, where we have so many recommendation and we see that you have heard us, you, we see that you've integrated, so many recommendation made by the panel on behalf of the community. And it really is very rewarding. Everything that you're doing is so public, and it's so inspiring. It is a part like I think the point around is the having hard conversation as public is tough. We've had hard, hard conversation in the past panel, and we're having a hard conversation here. And I really appreciate that you're enabling that, it is a great example for what other organizations can do. If NASA can, a lot of people will feel absolutely inspired to do that, too. So thank you so much. At the same time, I would bring back that you are definitely hitting Diversity Equity in a lot of different dimensions. You have also taken steps towards lingual diversity that a lot of my colleagues are really appreciating that they have chance to get involved and build resources for their own community and engage with a lot more people. Yeah, congratulations. And thank you so much for all the work you're doing.

H Holly Norton 1:41:34

Thank you very much. Now Vika Are there any other strings that the panel would like to include before we move on to weaknesses? Now, we have the sugar. Yeah, to start with.

F Fernando Perez 1:41:51

I mean, brief briefly, obviously, echoing what the others have said, this is incredible. You folks are really changing the world, I was thinking you're you're both making the wave and you're riding the wave, right. And that's, that's part of the power of an agency like NASA, that you can make your if I was a finance person, I would say your market makers, right, and you can actually move the market. And that's great, right. But it but it takes vision, right? NASA has existed before other agencies have existed. And it took the vision of this team to put that in action and make it concrete. And to do it in a way that I think as other hubs have said, but I think it's worth reiterating that you you've engaged with the community in a very meaningful way in your in the openness and in the it's both openness and responsiveness. Right. And that's it's not the same thing. And you've you've done that I've seen it, this particular panel, I will echo what Malika said about the the the kind of seeing the evolution, it's among many panels on many of these things. This is one of them, it's fun to be in, because I actually know that what I say will matter, right? It will have an impact you listen, it doesn't mean that you do what we say. But you engage in a meaningful way, rather than Well, I'm writing a report that goes somewhere, somebody checks a box, there was a panel, there was a report, yay, one more of these, I've done so many of those for many big names in the government and whatnot. And this is not like that. And that makes the process very different. And finally, that you actually have strategic vision, right, you're willing to think big, you're willing to think systemically you're willing to think about the big problems and to layer that from the small and the day to day to the bigger picture to the very long term. It takes it takes a lot of courage to do that. And it's not easy to do intellectually, either. And you've assembled a team that's capable of both thinking strategically and executing tactically very well. That's extraordinarily rare. So I don't know, I

don't know what's in the water, where you folks are, but I want I want more of that we need more of that. And you need you need to be made an example of across the federal government. Somebody in somebody who's many, many layers of the pay grade about me, needs to basically shine a spotlight on this team across the federal government. And I hope that's happening for you all. Because Because you really are doing something that's that's rare. So I'll leave it at that. I hope that was an option.

Chelle L. Gentemann 1:44:24

Thank you. And before we move on, are there any specifics to the module content development or the Moog development that we discussed on day one for strengths before we move on to weaknesses?

Holly Norton 1:44:41

And remember, if they don't come up right now, that's fine. We have the IO tool, we will be in contact. But if there's nothing else there we can move on to weaknesses that you can think that we discussed day one. So remember, tops update your open science, our content development or the moon

Chelle L. Gentemann 1:45:01

And I really encourage you to speak honestly, with us here, we really want your input and your honest feedback on on these topics. This is how we get better. And this is how we actually are successful is by getting the community to tell us what we're what we're not quite seen. Absolutely. So things that you might see might not work, or any potential obstacles that you may identify and what you've heard. Thank you.

Pen-Yuan Hsing 1:45:37

Oh, yes, thank you. So this is a little bit more of a technical thing, but it's something that came up in previous panels and also on day one this week, so I couldn't remember if it was Fernando or someone else who asked a question about whether we can sit up, you know, the content of the curriculum and the content below, well, prisoner great work that you're doing. And, and manage it similar to how a lot of other open settings where you kind of open education material being managed, where, you know, they might be written in Markdown with some other markup language, being version control Git repositories, for example. And then there is a continuous integration and continuous deployment process that goes all the way from the content to the final deployed, it's typically in a Jupiter book, you know, stack of static websites, for example. However, the challenge here might be, if you don't want to take that an additional step of turning it into every interactive other course. To me, it's unclear whether that kind of CI CD process can also you know, take it all the way to to that level, if you know what I'm saying. So, a dat makes kind of like this continuous kind of flow, from content development to that final interactive thing that students see am I add some friction points along that process, that will take a lot of manual work, which would make maintaining the material in the future more difficult, and might also make it a little more difficult for other people to fork and adapt their

material for other purposes. So I think there's potential for development work here to see whether this workflow can be improved. To help, you know, make it a even more open source and open educational resource.

Chelle L. Gentemann 1:47:30

And can I just ask a question, just to go into that a little bit more on the technical details. So I think before and about the content development, you know, as Paul said, you know, they're developing it in slides. So what you're proposing, I think, is that we don't just present the material in slides and in a MOOC, but that we also work towards maybe presenting them in a Jupiter book, using perhaps, you know, Jupyter, notebooks and markdown as another mechanism, so that we try to explore maybe that space of what are the different ways that we could provide this material so we reach as many people as possible.

P Pen-Yuan Hsing 1:48:17

And, and also make it easier to adapt, and, you know, remix by other people, right. Because if I'm a student in an in a UX course, you know, I see the student facing thing in front of me, it could be slides, it could be those interactive elements and all that. But I'm not seeing the source code, so to speak, underline the learning that I'm doing right now. But if I have access to the source code, then it really makes a, you know, so much more accessible for other people to make use of. And then of course, the other point I was saying is that if there could be such a source code, how do you link it to the final rendered output on edX in a way that has frictionless frictionless as possible, if that makes sense?

H Holly Norton 1:49:03

Yeah. Thank you. Thanks, Jim.

J James Colliander 1:49:11

So I want to note that this experiment, this tops program appears to be an exercise in kind of social engineering. And from what I perceive about NASA, NASA is maybe the deepest or most exciting, hardcore engineering enterprise ever. But I don't think NASA has a long history in social engineering. And so I perceive a possible weakness in the early stage efforts of tops in contrast with what's happened in NASA in hardcore engineering, and aspect of that emerged over the past couple of days. Where I think right now there's kind of an MVP assembly in the launch of time. Up to try some things out to get some motion going. But I recommend that you set some milestones or touch points in year two, and maybe in year three, where you evaluate whether or not this attempt to engineer social change has been successful or not. And not get too bogged down in trying to push forward the path that you started when you were initially creative. And there might be structures around engineering best practice that sit inside of NASA that can be adapted to this. I speculate. I was inspired this week about for example, the news that changes in the power budget on the Voyager spacecrafts are being planned to extend their life even further as they pass the Kuiper Belt. Are there similar kinds of interventions that could be done in tops, three years, five years, 20 years out, that could be

planned today. My second somewhat related comment is building on what Penn said. So I believe that the learners that are being imagined as participants in a MOOC are students in the undergraduate frame, that's the typical MOOC participant, but the learners that you're seeking to address are usually junior faculty, early career researchers. And so I have some concerns about the MOOC based path to deliver this instruction. And if there was a Jupiter, or our studio or GitHub based way to deliver the curriculum with assessment, then it may be that communities like cryo cloud, or NASA Veta, or Jupiter meets the earth could just stick that content into their shared resource, and meet the researchers where they're at with the content, rather than expecting them to leave where they're going every day to do their day to day research activity, and expect them to open up an edX program. So that's just a federate the methods of learning and meet the learners where they're actually doing their work is just a suggestion that I perceive as a possible weakness in the delivery. But that should be informed by the emergent phenomena, visa vie, my first comment.

H   Holly Norton   1:52:27

And I really want to thank you and the rest of the panel that I've noticed, as you're giving weaknesses, I'm noticing that you're also giving opportunities, so you're pointing out a weakness, and you are giving suggestions on on ways we can mitigate that. And I really do appreciate that. So thank you very much. Thank you, Fernando. Fernando, Fernando is next up.

F   Fernando Perez   1:52:52

On the mute button up. So this is actually a bit of a follow up also on the point that pan and zoom address was I did bring that up yesterday to the speaker and I want to in one of the sessions, I want to I want to say that the speaker was which was very responsive to the feedback. So and this is early. And but since we're being frank and blunt, and I hope nobody takes this as, as as an attack of criticism. I think my response to the to the original kind of description of the workflow was, I don't want to work like that. Because I don't because I don't work like that, right i and one of the tenets of open science is precisely that processes are collaborative, right? It's not that the output is available to other it's that the way we work is different. And that's definitely keep in mind, that's a lot of the fun. That's where a lot of fun is the fun is in working together. It's in the back and forth. And I don't want to work in something where somebody tells me hand me your slides, we'll talk in a month, right? And then we'll make them right. And then you can you can show them but just give me your slides. And and that's that's not the the process of open science. I fully recognize that that team has expertise that that we don't have I've never written a MOOC and if a MOOC is going to be one of the vehicles, that's great, right, then we want people with the expertise in that space with the pedagogical knowledge with etc. Right? But But I want to be a participant, right? The beauty of open science is the lowering of the barriers to participate. It's not watching the movie for free, he's getting to write the movie script. Right. And, and so processes that support that, that and that therefore, by virtue of having a process that supports that engagement, automatically, it kind of falls out that the structure is going to have to be what will be one way Oh, if we have a process and we're doing this in a way that I'm an active participant, then I may then take that and deploy it on my campus website or I may make a different I may put it on my hub, I may do something out right I may export a PDF built by Jupiter book or mist whatever it is right. But if I'm emailing somebody some slides and a month later They told me okay, you can now log into this platform and see what we did with it. That's not and I think it's not going to engage the dynamic you're

looking for. So I would, I would, as I said, this is not an attack. This is just a kind of a hopefully direct and, and usable feedback. And the second point that I had in mind was and I really apologize if I don't remember the bios of everyone on the team, but do you have ethnographers and and STS scholars in the team, right do you have, I think this project is of a scope and size and complexity. And often part of this was I often riff riff off of Jim tickles my brain a lot, and kind of the discussion about social engineering, when you realize, wait a minute, I have been in projects like that the birth of the data science, more Sloan data science initiatives, about 10 years ago at Berkeley, and NYU and U DUB, we had ethnography scholars that were embedded in the team from day one, who were doing both the history of graphic work, but also the reflection and the feedback, because these are people who come have their own social sciences, expertise and historical expertise of scientific communities. And by now, some of them have actually studied, oftentimes, communities like quite literally, we have enough, we have enough kind of lead time that by now there are people who have done that. I knew some of them who were involved with the more Sloan efforts, I'm sure the answer the academic Data Science Alliance that emerged out of that would have more connections and contacts with that community. But if you have no none of those within the team, I would encourage and as I said, I apologize if there are and I'm just missing people's bios. But that will be the other aspect is to make that a, a real kind of take that as scientifically and scholarly seriously, as you're taking everything else. Thank you.

H Holly Norton   1:56:51
Thank you for now, no. Next up, we have Monica.

M Monica Granados   1:56:58
Yeah, just to go in, in order of what the feedback that you're asking for in terms of weaknesses, which actually probably comes from your strength is that there's so much going on, that I think it's hard to keep track of how each persona or construct of a persona can engage in this program. And even just looking at the at the the training, I would, I would love to see it spelled out really well, in a way that I don't see that in the website right now. You know, speak speak to me, like say, if you're a researcher, here are the different places that you can engage. These are the different ways in which you can take this course. You know, there's been a common here for librarians, how if I'm a librarian, how do I come in and interact with all of the material that you're producing? One of the strategies that we took at the open climate campaign is that if you go to our get involved page, you will see that there's specific, like sections for different groups with the idea that if you identify with that specific group, you're the actions that you can do to get involved in our project. I wonder if something like that for NASA tops, so that you could see, you could have certain things that are a little bit more tailored. And then as Jim mentioned, it, it'll be in one place habit, haven't been federated, so people can find it all in one place.

H Holly Norton   1:58:28
Thank you. Next up, we have Shoshin.

Q Qiusheng Wu 1:58:33

You have a chromosome more about the logistics, or the implementation of this. So right now, the tops GitHub is under the NASA like you have account, I was wondering if it makes sense to have like, a standalone like, tops, NASA and also like you have organization. And so in that way, it's much easier for people to engage, you can also create, also for the courses like different curriculum right now is aspirated in different places. And so it might become a little bit training to manage or update in the future. So you'd be nice to have a sense of example, GitHub organization, like tops. And then within there, you have the top to website and then different causes. So basically a central location for everyone. To the point to otherwise nightmares. I have so many repos. And you only have this one, but you're pointing to others. So I was thinking they might be easier to manage. And you can also integrate you have classroom and also discussion board, because in this organization, you can add members. So if you're trying to have advocate, for example, Ambassador for the program, I mean, when people go to this GitHub organization, you see that list of people and then so table within the membership, you can also have a private way for people to discuss, for example, laws. advocates like what they're doing or any boys practices, they can ask questions only. You have discussable is motive. To add people to the NASA, I mean, GitHub organization account is probably much more neuticles to security or something. But if you're independent, you have more control. And that's one thing. And the other was, I was thinking about is to echo some of the comments that people are asked earlier. Like, we have different identity, we have different roles. So right now, if you have on the page, you have different sections, if you are researcher, like read this, if a student you want to learn this, like because it's like different requirements, even aspects, so if you have like resources, students, or an administrator, or no nonprofit, or maybe a librarian, but what you want to do, because right now everyone's using the same document, but sometimes you need to be more customized, right? So you can have a section of like, say, for examples, right, or certain resources doing this, right? If you are doing this either same category, you can follow these examples. And if a student you can do this, and so they might be easier for people to follow example, otherwise, like we have done this, and then after the community forum is over, so where do I go next? We have the pace. But I want to attend this to my classroom, I will know to teach this in my university. Where do I get started? How can I attend the Material button is everyone's using the same material. So there might be something that we can think about. There's no like, weaknesses, I think, just some potential room for improvement.

H Holly Norton 2:01:39

Thank you for sharing, that's actually a great transition to our next one, which is opportunities. So any suggestions or ways that people think we can improve within our year of open science module content development, or move development, or the tops program? Any any potential opportunities there that anyone can identify that haven't already been mentioned? multicam.

M Malvika Sharan 2:02:11

And this would probably relate to also day two, but I think because we're talking about the development today, I think we haven't mentioned project based learning. I, in some of the projects, we we create projects for people to work on in order to contextualize what open science means to them, I think very aligned with Fernando was saying that, you know, in order to understand practices, you need to understand the process. And in theory theory says they

can learn what you're teaching, but they would learn a lot more, if they're applying it. So maybe thinking about what opportunities exist, maybe these project based learning can be created by generating some projects around NASA tops missions, as in getting people involved in NASA tops through the learning process, however, that contributes directly to the goals and KPIs that NASA has. But it can also be aligned to some of the big program that have bigger goals. So the Sustainable Development Goals that NASA is contributing towards, I think they, they would absolutely be transformational compared to simply relying on book.

H Holly Norton 2:03:24

Thank you. Next up, we have Jim. Thanks.

J James Colliander 2:03:29

So I'm aware of NASA, massive impact in citizen science and outreach to children. If we fast forward, say 10 years from now, you know, it's that are just learning about what an exoplanet is, are going to be in university. And so I feel like there's a big opportunity for the OSI initiative to integrate with the outreach efforts around the Artemis program. And the wider NASA outreach activity. I know the near term focus is to try to hit early career researchers and get the OS 101 badges into those folks. But five years from now will come quickly. And 10 years from now will also come quite quickly. So I'm kind of reminded of that powerful quote by Bill Gates that says people tend to overestimate what they can do in one year, and underestimate what they can do in 10 years. And so I feel like aligning some of these efforts with the overall outreach and citizen science activities is a big opportunity that I don't see integrated into the current strategy.

Chelle L. Gentemann 2:04:47

That's a great point and then actually brings up a conversation we were having recently about the bringing in that excitement of the younger generations. Thank you. Logan.

L Logan Kilpatrick 2:04:59

Yeah, one minute flag, something that came to my mind as we were thinking about, like, you know, you we have this long time box on all these activities and like the goal is 20,000 Scientists trained in the curriculum by the end of 2027. But going back to the year of open science and how to create that sense of urgency around, like, if I'm somebody who's doing this, like, Why do I want to do it during the year of open science? And I think there could be some really interesting incentive mechanisms, like, I'm not sure how useful this is. But going back to like, like the idea of incentivizing researchers, you know, you could have like, basically, everyone who completes the curriculum during the year of open science could become like a, I'm not sure of the specific terminologies because I'm not a researcher, but like a co author of like, this massive, open paper, essentially, which is like, scientists around the world, like being a part and like taking a stand and saying that this is like the future that we want. And like everyone who completes the curriculum can be a part of that. And if you Yeah, and it creates this incentive to like, do this now, don't wait, like we have these long time horizons, we know

it's going to take long, but I should participate in this today. And I think it'd be awesome to think about, like, what are the other incentive mechanisms to get people involved? Before the end of the year? Great,

H Holly Norton 2:06:20

thank you. And I was just looking back at day one, because I wanted to remember the discussion on incentives. And I'm glad to see that that is goal three of our year of open science for this year. So So thank you very much. Head. Pen Are you muted?

P Pen-Yuan Hsing 2:06:46

Oh, sorry, I was muted my bad. I just wanted to quickly add to what Jim said earlier about, you know, potentially expanding the Delta work you do to people who are a little younger right now who are going to become you know, early career researchers very quickly before we know it. So one is that, you know, Jim broached the term citizen science. I've been doing citizen science related research since 2014, skirty thing that's almost 10 years now. But anyway, there's a lot I can say about it. But I think it's more related to today, day three's things. So I might bookmark that for I won't get today three. But my other super quick comment is that for the K to 12, kind of level, I know that one thing, which made a huge change in my life, which literally changed the trajectory of my life was the science project I did in high school. And I was very lucky to go to the Intel International Science and Engineering Fair, which some people might know about the ISF, many, many years ago, and I got a price at the Science Fair. And I remember from the same spirit that a lot of people would sponsor prices at those science fairs. And I'm wondering if NASA can make a huge difference by not only sponsoring a prize, but sponsoring a prize for people doing open science at science fairs like this. It's just a thought. But I think that's one possible way of getting some visibility while also encouraging, you know, younger people to do open signs as well.

H Holly Norton 2:08:27

Thank you. Next up is Fernando.

F Fernando Perez 2:08:33

Yes, a few a few thoughts on opportunities. One is, I mean, you folks already funding these you're connecting Logan is here for non focus, but kind of I'm thinking, some direct engagement with specific open source teams and some communities some projects perhaps. So something great has happened over the last few years is that the open source space has gotten a little bit more organized. A scientific open source is what I'm thinking about. Right. So today, we have, for example, the scientific dash Python project, which is basically an attempt to coordinate across multiple projects that do not make like the Syfy ecosystem before Well, it kind of wasn't a viable alternative for something say like MATLAB or Mathematica, or something proprietary, but that was very ad hoc. And there's been advances recently in coordinating better that ecosystem having some strategic thinking. That's that can be a place where a more direct engagement or support from NASA worker workshops, pi open sighs and other projects

that flavor are open sigh is another one of the three they offer these often have conferences by data, Jupiter Khan, sort of direct engagement, where were the developer teams are somewhere I always have slides about tight tops and every one of my presentations and obviously I go to those places, but I think we could do more in that space. On the industry front, I'm going to reiterate, I think there's a great opportunity. And specifically, I would like to see if NASA can help us move the dial on how can we work with industry for their relationship with open source to be Parsec, participatory and collaborative rather than purely extractive because there's, like, industry has drank the open source Kool Aid full on, but it's often a combination of, I do it, but I maintain strategic control, or I do it in order to high find who the best people are, and hire them, and then put them behind my wall so that they now work for me, right. And there's many, many examples of that. And so creating a culture where industry sees that it can that it needs to contribute to sustaining an ecosystem, rather than mining an ecosystem strip mining and into the ground, which often happens to be very blunt. Then on opportunities for engagement, on the linguistic diversity side, you've mentioned HBCUs, and minority serving institutions, there's a specific access of linguistic diversity in the US that has kind of some formal federal structure, which is the Hispanic serving institutions. I don't recall, maybe I missed but I don't know if you have a specific program in that regard. But I think that is an opportunity that has some like proper formal structure in the US that institutions are designated as Hispanic serving, and there, there's a space for engaging fully in Spanish with a Spanish speaking community, etc. And then finally, that, I know that you have plans, I don't know exactly where they are, they weren't mentioned in too much detail in these last few days, or I blanked on the academic incentives. But I wanted to kind of say that those those really need to change early. And by early I don't mean like early next week, though, that would be great. But early in people's career at the early stages of people's career, because otherwise, academia is fantastic at cloning the old guard. And I have seen early career researchers who are absolutely hostile to any open practice whatsoever. And that's because they are afraid that they're not going to get the job that they're or PI did or that they are or that they're not going to get tenure that the the famous people in their field did. And so they are sometimes they become violently ultra competitive and anti open. And these are the youngest people, right. And if they get entrenched in those practices, when they're in their early career, oh, my gosh, we have a problem long term. And so changing those incentives so that people early in their career are willing to transform their practices is is important. And that's going to require some work with like deans and department chairs and whatnot and informal, formal academic structures. It's, those were the bullets I had. Thank you so much.

H Holly Norton 2:12:46

Thank you, Fernando. Next up, we have Justin.

J Justin Ballenger 2:12:56

Unmute? Yes, I was going to piggyback on that. Hence, comments, particularly with the MOOC, there's a great opportunity for K 12. And maybe even with pre freshmen students before entering college, that we may be able to structure the the MOOC as a structured open science so that students are participating in open science, but also learning a skill as they're engaging in open science. So it's not just, you know, kind of going over the same examples that we use, typically from year to year and those not really having an outcome. But when students are learning open science, they're compiling data and what they're learning is actually having an

impact. That's tangible. And I think there's some great spaces whether that's, you know, if we're looking at a AP, scientific research course or informal learning spaces over the summer, we at the Atlanta University Center hosts the pre freshman experience, research experience for students, where students may be able to have a structured format for learning about open science but also collect that data that can be shared across some of the federal agencies.

Chelle L. Gentemann 2:14:14

Great, thank you just Okay, next up, we can move to threats so when you hear the word threats, think more challenges. This could be internal or external factors that could pose challenges to our process or or our progress.

Holly Norton 2:14:40

Mica

Malvika Sharan 2:14:44

I think they, the threat is it's having to general target audience or to general ATR idea of engaging with people will only attract people who identify with the topics you're sharing During or places you're seeing them, they feel like, although in principle, it sounds really good that this is for everyone, it would in my, in my opinion, it might need a little bit more targeted approach. So it could sometimes even mean to say, describe what is not in the scope. We have talked about a lot of thing. And I know, we've had other people from the National tops and open source Science Initiative saying, oh, yeah, this is not in the scope. And that is not in scope. I think adding that would actually improve clarity. So people don't expect that you're going to, you know, do also huge community building or provide internet everywhere in around the world, like, be very specific about what your goals are and what you're trying to achieve. And hence you will have to be selective. And that's, that's probably a lot more clarity generating idea. I don't know if that was clear. But that's definitely it goes back to some conversation we already had today.

Holly Norton 2:16:00

No, it's definitely an important point. And, and I understand where you're coming from. Next up, we have Jim,

James Colliander 2:16:10

this is an opportunity that I mentioned, I think on day one. So I think there is a perception that research and operations in the lexicon within sight of NASA are kind of separated from each other historically. And there are efforts to try to catalyze research to operations and operations to research. I believe that composable research products, and computational narratives that are adjacent to the data, present opportunities to accelerate research to operations and operations to research, virtuous cycles. This is something that I called convective knowledge as

opposed to diffusive knowledge propagation. I feel like that's a significant pathway to highlight societal benefits of scientific advances. And those advances are accelerated through the opening of science. So I think there's an opportunity for the OSI initiative, generally, to try to lean into that and showcase this knowledge, acceleration to achieve benefits of society. And that also possibly has wider impact across the various agencies that are seeking to leverage the impact of research on, you know, human benefits. So I think there's an opportunity there to celebrate open science as a pathway to yield the benefits of science more quickly. Great. Thanks, Jim.

H Holly Norton 2:17:50

Anything else for day one? Before we move on to day two?

Chelle L. Gentemann 2:17:57

Do we want to we have about 10 minutes left for this session? Do we want to combine sort of day two and day three, and maybe focus mostly on sort of weaknesses and opportunities that the panelists see, since we only have a limited number of amount of time?

H Holly Norton 2:18:16

Oh, Fernando.

F Fernando Perez 2:18:19

Yeah. And I apologize, I hadn't written down my threats, day by day. So I just, I just have a couple of bullets. To me. One of your threats, I think, is sustainability. Obviously, the and I think I'm thinking both long term and medium term long term is past kind of the funding period, how to ensure sustainability of these ideas and kind of the lasting, and obviously, some of that is funding. But it's not only funding, and everybody who works with unlimited budgets, worries about these things. I'm not telling you anything new. But but it's still worth flagging. Immediately, I would say medium term, I apologize, this is being recorded. And it won't be a surprise that I'm outing myself as a liberal. But if there is a change in the federal administration 2024, what has been going to happen to a program that emphasizes ideas, such as democratizing knowledge, making science accessible to all of society, diversity and inclusion across society with these ideas, the like planning, at least having a contingency plan for what would happen with a change of federal administration, potential budgetary impacts, I think is a wise thing to do. And I can say that so that the NASA team doesn't have to. And and the other one that I'm thinking of that worries me a little bit is that we could get to sort of what I call Potemkin village open science that people basically may say, oh, my gosh, these open science, people that are kind of winning the political battle, so I'm going to do I'm going to do the things that need to be done so I can check a box and I don't have to change my practices don't change the culture. And so Have come empty compliance in a sense that, that we may kind of when the wrong when the wrong battle, right we we win the checkbox battle. But we don't really get a better culture of participation, collaboration, doing things in a more fun way. It's hard to address that. But I'm kind of just listing things out. And then the last one, what I had

was that n squared is a hard thing to deal with. Which, by which I mean, communication, all to all, one of the challenges in open communities is that you want to give everyone a voice. But when the number of potential participants gets big, when n gets big, and everybody can potentially talk to everybody, and squared is that thing goes up really quickly, right. And so building a structure for your community to operate for information to both go out, and especially to have those feedback loops that are so meaningful, and so important. But you can't have I mean, you physically can't happen in a cacophony of kind of n squared links, all active at the same time. Algorithms, people have known that you change that by doing hierarchical algorithms that break down that to n log n, and you have three approaches. But it's hard to put that in practice in an effective way, maintaining the sense of community and a real engagement, when you're trying to balance that with kind of the all the voices at the same time. You've done a great job so far. But as you get bigger, I think that's going to be a challenge. Those were my three bullets. Thank you. And sorry that I that we're not organized by date,

Chelle L. Gentemann 2:21:24

no worries, that actually helps, because we are going through them all now. So no worries. Next up, we have Jim.

James Colliander 2:21:35

So I predict that there will be a crisis emerging under tops when an early career researcher gets scooped, or perceives that she has been scooped. And then calls out the dynamics around open science, creating a career crushing moment where her result her data has been shared, and someone faster or someone you know, steps in. And because of the open strategy, this person's career gets harmed. So this is a significant threat, because there is a media storm that could emerge. And naysayers that defend close practices can rally around defending this person. So I advise that the NASA tops team strategize around that, how are you going to handle that circumstance? And there may be ways where a diversification of credit for the scoop to work is somehow celebrated as a success. But you should anticipate what that looks like and prepare for the rebuttal. Thank you. Thank you.

Holly Norton 2:22:52

Any other comments from day two or three? And I can go back and forth if people need a reminder of the agendas, discussion points?

Malcolm Glover 2:23:09

Well, we could

Malvika Sharan 2:23:15

think that portunity, I would call out when opportunity is understanding that open science is the mix of both technical and transferable skills. So a Jupyter Notebook wouldn't solve the problem

mix of both technical and transferable skills. So a Jupyter Notebook wouldn't solve the problem of me winning an argument against open science in a drum. So making sure that we are building that skill in our students and learners. One of the ways that I have seen some communities do really well, in fact, some funders do really well is that they provide extra supports for their funded projects. And maybe I'm using the example of funded project, but you can really apply that at the learner community as well, is building their professional skill, building more opportunity for them to build new projects and engage their community building their skills as community leaders, giving them tools to give speeches and presentation about NASA tops. All of these are extremely valuable skills. So I think sands one is great, absolutely important the material you're building, but just really understanding that open science is absolutely important transferable skills, some of the training about the carpentry string, the trainer, I delivered that for the team that I lead, which is a team of community managers, because I think it is really important to have those skills in order to interact with people and build a community not just teach. So making sure that you also bring in people and train the trainer even if they say oh no, I don't want to teach that's okay. If they want to do open science, it will teach them some skills in that particular room. So use the train the trainer materials not just for building new trainers, but even you know, furthering the skills that the learners have. Also One point have been brought up vaguely by a lot of members in the panel is, when we are trying to build these learners community, they would come from very different backgrounds and domain expertise, I think we need to also focus on the strengths that they are bringing in the classroom and allowing that to happen. allowing people to share their own ideas with other learners, I, then I struggle, how the MOOC can do that. But one of the power that, during way, or OLS have is that our community member come from all around the world, from low income country to high income country. And they tackle same scientific problem from a very different lens. And that is absolutely valuable and crucial for our communities to learn from each other. So I really would like NASA tops, think about how would they create those moments of learners learning from each other and building connection? Because that would be absolutely important that some points have been brought up about assessment framework, if the traditional academic assessment framework wouldn't change, it would be really hard to implement open science. Specifically, again, I'm talking the same point about systemic and structural barrier, understanding why a member of marginalized community wants to attend these training, which may potentially cost them some money or some income or mental support for that. What is their incentive, asking those incentive? Because we don't fully understand what everybody's single individual incentive might be. And then embedding that into how we do structural level change. So it's a bit of combination of you know, how do you engage with community at the grassroot level, but the advocacy you all are doing through a year of open science engagement with government and big organization? Those are both really crucial. So aligning them, not letting them happen to independently of each other.

H Holly Norton 2:26:58
Thank you, Justin.

J Justin Ballenger 2:27:05
Yes, I think there's a tremendous opportunity, with NASA being the influencer, that it is to start embedding Open Science at organizations, I assume that this is supposed to be like a catalyst for getting universities industry for to adopt open science and embed it into the way that they engage in inquiry. So maybe incentivizing like building some of these ecosystems for open

science and providing frameworks for institutions to incorporate this into the curriculum at their institutions. Because we know that there's, you know, kind of this pool right now for the college degree to show its worth, and to keep up with industry. And I think this is a, you know, a moment in theirs, where there's a shift in science and what's going to happen in industry, we're NASA could really lead the charge on having institutions connect to this and incorporate it into the way that we do business, either in terms of again, with the academic training that that's happening, or building those research ecosystems among institutions that are engaged in open sciences so that they have the incentive to do so. And that they are following a national lead organization and doing that, so there's a an impetus to get it done.

H **Holly Norton** 2:28:40
Next up is shake

S **SherAaron Hurt** 2:28:42
you. Oops, can you hear me? Yes. Okay. Um, one of the things as we've talked about, which is accessibility, and, you know, making sure that we do what we can to, you know, when we talk about open and just making it being available to everyone, you know, what about those, you know, areas in which it may not be as open or they don't have the resources. So, you know, thinking about what we can do in our local institutions, or, you know, using NASA as that, you know, as that resources and making sure that, you know, when we say it is open and accessible, making sure that our material, the internet and everything is accessible for everyone.

H **Holly Norton** 2:29:34
Great, thank you. Next up, Jim.

J **James Colliander** 2:29:40
Speaking once again to threats. We can anticipate that there may be a another nation outside of the United States that uses NASA open data, and maybe advances from open science in a military strategic way that is perceived or Perhaps accurately significant threat to the national interests of the United States. So I encourage the Topps team to anticipate such a scenario because the benefits of open data in say, managing the hydrological resources in Pakistan, or, you know, the emerging development and improvements for society across Africa using remote satellite sensing data, I think these benefits are overwhelming. And, you know, when I look at the moon, I don't think of it as owned by the United States, I think of NASA going to the moon as really an earth a global celebration. And I think NASA is seen globally, as you know, an ambassador and aspirational organization that brings together humanity in a remarkable way. But NASA is also a United States federal agency, and functions within a military strategic situation where openness may be perceived by some to be a risk. So when there is an application of open science that is perceived to be risky, there should be a rebuttal planned, we need to have vigorous defenses of openness, even when there are consequences of it. Like I've described.

H Holly Norton 2:31:20

Great, thanks, Jen. And Shawshank. I'm gonna move to you. But before we do, we are up against break. So we're gonna take showings, comment, and then we're going to take our break. And this is a really great conversation. So after our break, we'll then come back and continue our conversation. So, Shashi,

Q Qiusheng Wu 2:31:38

yeah, so just quickly, I'm thinking about, so our goal here is to train like 20,000 people. And I'm thinking that some of the similarity between the university when I mean, students graduate, right, we have some kind of alumni that we can have the communication with Anna. So basically, once people pass the curriculum, get the base, maybe you can have some kind of a GitHub group or organization something they pay, people pass, and then they get put into there. And so in that way, you can keep track of who, for example, after people graduate, they get a job, they go to a company and blah, blah, blah, so you can keep their laws and then you can, in the future, you can invite or have some unused data, highlight some of the achievements of those people that have passed these calls and what have been doing. And so you can have new data on the website or highlight the achievements. And also maybe some kind of incentive, for example, every year have maybe a couple of the awards, something for individual organizations that are doing good work on open science. So in a way similar to like what we do, I mean, the university after people, graduate alumni network distinguished alumni, that we invite them to come back to the universe to give a talk or something like that. So that might be something incentive for the user even after they graduate or pass this course.

Chelle L. Gentemann 2:33:10

Great. So we are now going to take our 15 minute break, it is 250 Here in at we'll be back at 305. So we will see you then to continue our discussion Thank you. Okay, welcome back, everyone, to our final segment of our tops community panel for the week, we are going to continue our discussion with the SWOT analysis. And then as we wind that down, we can open it up for a more general discussion of not just our SWOT discussion, but also overall for the panel itself, and any other feedback that you would like to provide. But before we jump back into the specifics on the SWOT, I wonder if I may ask specifically to the panel. I know we've gotten a lot of great feedback on our engagement strategies, both things that we have done up to date and plans for the future regarding our newsletter and and other methods of communication that we have in the works. But I was wondering if there are any other successful best practices on engagement that our panel would like to suggest as feedback? Up I know this one was a little out of left field. So if you need a minute to sit and think about that one, oh, wait Malpica

M Malvika Sharan 2:35:12

going to actually take this response from, from the link that you're sharing for community where Laura ASEAN has mentioned specifically, what are the plans for engaging with the global south communities and countries? Because as we understand that there are collaboration

happening with international organization, and of course, the designs one on one is happening for the US based learners. But at the NASA tops level, what are some plans for engaging there? She has specifically mentioned the DIA matrix, how does that embed those in the deliverable and goals?

Chelle L. Gentemann 2:36:00

Yeah, thank you, Malavika. We are focused on the US right now. And, you know, NASA has many international partners. And there's a office that we work with to engage with those partners. But science is international. Right. So while our initial focus right now is on the US, you know, we are looking at, and trying to be intentional about how we think about just essentially capacity sharing and providing resources at this point, I don't think that we have the capacity right now to really partner in an on an international level. And I'm not sure that, you know, NASA tops would be the right federal agency or the right group to do that. But we are, we are trying to think about how to set this up for success on a global level, if that makes sense simply by providing resources and seeing what we might do in the future. But we were trying to be thoughtful, but we are focused on the US right now. But I see you have another maybe a follow up comment.

Malvika Sharan 2:37:18

Yeah, just one to actually remind you shall we have been in a conversation together with you? And I'm sorry, African open science infrastructure. Fellow from Latin America, I think those the engagement could simply look like holding a common space and sharing these practices and exchanging with each other doesn't have to be, you know, very, very. Yeah. I mean, it doesn't have to be in the level that you're saying. And I just wanted to remind that you are doing that, and maybe it's worth highlighting them and putting that explicitly in the plans that we're building from this call.

Chelle L. Gentemann 2:38:03

Thank you. Yeah, we, I mean, you know, because we're in some of these conversations together, that we are trying to engage and learn and listen from these different partners. And I think, but I agree, like, there are ways that we could possibly platform, especially when we tell open science success stories. And so we will think about this more and see what we can say, you know, how we can try to address this in the future and what we can do in the public. Thank you.

Holly Norton 2:38:44

Does anyone else have anything to add? Regarding recommendations, not recommendation so much as feedback or ideas for better engagement for best practices of engagement? Oh, yep, go ahead, Fernando.

Fernando Perez 2:39:09

Fernando Perez 2:39:05

Very briefly, kind of a little bit piggybacking on what you folks were just saying, that don't underestimate the weight that you carry and the impact that can have. So I recognize that for a million reasons, you don't have the bandwidth to take on the whole world. And you also feel like federal legislative reasons can't spend some of your resources outside of the US and that's completely fair. But in some cases, that the prestige of NASA and the value of what you're doing and something so well done with this structure, very little things and I know you do these, but I kind of want to come Inshallah, I know you do these things because you've done them for me, but I want to convey this to the whole team that sometimes very small things that you can do almost accidentally, can actually have a big impact and help and when somebody is going to advocate For these ideas to a Latin American government, one of our universities in Colombia, etc, when I, when I go there on Monday, right? Simply being able to carry that voice of NASA doing this already has an impact. And so there's things you can do that will help a lot, just by the weight of who you are, without committing you to a significant engagement that would stretch you beyond what your scope can reasonably realistically be.

Chelle L. Gentemann 2:40:25

Thank you. Yeah, and there's, there's, you know, I do want to say that one of the things that was on that table is the global space apps, which that's a, I think, an example of where we're trying to reach out to local, a, sort of a newer global community for us. I also know that there's other agencies in the US who are really working this international side, and that there will probably be a lot more coming out in the future about that. And, and yeah, Fernando, I think that this goes to that conversation about us being able to provide I Monica, I looked up on the climate campaign, the Get Involved website, and I put that link in our notes, because being able to just point people and provide those resources and those packages to make it easier for people not even to have to ask permission, you know, to just have these resources available for anyone to adopt and reuse. And being able then to like, ask them to let us know what they're doing. So we can try to platform their activities. And just You're right, these, Fernando, I think you're, you really are so right, that often. It's the small interactions that somehow you never would have predicted. It's very hard with, you know, we do our SWOT analysis. And then it turns out to be one conversation that you had on an airplane with someone sitting next to you. And you know, that changes your life. But thank you, and we will continue thinking about this pen, I see your hand.

Pen-Yuan Hsing 2:42:05

Yes, thank you. I think I've muted myself correctly this time. Just to build on what Fernando is saying and coming back to the question of best practices. So my initial response to Fernando and Movidius comment about the international aspect is that my, my father is old enough to have watched the first moon landings in real time. And he is not a scientist, but he grew up in abject poverty, but he still remembers one of the key moments in his youth was watching, you know, how, you know, huddled around a tiny black and white television watching Neil Armstrong landed on the moon. And he was doing this from, you know, the opposite side of the world of the US. And they make such an impact on people all those years ago. So So NASA is huge standing and the recognition that well, that I think, is worth making use of. But anyway, the best practice that I like to share is it's a fairly simple thing, my opinion, but it might require some thoughtfulness, which is, in terms of the choice of words that are used in communications, what I mean is, for example, it's not just about like, inclusive language, but

it's also thinking about terms that people are familiar with even English, right. So for example, when people talk about federal agencies, and everyone knows what that is in the US, but for other people, or countries, or people around the countries, it might make more sense to say, Oh, it's a national, you know, government ministry or something like that there might be more generic terms, that's more understandable if other people were, for example, the term r1 University came up a lot over the past couple of days, I haven't seen the term r1 used anywhere else in the world. So there's just a lot of like little bits of terminology all over the place, that could be optimized to make you know, the outputs from this incredible effort that much more accessible to a international audience. So that's just a little thing I like to point out, I have other comments, but her stuff on our

Chelle L. Gentemann   2:44:12

page, Martin, when she joined our group, she was watching us give a presentation, and she said, you use a lot of acronyms. And I said, What are you talking about? And then I started and I think I lost after I reached 20. In five minutes. I was like, okay, yeah, I see it now. It's very true.

H   Holly Norton   2:44:37

Thanks, washings. Next,

Q   Qiusheng Wu   2:44:39

yeah, I was thinking of some other potential opportunities. So it's great to see that right now. You have like overfitting federal agencies, like join open science momentum. And I was thinking that we know NASA top team has done a lot, but also we have some other federal agencies join I'm efforts. But is that possible to egg some of the highlights that each federal agency is doing like what actually are doing right now we know the joy, but I have no idea like what I have done like during the past couple of months or year, or after, for example, the at the end of the year have opened sighs we of course, we know that NASA has achieved a lot. But how about our agencies? Are there any concrete steps that they have done? Or do they have any landing page, for example for each of them, so that on the GitHub webpage that you can link to each agency that what they're doing? So in that way, people really see that, oh, this is real effort, rather than just adding a name to the list, right? We have you kind of along these lines, we have a lot of people that sometimes not maybe everyone is doing their efforts. And so it'd be great to highlight some of the key achievements of each agencies. And so they in a way you can read more. And the other is echoing what Fernando just said that sometimes he doesn't, although right now, you're focused on us, but doesn't mean that I mean, have no, it has no impact on the international community. It does. So why some of the examples will be if you look at those popular, for example, Python packages, machine learning, deep learning, right? TensorFlow titles, like they don't actually mean to have training, or they focus Development International. But if it's really good, you will see more and more that community is building up people from the International Computer will contribute. So if you go to the GitHub API base, they have like 10s of 1000s of people contribute. So if people if you have this momentum, people see the value. And it's open people we make it we contribute. So in that way, we build

up gradually. And it doesn't have to specifically right now, if you don't have the resources to focus on international development, but in the US, if you set up the example, people will follow, and then people will contribute. Thank you.

Chelle L. Gentemann 2:46:57

Thank you, I put a link into the chat, to open dot science, that gov, which is the website where the federal agencies that are part of the yearbook and science announced their activities. And it's actually our updates are due on Friday. And I think on Monday, it'll be updated. It's updated quarterly. But it's a really good point. And so the NSF comms team is that NSF there's a comms person there, Lisa Joy Zurawski, who is actually leading an effort to get the comms teams across the agencies organized so that they can do more of this, highlighting about the activities for the year of open science. So I think that she'll really appreciate your call to action shushing so thank you.

H Holly Norton 2:47:46

Thanks. Moving on to Monica.

M Monica Granados 2:47:52

I think I want to sort of give the opposite advice, a little bit of what I've been hearing about the the international collaborations. And it's really sorry, I was just getting a phone call. I'm putting myself in your shoes. And understanding that like you have a very defined mission objective, very limited scope, and time. And that you have to focus on that scope. And the limited time that you have to deliver this project, and the more things that you take on the higher risks, you will have to not meet those deliverables. And I know what that is, like, because I'm running a similar program will those much more scaled down, and that, you know, while I want to serve as many people that fit under your potential potential target groups, for open science, I know that I have limited resources, and the more groups that I look into integrating into the project, I'm going to have less resources to serve the target groups, and I didn't we haven't picked the target groups, you just you just laid out a plan, right? You're not picking them randomly, you're picking them because there is a strategy there is that if we engage with these groups, the consequences will be that we will get, you know, to our to our objective. And so, you know, I think my advice is like stick to your strategy. Stick to your strategy, because it was developed very intentionally, and that there can be some it there can be some small changes that can be made. As long as you think about when you make the change. Is it going to help me get to that goal at the end of the like five year mission. And if it's not that that does sound great, but what's another group that could come and do that? work. And so I think a good example is someone mentioned the international work. The open climate campaign does work, for example, on that international scale, right. So you could point to again, for example, the open climate campaign and say, you know, we this is not our stakeholder group. But there are are there organizations, there's methods of Sensia, who's working, you know, in Latin America as the open climate campaign that does want to work specifically with national governments outside of the United States. And then vice versa, like, I know that you folks are training researchers, I don't have the capacity to train 20,000 researchers, but I want to send them your way. And so to think about how, like, we have strategies, and like, we want to serve as many as

possible, I know, there's a lot of potential there. But we have to keep within the bounds, or we will threaten the success of the project. And I think that's important, especially if you haven't been involved in a project like this. It's really important to keep that in mind. When you think of when you think about changing, changing the strategy or adding, adding work to it.

H Holly Norton 2:51:07

And another thing to add to that is to remember, as I brought up, we have those 15 federal agencies, and one of them is the Department of State. So it's important to note that we have a lot of different resources within this year of open science to to have every agency play to their strengths. And I think that echoes much of what you just said. Next up, we will have Fernanda

F Fernando Perez 2:51:38

maybe reacting a bit to Monica's comments the way I would think about that problem, because I think she's complete. I agree with Monica, that you need to be careful, careful. And you put already a lot of time, your strategy, the way I was, perhaps framing or the metaphor that I would use in this case is a chemical one is ask yourselves, where are you? Where do you need to be the reagent? And where are you the catalyst? Right? There's places where you're the cap, just being the catalyst is enough your your presence without expending yourselves, in a sense, will activate reactions that can have a lot of impact. There's places where you need to be the reagent, right? It's your direct work that needs to create a change. And that in your strategy should be focused, when you spend what you spend resources on where you need to be the actual reagent, because you will be kind of consumed. But there is actually a lot where where as a catalyst, you can probably cause a lot of positive impact without expending core resources. And so that's how I would think about it. But definitely, I think I agree with Monica that with these things, it's easy to get carried away, and then end up in debt spread dangerously thin.

Chelle L. Gentemann 2:52:52

Thank you, as we're getting towards 330, do we have the next slide. I just want to take a minute to thank everyone, again, for participating over these three days, I know virtual panels can be hard to be on. And we really appreciate your engagement and your feedback. The next steps. So as we're wrapping up, we're gonna we've been taking notes on all your comments, we will be updating so the final version of the PDF and the denodo record will be updated probably later today. And we have transcripts that will be created, and will create sort of a summary report. And we just wanted to remind you that for each of these panels, about a month later, we try to have a final report with the formulas that some of the feedback that you've given us during this panel. And it doesn't require consensus, but we're hoping that you'll able to work together to create constructive guidance. And we will be providing a link to a shared document through the Slack channel in the coming weeks. If the Slack channel doesn't work for you, please let me know via Slack. So I can make sure please send me an email if it doesn't work. And you need me to provide it via another mechanism. But we often use Slack as the default. So unless that doesn't work, let me know. And we're hoping to meet the July deadline, so that it will help inform the next six months. And again, we can't like having the opportunity to get advice from all of you who are such inspirational leaders to us. The work that

all of you are doing with your communities has really inspired this entire project. And we feel really lucky to have you provided this feedback to us and your time. I mean, we all know your time is so valuable. So thank you very very much and we look forward to hearing we will Look forward to the final report. And we'll be in touch again. Thank you very much. Thank you everyone and have a good weekends

P Pen-Yuan Hsing 2:55:17
so, thank you, everyone. Thank you. Thank you, everyone. Bye bye