

30. Viets, Hood & Maizel: PM in the Federal Government – Navigating Complexity

0:00:00 Kendall Lott: Many of us in the project management field have dealt at one time or another with the US Federal Government. Whether you're a government employee or a contractor, or even a citizen, the Federal Government presents a unique set of issues. And then each department, each agency, has its own peculiar culture and work requirements. Whether it's budget cycles, dealing with sprawling networks and institutional hierarchies, access to information, or just trying to get the wheels turning.

0:00:29 KL: The sheer size of the federal bureaucracy challenges even the most seasoned project manager. Just knowing the acronyms can be a bit of a challenge. It's complex. In this episode, I speak to three government insiders in three very different agencies: The National Park Service, NPS, which is part of the Department of the Interior; the National Oceanic and Atmospheric Administration, or NOAA, in the Department of Commerce; and the National Aeronautics and Space Administration, which you will almost certainly know as NASA.

0:00:57 KL: You may not know that it is an independent government agency, unaffiliated with any cabinet level department. With these speakers, we cover a once-in-a-century communications campaign, a program with projects that support scientific discovery and data collection, and the enterprise approach to consistently running some of the most complex missions in human history. And, like all projects, you will hear the focus on stakeholders, communications, risk and quality and their financing, waiting on congressional action, is very different from the commercial sector. So, let's find out how they do it.

0:01:29 Voice Over: From the Washington DC chapter of the Project Management Institute, this is PM Point of View, the podcast that looks at project management from all the angles. Here's your host, Kendall Lott.

0:01:41 KL: Alexa Viets has a background in transportation and community outreach. Before coming to the Federal Government, she managed state and local municipal projects, as well as urban design projects. Currently, she is the Centennial Coordinator for the National Park Service, serving as the Head Project Manager for the Park Service's 100th birthday efforts nationwide which are taking place throughout 2016.

0:02:02 Alexa Viets: The National Park Service started planning for the centennial, 2006. We actually initiated some of the programs that we are still implementing, including things like Centennial Challenge. I took this position in 2012. So we've been planning for several years.

0:02:17 KL: So we're past planning a little bit. We're in execution phase at this point?

[laughter]

0:02:20 AV: We're absolutely in execution phase although there's planning right up until the very

last moment, right? So, it's always a mixed bag.

0:02:27 KL: This is more than a party, more than an event?

0:02:29 AV: Yeah, and it's the role of the Centennial Office to help connect those dots and make sure everyone's focusing on the same goals, coordinating some of that outreach and messaging around it, and really trying to help everyone spotlight the good work they're doing. We actually have hundreds and hundreds of events that are happening across the country. Everything from music festivals, to film festivals, to youth summits, to special hikes, to new trails that are opening. Those are largely local and being managed locally. So again in that case, our role is to try and spotlight those activities, connect the dots so that the public can understand all of the ways that can come out and enjoy the anniversary as a special way to celebrate their parks.

0:03:15 KL: Now many of those parks would have their own public affairs space. And so, are you an amplifier of those? Or are you connecting or causing new stakeholders to become engaged, new audiences?

0:03:27 AV: Others on my team actually work with the local Public Affairs team to amplify and spotlight, but also by adding a layer of staff dedicated to the Centennial, we're able to service a primary point of contact for national media who are interested in our anniversary activities, and essentially help that media understand where are the best fits for the kinds of stories they're interested in, and help direct new media that hasn't necessarily paid attention to the National Parks in the past to learn about our activities.

[music]

0:04:04 KL: I was looking on your website. Your mission around the Centennial Office is to connect with and create the next generation of park visitors, supporters and advocates.

0:04:13 AV: Yes.

0:04:13 KL: Did I get it right?

0:04:14 AV: Nailed it.

0:04:15 KL: Okay. So you'll know when you succeed maybe when you have more park visitors, supporters and advocates, right?

0:04:21 AV: That's correct.

0:04:21 KL: Okay, good. So, how do you measure that?

0:04:24 AV: We're measuring that in a number of ways. So, there's some of that that could be measured in a short-term. Much of it will also be long-term measures. So, the Park Service is looking at our own standing social science survey work, how are we gonna be doing that differently, and continuing to improve upon that program, looking forward so that 10 years from now, we can see, for example, what kind of impact we've had in terms of reaching younger audiences, in terms of our visitation, or more diverse visitors, things of that nature.

0:04:52 KL: Are you able to get demographics on age and type that way?

0:04:55 AV: We don't have that kind of data in terms of daily visitation, no. But we do do some extensive surveys of the American public via phone and other format that we have basically a schedule every 10, 'x' number of years. So, we'll be looking at how we're gonna change some of that formatting moving forward so we do collect information on people's social backgrounds.

[music]

0:05:23 KL: The Call to Action: The things we should be doing in our next century.

0:05:26 AV: Yeah. That's why we should...

0:05:27 KL: Tell me about the Call of Action.

0:05:28 AV: The Call of Action is really the roadmap for us across the entire agency of what it is, to use your words, that we need to be doing to get ready for the next century. So, whether or not that's our resource stewardship at the Wildlife Management, what is it that we need to do differently looking forward at our Wildlife Management, to upgrade our practices, to make sure that we're meeting the needs of visitors in the future. A lot of that might be digital, for example. How is it that we need to shift our programming to include more digital content, and not just about the face-to-face experience that someone will have in a park. How can they learn about these parks that belong to them on our website, on our social media.

0:06:07 AV: So, the Call to Action spans really every part of our organization and it's that roadmap for each one of those pieces to be looking forward and to be moving forward on very strategic, specific things that were designated through a planning process from the staff. Another great example would be water trails. The National Park Service has a phenomenal system of terrestrial trails. We're actually starting to designate National Water Trails. That was an initiative within Call to Action. So, the teams who work on trail management and trail design and planning have instituted a whole new program and they're looking forward, thinking where are those waterways that people can explore by canoe, paddle boat, kayak, that they might want to specially designate as a National Water Trail.

[music]

0:07:02 KL: So, as you were invited to take on this challenge, how did you address scope and stakeholders?

0:07:09 AV: Probably the very first role was to sit down with the leadership of the agency and with our partners and define those things.

0:07:15 KL: What kind of partners are you referring to there?

0:07:16 AV: Partners for us includes a very broad reach. We have a lot of philanthropic and non-profit partners that provide additional funding and support for programming and other projects. We have operators within the park, whether they're concessionaires, or educational bookstore operators.

We have advocacy partners, Sierra Club, organizations of that nature. And we have youth program partners. We hire a lot of seasonal and youth employees and much of that hiring is actually coordinated through groups like the Student Conservation Association.

0:07:48 KL: I see. So, these are your partners to help bring them to you.

0:07:50 AV: These are our partners and volunteers and without all of those sorts of organizations, the parks wouldn't operate in the same way. We couldn't do it without them. So, this anniversary is about all of our collective work and how we all look forward together. That was a very big undertaking, right out of the gate actually, to define how do we engage all of those sorts of organizations, again, nationwide. We have a number of those, Sierra Club, who might be a national organization, but locally, Big Bend National Park might have their own local advocacy organization, and philanthropic partner, and youth program partners. So the layers are quite large and it's been an ongoing effort throughout the process to make sure that those stakeholders not only have had a voice, and felt like this is something they're a part of, but that they are also focusing on the same goal and the same messages and the same efforts that we are.

0:08:44 KL: Is there anything particularly difficult about that stakeholder engagement?

0:08:47 AV: That's a great question. It's geography to a certain extent, simply getting the same level of engagement and communication across the board nationwide at all levels is always a challenge...

0:09:00 KL: 'Cause you are looking for their input...

0:09:00 AV: We're looking for their input and their alignment...

[chuckle]

0:09:02 AV: And that is a communication challenge but it's also a challenge of management, right? So, we ourselves are a diffuse organization with many, many offices. And so, making sure that our own leadership at all those layers was having the conversation with their local partners about this opportunity and what this moment is, and what we were trying to do, that in itself is a project management challenge.

[music]

0:09:29 KL: Can you give me some sense of the size of this organization you're trying to tie together for a 100th anniversary? [chuckle]

0:09:35 AV: Yeah. Well, ballpark, we have about 22,000 employees. We have seven regions across the country. We have over 400 parks, but we also have a handful of probably 20 or 30 program offices, or regional offices or the support offices. And I think I'm probably even ball-parking that a lot exactly in terms of number of program offices.

0:09:56 KL: Lots of people to talk to when you're eliciting that they wanna be part of how they celebrate their 100th anniversary.

0:10:01 AV: Absolutely. We had to essentially institute a network within the network, is what we

did. So, we designated a Centennial Coordinator in every single regional office, and every single major program division of the agency. And then, again, cascading throughout the organization, we asked each one of those parks and programs within those teams to designate a point of contact. 90% of this is a collateral duty, it's not their full time job, it's simply an added duty, and you hope you've picked someone who's passionate enough to really carry it and run with it. For large parks like Yellowstone or Yosemite where the level of activity on a daily basis is already so high, they may choose to actually designate someone just to handle this kind of thing. But, by and large, it was an informal network, but I think a really successful model for us. Because what we really focused on was empowering them, communicating very, very routinely and openly with them, and utilizing that network to again, get that message out about what it is we're all trying to do and aligning our efforts.

0:11:12 KL: Where did they get the requirement for the 100 year anniversary? Was that coming from your office or was that coming somewhere else and then you stepped in as the coordinator?

0:11:20 AV: From the very top of the leadership, the director has said, as soon as he actually became director, he stepped in, he said, "This is a moment. This is an opportunity for us to think strategically about the future."

0:11:29 KL: So, it's actually a strategy. It's not just an event?

0:11:32 AV: Absolutely. And it really, that goes back to that Call to Action document. So each park management team looked at that document and picked a handful of things within that plan that they could implement, that aligned with the kind of work they do. So, for example, there are actions within that document to do with historic preservation. So, you have a historic site like Rosie The Riveter [National Historic Site], they may choose to look at something that has specifically to do with historic preservation. And another park, like Yellowstone, might have picked something that was more about wildlife management. So, they have their own set of strategic actions that they're taking.

[music]

0:12:16 KL: How did you look at schedule on this?

0:12:18 AV: It's pretty fluid. But we have a clear end date, which is the end of 2016, in terms of the work of the Centennial Office. For the National Park Service, for the agency as a whole, as I said, this is all about strategically looking forward for 100 years.

0:12:33 KL: It sounds like it's a beginning.

0:12:34 AV: It's a beginning for the agency. This office, the role of this office is really to help us launch that this year and make sure that those key pieces are in place. And that we take advantage, quite frankly, of an anniversary moment to highlight it and spotlight it.

[music]

0:12:53 KL: Is one of your outputs, then, going to be recommendations around some of these topics?

0:12:57 AV: Our role will be to share what the agency has learned from the effort. Some of that comes back to project management and communications and alignment, certainly. Some of it also comes back to what are we learning from, for example, increasing our philanthropic engagement around this 100th anniversary. What are we learning from the kinds of digital work that we're doing that we need to think strategically about across all the platforms, moving forward. Again, our office owns some of that. Some of that will be products and recommendations from specific program teams. We serve as a clearinghouse. We serve as sort of a primary point of contact for the public, for the media, for our own staff, to try and align and communicate all of that to our own leadership in some ways.

[music]

0:13:47 KL: Did you do risk planning? Was that required for this?

0:13:48 AV: We did do a little bit of risk planning. We probably could have done more. From my perspective, the risk issues have to do with the challenge that we face for an agency as diffuse as ours, to have staff across the country, or partners not aligned with our goal. To perhaps, for example, a risk that you have one group that looks at the Centennial as that sort of navel-gazing moment to celebrate the history of the uniform, or to create a birthday party out of it and not really think about the strategic work that they needed to be doing to meet the goal. So we do a lot of legwork to make sure that our internal communications and our management teams and our leadership teams understand the goal, are paying attention to what's happening on the ground, that that really remains the focus of everyone's effort and that we're appropriately using this moment as a federal agency.

[music]

0:14:44 AV: The challenges that it presents is, really goes back to the notion that we're still reliant upon each one of those parts of our organization to step forward and carry their piece of it. The good news is we have amazing leadership in the National Park Service. We have a director and two deputy directors who are really, really supportive and focused on this goal as well. So it comes from all angles of the leadership team. It's not just a message that our office cares.

[music]

0:15:20 KL: How will you know and what constitutes quality for this program for you?

0:15:24 AV: There'll be a number of things that we'll look at, that I'm looking for out of the end of this concentrated effort. And then again, the Park Service looking forward beyond '16.

0:15:33 KL: Right. So, two levels. Kind of, at the project level, actually in the performance of the work level, and then they're looking for the outcomes level.

0:15:40 AV: Yeah.

0:15:40 KL: Okay.

0:15:42 AV: We have a major public awareness campaign going on, called Find Your Park. We're

gonna be looking at the end of '16, and again, moving beyond '16, to understand did we move the needle for the public to understand and be aware of the National Park Service, of the programs that we provide, of the breadth of the number of sites that are within the national park system, and to understand all of these places that belong to the public. Second is that diversity and younger audience. So we know that in the National Park Service, we have a challenge. Our visitation doesn't reflect the diversity of the country. We wanna make sure, later this year maybe, but really 10 years, 20 years from now, is the visitation of the National Park Service reflecting the country in the way that it should? Have we connected to a new generation that is inherently more diverse?

[music]

0:16:35 KL: Of course, you come cruising into the rest of this, you're gonna have shutdown and release. How do you plan for that? You've been doing this for four years. So what does that look like to you? How's it feel?

0:16:45 AV: I think about it as transition planning, not shutdown planning. Because, again, there are a lot of functions that this office has served. Whether that's development of new partnerships, serving as an additional point of contact and sort of incubator for special ideas and projects, certainly adding capacity in our media and public affairs work. I wanna make sure that the momentum that we've built from this effort continues forward for the agency. I mean, I think one of the successes that we already see is the extensive amount of momentum that we're building. Not just with events and activities and ways to engage the public on the ground, but certainly with interest from philanthropic partners and other program partners who are now knocking on our door saying, "You guys are doing really cool work. We wanna work with you." So for that work to continue, there's a certain amount of transition planning that needs to happen. Understand, if we wanna continue that level of momentum and activity, where do we continue to build resources within existing programs at the agency, what are those lessons learned, and what role does the Centennial Office and the team play to help the leadership team of the agency make some decisions around that.

[music]

0:17:58 KL: What I got out of this was the focus on stakeholder alignment as Alexa highlighted the need to connect the agency's executives and partners in common messaging and goals. As she said, from all the angles of the leadership team. Indicative of the size of a federal organization, she had to create a network within a network to connect geographies with programs to craft the communications and activities that our parks need for outreach to citizens. But it's more than communication, as our government is responsible for broad issues in everything they do, and the National Park Service is addressing the demographics of diversity, as the success of the Park Service has to do with the future participation of all the nation's citizens. For more information about the National Park Service's centennial celebration, and to find out some of the cool things they're doing, go to findyourpark.com.

[music]

0:18:52 KL: Now let's talk some science. Earth sciences and drones, at least that's what I was calling them, with the National Oceanic and Atmospheric Administration, better known as NOAA.

0:19:02 Robbie Hood: At NOAA, we collect data all the time, and we use satellites, we use ships, we use aircraft, we use weather balloons, radar networks, ocean buoys.

0:19:11 KL: That's Robbie Hood. She's the director of the UAS program. That's Unmanned Aircraft Systems, at NOAA. She started her career at NASA as a remote sensing scientist using aircraft to collect observations. She then came to NOAA to help them figure out how they could use Unmanned Aircraft Systems for climate and weather research, ecosystem assessments, and improving forecasts.

0:19:32 RH: We're all about data, and we try to use data in our prediction models to help bring environmental intelligence to society, so people understand what's happening on the earth better. So UAS and using unmanned aircraft, that's another tool in the toolbox of observations we have. So even though it's aircraft technology, we're really looking at it from the data that it's gonna provide us.

0:19:54 KL: Is the word drone correct here?

0:19:55 RH: I prefer to use unmanned aircraft systems. Our portfolio includes everything from hand launch-able UAS all the way up to the really gigantic Global Hawk that flies at 60,000 feet.

0:20:11 KL: You have three major areas that you're focusing on collecting data.

0:20:15 RH: That's exactly right. Early on, about seven years ago, we looked at all of the data that NOAA was collecting and we were trying to find areas where, if we brought UAS into the agency, where could we fill data gaps that were not being filled with other kinds of observing technology, or where could we bring greater efficiencies to either lower cost or greater safety to how we're collecting observations otherwise. So high-impact weather, because we do need a lot of critical weather information. Observations over the marine environment, because we're trying to help both the National Ocean Service and the National Marine and Fishery Service, and then definitely in the Arctic, 'cause there's a lot of climate change that's happening. And climate change in general is affecting the Arctic in very powerful ways and it's just an area that we need more observations in, but it's a very difficult area to collect observations.

[music]

0:21:11 RH: My program is trying to look at how can we transition observing strategies, and the observing strategy is both the unmanned aircraft platform, but then also, the payload that you have on that platform, and then how are you going to fly it. Are you gonna fly it everyday? Do you need to fly it once a month? Do you need to fly it three times a year? Where do you need it, how often, and where is that data gonna be... How is it gonna be used? So that's what we call the observing strategy. So what my office is looking at is how do we build observing strategies that could be transitioned into the operational line offices.

0:21:46 KL: Essentially, how well will this fly, how big, how heavy, what kind of equipment needs to be on it, and how often is it gonna have to fly to get the data we need to actually feed these other services?

0:21:53 RH: Yeah.

0:21:54 KL: That do different things.

0:21:55 RH: That's all extremely important, but the other thing that comes into play is, what's the cost efficiency of using, say, an unmanned system compared to what we already have? So is it gonna help us with our cost? Is it gonna help us with our fuel, the kinds of fuels we're using to fly aircraft with? Are there observations that we can get maybe more efficiently, operationally efficiently, with an unmanned aircraft system than we could with any other?

0:22:21 KL: Every year, as technology changes, you get to rerun these calculations to find out this.

0:22:25 RH: It's something we have to update very, very frequently, exactly. And it's just like, especially within the smaller UAS, the ones that people see about in the news, those are changing so rapidly. It's just like a smartphone or a laptop. It's like, as soon as you buy something, it's going to be out of date in another year or so. So we're also looking at, is it better for NOAA to purchase the data from vendors instead of actually flying these ourselves. We're looking at those kind of cost models as well.

0:22:51 KL: Since it's become commoditized in a sense.

0:22:52 RH: Yeah, exactly.

0:22:54 KL: Oh, very interesting.

0:22:54 RH: Exactly.

[music]

0:23:00 KL: So where's a project in here? Something that you have to handle where you have a start and a finish, progressively elaborate, and you have to make sure that that gets delivered to be part of this value chain that you've just described.

0:23:11 RH: Yeah, we have one specific project that I think it really fits into the paradigm that you just mentioned. We have been working with NASA on using their Global Hawk, which is a high-flying, long-endurance UAS that flies at 60,000 feet and can fly for more than 24 hours, so it's a really robust aircraft. The Air Force and the Navy have been flying these for reconnaissance missions for quite a while. NASA inherited some retired Global Hawks from the Air Force, revamped them to make them scientific platforms. We were early interested in, what would it be like to take the Global Hawk and bring it into NOAA as basically a robotic aircraft that would help support our satellite observations and help address some of our weather issues.

0:24:00 RH: After Hurricane Sandy, NOAA was given a certain amount of funding to help look at better ways to help improve forecasting. And we were given some of that funding to actually look at, could the Global Hawk help in times when you do not have satellite coverage? Especially, if you had a disastrous problem with a satellite and it's not producing the data it needs for the weather forecasting, National Weather Service to get their job done. Could you make ends meet with the Global Hawk in those really high impact weather situations? Over hurricanes, over intense pacific storms.

0:24:36 RH: So, the entire project is a risk mitigation study and we set it up over a three-year time span. We're partnering with NASA, but we've got multiple aspects to it and multiple milestones that we're trying to take a look at. One is, what's the data impact to our weather forecasting models using the Global Hawk data? And we set it up so that we are... With our data impact studies, part of the time, we're trying to fly the Global Hawk itself and collect real data and put it into the weather forecast model to see if it'll have a positive impact.

0:25:09 KL: Like a parallel model, to see if it's improved or not?

0:25:12 RH: Exactly. But in order to save funding, we're also, for every experiment we wanna try, we're not always flying the hardware itself. We're actually doing what we call "Observing System Simulation Experiments." We're actually simulating what a weather forecast model would do and we're simulating the observations the Global Hawk would collect.

0:25:29 KL: Because you can tell the types of data that it can get.

0:25:31 RH: Exactly.

0:25:32 KL: So, that's why your able to do the simulations.

0:25:33 RH: And it gives us a chance to try out a greater variety of weather scenarios. And also, a greater variety of instruments that we may or may not be able to afford to fly. So, what we're trying to do is do a little bit of real time hardware, "Let's really fly this." But, part of it, in order to save cost is, "Let's do Observing Systems Simulation Experiments." The other part of it, which is an equal deliverable to our data impact study, is a cost and operational feasibility of the Global Hawk. So, we're actually looking at, what would it take for NOAA either to bring in a Global Hawk into our agency and add it to our aircraft, or develop a long-term partnership with another agency, such as NASA? And have a Global Hawk that's more, that's ready to fly when a weather situation comes up.

0:26:15 RH: So, we've delivered. We're part way through that project and we have certain, for both the data impact studies and the costing analysis, we have milestones, reports and studies that we're moving towards. And we've got teams working in that, that are looking at, and we've got schedules and budget for each of those activities. So, our goal is to be able at the end of the project, deliver to NOAA leadership, not only just the data impact study, but also the cost analysis. So that NOAA leadership can make an informed decision as to whether we should pursue this kind of platform as a permanent asset within NOAA.

[music]

0:26:54 KL: So, let's talk a little bit about the shape of the project. How big are those teams?

0:26:57 RH: Yeah, exactly. I would say the group that's working on the field effort where we're actually were actually flying the Global Hawk for real, and this is in partnership with NASA, that's probably close to 50 people. We've got scientists and engineers, a NASA employee is working on it. But, we have university colleagues and within the field part, we've got at least three instruments that we're flying. And each one of those instrument teams has four or five people. Then we have project

managers on top of that. So, yeah, I would say that team's about 50. For the simulation part where we've got... We're mainly working with NOAA scientists and university scientists to do the simulations. That team's probably closer to 15 or 20, 'cause you've got a lot of people that are actually coding the simulations and running the simulations.

0:27:40 RH: And then, the team that's doing the cost analysis, that's a little tighter group that's actually part of my contracting team that I have in-house here. And that's closer to five or seven people.

0:27:51 KL: Okay, so you've got 75 people total on this project for three years on and off. What year are you in it now?

0:27:56 RH: We're in the second year. Yeah, half-way through.

[music]

0:28:03 KL: What kinds of risks were being laid out that people needed to kind of mitigate or think about as they move through the 36 months?

0:28:10 RH: The significant part is trying to make sure that we can match the funding distribution that we're giving to the teams. Make sure that it funds the work in the right order. So actually that's... [laughter]

0:28:21 KL: Okay, so work write down and dependencies matter.

0:28:23 RH: Yeah, yeah, exactly. That's part of it.

0:28:26 KL: How does that get risky though? I mean, that can be planned. Or what happens is that you're not always sure about the money stream. Like it cuts the chunks weird or something?

0:28:33 RH: Exactly. Yeah, we have... This is a multi-year project and anything... Our appropriations could change in Congress, so we may not get the funding that we want in a timely manner.

0:28:41 KL: I think this is important. I wanna find this. This will be very different for many project managers in the commercial sector.

0:28:46 RH: Right, exactly.

0:28:47 KL: Basically a government project manager is faced with a much clearer budget in many cases. Except the timing is something that's very difficult, isn't it?

0:28:56 RH: Exactly. And then getting funding transferred to universities through grants and getting funding transferred to other federal agencies...

0:29:02 KL: You're working with university partners on this?

0:29:03 RH: Right. Yeah, yeah.

0:29:04 KL: So, the risk of getting the tranches of money when you need it to get the work done. So you don't want people sitting around not doing anything, or not as much, and then, all of the sudden, here's the money and there's not enough time to get everything done. [chuckle]

0:29:13 RH: Right. Exactly, yeah.

0:29:14 KL: And how do you mitigate that?

0:29:16 RH: Basically, we try to look at who needs funding when. And what I'm trying to do with the federal government, like with NASA, I try to fund them a year in advance if I can. 'Cause then that way we don't have to... It takes several months to get an inter-agency agreement to transfer the funding. So, we try to forward fund them. The universities, we've got a little more leeway, because we're able to give them multi-year grants. So, we can fund them upfront and fund them for multiple years, but on the government side, it's more of a year by year we've gotta fund them.

[music]

0:29:52 KL: What are the risks you face when you're looking at this process for 36 months?

0:29:55 RH: I guess, one of this things that... It's comical in weather business is just the fact that you gear up, say for a hurricane experiment, and then you don't get the hurricanes. That's what happened to us last year.

0:30:06 KL: Wait, you guys also can't forecast hurricanes, huh? [laughter]

0:30:09 RH: Well, it's hard to forecast them six months in advance. So what we did last year, we dedicated four weeks in the field, and we could already tell because of the new El Nino conditions, that we may not get as many hurricanes in the Atlantic as we originally expected. So we actually did some mitigation where we started off the experiment from California. NASA can basically fly the Global Hawk from either California or Wallops Island, Virginia.

0:30:34 KL: They only have one for you guys?

0:30:35 RH: Well, they have one right now, yeah. So we actually delayed the start of the experiment a little bit in case there were Eastern Pacific storms. And then when we got to the Atlantic, we had a milestone decision that if we didn't have any hurricanes by a certain date, we were gonna go back to California. And we did enact that last year. This year, we're trying a different approach. We've set the teams up so that they are basically available for eight weeks from August through September. And we're gonna try a different approach. Instead of sending everybody out in the field for four weeks, we're gonna give them five days notice and have them be in the field hopefully three to five days before an event happens.

0:31:12 KL: So highly adaptive.

0:31:13 RH: Yeah.

0:31:14 KL: You guys have really changed how you have to address this to make sure you can get

the data.

0:31:16 RH: Exactly. But one of the things exciting is we do want to test the rapid response capability. So for an operational model for us in the future, we would want an aircraft that is deployable and it goes back to our operational feasibility study. How feasible is it to have this many people on the call and be able to get out in the field.

[music]

0:31:42 KL: What constitutes quality as you move through simulations, collecting the data, getting the team that's doing this efficiency...

0:31:48 RH: Right.

0:31:49 KL: Measuring the quality of your project management...

0:31:53 RH: Yeah, exactly. I would say when we plan a mission, can we get that mission launched on time? So like with the Global Hawk, you pretty much have to start planning that 48 hours and you have to start notifying the pilots and the FAA and other stakeholders that you're gonna fly 24 hours at a time. And with weather, sometimes the weather's not exactly what you think it's gonna be. But can we get the pieces pulled together and launch it on time, and collect the data, and the data comes back the way it's supposed to? That's one part. The second part would be looking at the data we got back. Is it of good value and does it bring value to the forecast model?

0:32:31 KL: So you're constantly checking that as it moves through.

0:32:33 RH: Exactly.

0:32:33 KL: It's not wait three years and do it. You're bringing it in, you're checking, you're bringing it in, you're checking.

0:32:36 RH: Yeah, exactly. And I would say the third quality would be the whole looking at the operational feasibility. How many people and how much work does it take to get this aircraft up and flying and is that gonna be a feasible scenario for the future? So can we reduce the cost, can we reduce the number of people and make it more viable for a federal agency?

0:32:57 KL: From a project outcome, part of that cost is really about the cost benefit.

0:33:01 RH: Right.

0:33:02 KL: And you won't know that I think probably, the benefits typically aren't being recruited until the end of a project. It's more of a programmatic issue.

0:33:07 RH: Right, exactly.

0:33:09 KL: So it's consistent here. Okay. So will you be able to measure, or how will you tackle post-project, determining if we're getting a higher quality data and the impact it has?

0:33:22 RH: Luckily on this project working with the National Weather Service, they actually keep metrics of all their forecasts. So, there's actually established ways of looking at, if you add new data in, has it increased the forecast say like, well let's say, it's easier to explain with the case of a hurricane. The two main metrics that people watch with hurricanes is what's its track, where is it gonna move and then, what's the intensity at a certain given time. If you predict it a day or two days in advance, what is its intensity? So one of the metrics that we're using is looking at the data we've collected, we've put it into the forecast models, have we increased the track by 10%? Is the track more accurate by 10%? Or if the intensity is more accurate. So that's the kind of, with forecast improvement, that's what we're looking for.

0:34:09 KL: This is exciting. Because you will really be able to tell what the costs are to get the data and its impact directly. You're really gonna be able to see this linkage.

[music]

0:34:20 RH: Then we've gotta look at, okay, what would be the true cost to reproduce this accuracy? And if let's say it's only 10% but it costs you \$10 million to field this aircraft to fly it, well we have to make a judgment call. Is that worth it? But if it's a 20% increase in a highly critical weather situation, but it costs us \$5 million or whatever, is that worthwhile?

[music]

0:34:47 KL: So let's talk about your stakeholders.

0:34:48 RH: Okay.

0:34:49 KL: So you have many stakeholders, it's clear, from the partners you work with, the universities obviously, and some level of Congress, and the many administrators here. But if we look at those that have the highest impact on you, who are paying attention, they're interested in knowing what's going on and they have very high impact and they have the intent to make sure this happens. Who are your chief stakeholders that you're really managing to?

0:35:10 RH: Yeah. The most important stakeholders would be the operational line officers with NOAA because that's our job, is to serve them. But I would definitely say the whole UAS industry because it's such a new industry, and the United States has made significant investments, especially through DOD in unmanned technology. Now being able to transfer that to the civilian sector, and since we're one of the first to try to use it for civilian application, and there's just a lot of cool things we're gonna be able to do with UAS.

[music]

0:35:45 KL: What's the role of the project manager here? Do you use project managers or are they going to be scientists who have project management discipline they're using?

0:35:52 RH: A lot of scientists think that project management's not necessary. But I would challenge them to say, if you're gonna write proposals, if you're gonna win grants, if you're gonna win... If people are gonna make investments in you, you need to know how to pull that project together. And I think project management's gonna be more and more important. Definitely, the more

complex the project is, you need people that really understand project management, and schedules, and budgets, and milestones, and deliverables.

0:36:17 KL: Why? Is that because that's where the risk was? That these can get out of sync?

0:36:21 RH: Right. Exactly. A lot of times the biggest problems in project success has been the communication between what the scientist really wants and what the engineer can produce. And so, being able to help with the communication, and can we make that communication happen so that the instrument, or whatever is built on time and delivered on time. A scientist, by nature, wants to be able to have all options open at all times. But in order to build something, at some point, you've got to say, "Okay. These are the requirements we're gonna work and we're gonna build it to this."

[music]

0:36:54 RH: I've talked to so many scientists when I want to work with them on trying to setup proper milestones for their project. And they say, "Well, we don't know what the outcome is, because we don't know. This is a brand new project."

0:37:02 KL: Oh, classic. [chuckle]

0:37:03 RH: And my [chuckle] model is always... You still know the project you wanna pull together, and you know the testing that you wanna do. And whatever happens with the tests, that's different. The basic principle to project managers is to me, is just saying what you're going to do, do what you said and report on what you did. And that sometimes is really hard, especially for scientists 'cause they don't know what the answer is gonna be. Then, they get freaked out about the project management part.

0:37:34 KL: You have to explain to them the act of having the answer is the output.

0:37:38 RH: Exactly.

[music]

0:37:47 KL: Roy Maizel is the Deputy Associate Administrator from management in the Science Mission Directorate at the National Aeronautics and Space Administration, NASA. His program manages the entire NASA science program. Which consists of about 100 space flight missions, as well as grants-based research program activities. He's the manager of the resources that take us to space.

0:38:05 KL: So what is the span of activity that you see from where you sit?

0:38:12 Roy Maizel: So, within the Science Mission Directorate, we have seven total divisions. Four of them are science divisions, so they include: Astrophysics; we have Earth Science; the third science division is Heliophysics; and the fourth science division is our Planetary Sciences, of which one of the major programs in there is the Mars Exploration Program.

[music]

0:38:38 KL: Where does the project management aspect fall here then?

0:38:43 RM: It is across all of our science divisions. So, the basic arrangement that we have at headquarters, or any project... But then, I also will need to tell you how that flows down to the centers as well. [chuckle] But let me handle headquarters...

0:38:57 KL: So PM is everywhere, is what I'm about to hear?

0:39:01 RM: PM is everywhere. That's correct.

0:39:01 KL: We're on the right path. [chuckle]

0:39:01 RM: Yeah. So, here at headquarters, for every mission that we have, we have three people, a triad, that focus on that. Within the science division that that mission is a part of, we have a program executive, who is an engineer, who is responsible for the technical oversight of that mission. We have a project scientist who focuses on ensuring that as the mission is designed that it meets the scientific requirements, and is involved in the planning of the research that will be done. And then we have a program analyst, and the program analyst is not part of the science division. Program analyst is part of the resources management division.

0:40:03 KL: You're matrixed?

0:40:06 RM: That... We are matrixed. And within that resources management division, there is a team that supports each science division. So, we will typically have a team lead, and then usually two or three additional program analysts.

[music]

0:40:26 RM: When we commit to the development of a mission, that means we have a design that is workable and we are really about to go into production mode and start bending metal. At that point, we make a lifecycle cost commitment on the mission. So the program analyst is involved in looking at the estimates we get for the lifecycle. Understanding the risks and being sure that those risks are reflected appropriately in the reserve that we recommend be held for that project.

0:41:14 KL: And to clarify, these are the risks for the ability to make the project work? We are not talking the risk of the scientific endeavor itself, but rather the ability to produce or create, complete the project?

0:41:27 RM: Yes, that's correct. Because by that point in the development cycle, we have reviewed and revalidated that the science remains a high priority and consistent with our strategic plan. But the risks I'm talking about would be more the ones that would effect the cost and schedule of the mission.

[music]

0:41:49 KL: Who would be the project manager in that context?

0:41:56 RM: So, our projects are all executed at the field centers. Sometimes those are in house

projects where the field center is very closely involved in the actual production of the hardware. But more often, the bulk of the manufacturing is done via a contractor, that is then managed at the center. So, if we take a flight mission, as I mentioned, we have those three people here at headquarters. The Engineer and that is called the Program Executive. The Project Manager, the person with that title, in the vast majority of cases, is somebody who is physically located at the field center. And what they are responsible for is the technical execution of the mission.

0:42:51 KL: It's almost like this team that you laid out is their governance board.

0:42:55 RM: That's correct, it's governance and oversight.

0:42:57 KL: And oversight, yeah.

0:42:58 RM: Yes.

[music]

0:43:04 RM: There are two broad classes of missions, if you will. And I'm not talking about a scientific distinction here, I'm talking about the way we actually solicit those missions and get them implemented. The first are what we call our strategic missions which is done once every 10 years, where the scientific community is solicited to identify the science priorities for that theme, for the next 10 years. So we are structured around missions that answer scientific questions. In those decadal surveys, they will identify some missions that would be used to answer those questions.

0:43:52 RM: So for example, our largest strategic mission right now is the James Webb Space Telescope. It is a very intricate structure that will fit inside the shroud or the housing of an Ariane Launch Vehicle and then would fold out in space and has an area approximately equal to that of a tennis court. It's managed at Goddard, the Project Manager is at Goddard. And they have the project management office which consists of numerous engineers as well as people who work on very low-level risk analysis, schedule analysis, critical path identification, all that type of thing.

[music]

0:44:43 KL: Who are your stakeholders and how do you see that all fitting in?

0:44:47 RM: In the Science Mission Directorate, we have a very broad view of our stakeholders. Although the scientific community plays a big part, we see our stakeholders as being the American people, and to some extent, the entire population of the world. Because a lot of the science results that we are achieving and hope to achieve in the future, we hope will contribute to better management of the earth, of its resources. We hope that we are producing science that energizes kids, that can produce the next generation of scientists and engineers, that's the big answer. But in terms of the stakeholders, being more focused on the people who make the judgements about giving us the resources we need to do all this great stuff. Those stakeholders are primarily the Office of Management and Budget and the Congress. And we know that they are tracking our performance.

0:45:52 RM: In recent years, we submit a quarterly performance report to OMB. We meet with them regularly to talk about their concerns and to give them any heads up on risks that we may see emerging, so that they're on board, and we also stay in close communication with Congress. And in

fact, the project management scheme that we now follow requires in the event that we see a cost or schedule issue that will cause a breach of the commitment that we make, we are required to provide early written notification. So, we're about having no surprises, about keeping our stakeholders informed to what we're doing, both the good and sometimes, when we run into trouble.

[music]

0:46:48 KL: You've been here about 35 years, right?

0:46:50 RM: Yes.

0:46:51 KL: Can you describe the evolution, if there has been any, of project management in the time you've been here?

0:46:56 RM: I think there has been quite a bit. And a lot of it has occurred in the fairly recent past, going back several years ago. We had very significant overruns and/or schedule delays on several of our missions. We had noticed that we were having increasing difficulty managing cost and schedule and we were concerned about that for many reasons. One, as we had to accommodate those, there's no infinite pot of money here. [chuckle] We operate within a budget envelope every year. So when we need to cover cost overruns or schedule delays, we typically had to remove money from other parts of the program which caused us to do less program content which is something we don't like doing. Overruns and delays lead to a loss of credibility which in turn can diminish political support, so we were very concerned about that.

0:48:00 KL: There's a direct connection to your stake, or are least one class of your stakeholders there.

0:48:02 RM: Absolutely.

0:48:03 KL: You guys end up on the hill talking about it.

0:48:04 RM: That's right. And quite frankly, when those become severe, we're compromising our support and our reputation for being able to successfully execute science missions which is something that concerns us because that's what we're all about.

0:48:21 KL: So, people were getting the sense of that internally that this was a pattern almost, or it was happening more than it needed to be?

0:48:27 RM: Yes.

[music]

0:48:33 RM: So, over of a period of several years, we took several actions to improve. One of them is using a technique that we call Joint Confidence level, or JCL. And we require that analysis be performed before we approve the mission for implementation. And what the Joint Confidence Level, joint refers to cost and schedule, is that we try to get a comprehensive look by assessing the individual risks on any mission. And then, running a model that involves a basic kind of Monte Carlo simulation where the probabilities of the risk are run through a model that typically runs

thousands of different scenarios to develop a risk profile, that is in what we call an S-curve, that gives a sense of the probability of successfully executing a mission on cost and schedule. And what we require before we sign up for a mission is that that JCL is equal to 70%. Unless we have a 70% chance of successfully executing on cost and schedule, we're not going to proceed.

[music]

0:50:07 KL: So, earned value management, you're really tracking simultaneously both of those piece together.

0:50:12 RM: That's correct.

0:50:13 KL: And your interactions specifically?

0:50:15 RM: Yes. They really, to some extent, go hand in hand. We have been placing existing emphasis on earned value, not just being sure that our contractors have approved earned value systems in place, but that our centers do as well for the in-house work. We are tracking cost performance indices, schedule performance indices. We are routinely monitoring the risk list and assessing which risks are going to have to be covered by applying budget to alleviate that risk, taking steps along the way to ensure that we are living within our budget and schedule envelope.

[music]

0:51:03 KL: Even as you move along inside your envelope as you say, you're projecting forward, that's the value of the earned value side. You're projecting to make sure it's still happening, given the risk, that you then monitor actively moving forward.

0:51:12 RM: Yes. And in fact, I mean, the proof is in the pudding.

0:51:16 KL: Well, tell me about that pudding. [chuckle]

0:51:16 RM: Okay. So, we have the data on this and every year, as part of the budget estimates that we submit to Congress, there is a section... By the way, this is publicly available. Virtually every NASA website has a link to budget, strategic plans and other reports. And what we are required to do is reports on all projects that we have that have a lifecycle cost of greater than \$250 million. And there is a table in there which lists the missions, the key milestones which is the launch date. And how we are doing on cost and schedule. And you look at the last 10, 12 years of trends, and you look at the missions that are either overrunning or delayed, that number is way down from where it was, as is the magnitude of the overruns and the delays.

[music]

0:52:23 KL: So do you kill projects and how is that done?

0:52:25 RM: Yes.

0:52:27 KL: How does a project get killed?

0:52:27 RM: Okay. So, there are a couple of ways that happens. One way is, and this has not happened with great frequency, but as the design develops in the early stages, it is occasionally realized that the design can not meet the science requirements.

0:52:47 KL: Failing scope?

0:52:48 RM: That's right. And we have had at least one case that comes to immediate memory, and this was very early in the mission. They realized and came forward quite frankly, we credit the project team for complete honesty on this because they came forward and we said, "The design does not meet the science requirements." And that was the end of that.

[music]

0:53:15 KL: There's an institutional momentum to, "We made a selection here, we've spent so long getting the money ready?"

0:53:20 RM: Absolutely. Now, when we get them that early, that's typically less painful because we have not spent a lot of money at that point. What has also happened is although a mission design can meet the scientific requirements, we then conclude prior to approving the mission for implementation that it is simply at a price that has gotten too high.

0:53:48 KL: Too high so you can pull it.

0:53:49 RM: Right. When we come to that key decision point, we really take a hard look and have a discussion, and this is before our Science Mission Directorate decision authority, which is the whole directorate, and anybody has the ability, and we encourage speaking up during that meeting should anyone have concerns, that in the interval between when the mission was selected and we proceed to implementation, that the science is still sufficiently high priority, that we want to continue forward with the mission, and that the risks are understood at a sufficient level that we believe we can go forward at that reasonable level of joint confidence.

[music]

0:54:44 KL: So talk to me about the development of the PM culture and how you've done that?

0:54:48 RM: The bulk of our staff here are scientists and engineers. The scientific culture is one that is an explosion of curiosity and enthusiasm. We are working here at understanding and getting answers to I think some of the deepest questions that people ask themselves. Are we alone in the universe? How did the universe develop and evolve? And our science community wants to understand that, they crave this. Engineers are can-do. "Give us a problem, we will find the answer."

0:55:31 KL: They're solvers.

0:55:31 RM: That's right. So that dual impetus of curiosity and can-do caused us to have a very ambitious program to try to squeeze as much within the budget as we possibly could, and then what happens over a period of years is our budget got more constrained. And we kept trying to execute a very ambitious program, but what happened over time is eventually, as the budget got clamped

down, but as the enthusiasm continued, we were not able to successfully execute within cost and schedule. And that began to compromise the agency's credibility. People began to realize that having the credibility and the political support that it would lead to was a necessary ingredient for future success.

[music]

0:56:29 KL: Do you do training for project management or project management disciplinary techniques here? Broadly or...

0:56:33 RM: Absolutely. Absolutely. We have all kinds of thing going on. A series of classes and seminars that are offered around the country throughout the year that focus on project management, that focus on various aspects of project management. We routinely do lessons learned, we have a monthly session where lessons learned from missions are shared. We deal with technologies that achieve a level of precision that people find simply dazzling. And I don't think that people expect perfection, although they may have liked it. [chuckle] But I don't think they expect it. And I think as long as we keep our stakeholders informed as to what we're doing, as to what our priorities are, as to how we're managing, we're hoping and I think we can sustain a good level of support that we've enjoyed in the past.

[music]

0:57:32 VO: Wow. So NASA is really using some of the value precepts we discussed in our episode "Advances in PM, Part I." Tracking and monitoring the earned value of a project, assessing risks in advance that might require an extra injection of money, or even aborting a project if it becomes clear that it won't deliver the anticipated value, this is a mature project management organization, and they tackle these issues and value very public complex stakeholder management and transparency.

0:58:00 KL: As we heard in this episode, the Federal Government has a dizzying range of projects, from the farthest reaches of outer space, to the depths of the ocean, to music fests and hiking trails, and of course much, much more. And it's all in service to us, the citizens. When you think about it, project management is perhaps the best way to tackle these enormous, diffuse and complex tasks by breaking monumental workloads and requirements into smaller parts, clearly laying out the scope and the risks and then documenting outcomes. Project management turns a daunting undertaking into something doable and knowable to its citizens.

0:58:33 KL: It would also appear to be a vital tool in maintaining Congressional support and trust. And let's face it, when you're in the government, that's a group of stakeholders you cannot afford to ignore. Special thanks to today's guests, Alexa Viets, Robbie Hood, and Roy Maizel.

0:58:51 VO: Our theme music was composed by Molly Flannery, used with permission. Additional original music by Gary Fieldman, Rich Greenblat and Lionel Lyles. Post-production performed at Empowered Strategies and technical and web support provided by Potomac Management Resources.

0:59:06 KL: PMPs who have listened through this complete podcast may submit a PDU claim, one PDU, in the Talent Triangle Technical Project Management, with the Project Management Institute's

30. PM in the Federal Government_ Navigating Complexity

CCR system. Go to CCRS, select Education, and then online or digital medium, and enter provider code C046, the Washington DC chapter, and the title PMPOV0030, PM in the Federal Government and Navigating Complexity. Make sure to select one PDU under the technical category at the bottom.

0:59:37 KL: If any of our listeners have comments about this episode or past episodes, or ideas for future guests or topics, please go to pmiwdc.org/contact, and leave your comments there. Or you may contact me directly at kendall.lott@pmiwdc.org. I'm your host Kendal Lott, and until next time, keep it in scope and get it done.

0:59:58 VO: This podcast is a Final Milestone production, distributed by PMIWDC.