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Dominic Delmolino	The Exploring AI in Government podcast is brought to you by Accenture Federal Services and produced by Government Executive Media Group's Studio 2G. Accenture Federal Services combines the power of artificial intelligence, automation, and advanced analytics with deep client, industry, and technology expertise to help agencies reimagine how they achieve their mission, serve citizens, and manage their organization. Learn what applied intelligence can do for your agency at "Accenture-dot-com-backslash-federal-AI."
Delmolino	Hello and welcome to another edition of Exploring AI in Government, a podcast series dedicated to interviewing leading global minds in the artificial intelligence ecosystem and getting at the insights that drive adoption across key industries and the federal government. I'm your host, Dominic Delmolino, Chief Technology Officer for Accenture Federal Services and I am here today with our guest analyst, Kathleen Walch — AI and Machine Learning expert, and Managing Partner at Cognilytica.
Kathleen Walch	Today we will be exploring artificial intelligence and its potential and impact in the workforce. Speaking with Dorothy Aronson, Chief Information Officer at the National Science Foundation, Presidential Innovation Fellows Justin Koufopoulos and Jeff Starr.
Delmolino	We start the discussion by learning about Dorothy's work. Dorothy is a pioneer in government, and I am looking forward to discussing how she is helping bring artificial intelligence initiatives into the National Science Foundation.
Walch	Welcome to the show Dorothy.
Dorothy Aronson	Thanks for having me.
Walch	Thank you. So, I'd like to start by having you also give a quick background, uh, to our listeners about, you know, your journey and to how you got to your current position.
Aronson	A couple of years ago I, I was brought into as the CIO of the agency before that I had been working mostly in operational IT and I was given the opportunity to learn a lot of new technologies and so many of them were based on artificial intelligence that I got very excited about this concept. And I started at the National Science Foundation with a very small group of energized non-IT people looking at a particularly important problem within NSF and, and we all decided we have the technology, we have data that's pretty good but not 100% good and let's add those two things together and figure out how we can make life better here. There's a third component of that, which is what happens to the people. And if you don't

	mind, I can tell you a little bit about my feelings about people.
Delmolino	Absolutely. I mean one of the things one of the reasons we're so excited to have you on this program is that you've been a large leading voice and proponent of impact on people with that. So, tell us a little about what you've seen and what you've learned.
Aronson	So as I mentioned earlier, I was a leader of people and I considered my greatest strength probably even though I had started out in programming, I think that I became, I was promoted throughout my career based on my ability to lead and to effectively communicate with customers and impact and impact the mission by integrating IT in with the, um, the ongoing mission without really disturbing the mission. At any rate, so my favorite thing was to energize groups of IT professionals and get them leaning forward and um, making the changes, understanding the business so that they could make the most impact on m- most impactful change. At the same time, I'm also a leader of, uh, a lot of change throughout my career and I've definitely been guilty of focusing on what I consider to be the easy part, which is implementing an IT solution. The hard part is observing the impacts that, that it has on not only the people who are creating the IT, but also the workforce who are impacted by the tools. I remember when my first implementations were, many years ago, working on imp-, implementing a ATMs, automated funds transfer machines. And I remember I was working at a bank in Philadelphia and the bank tellers were nervous because of the implementation of the ATMs, but at that time they really believe no one would use them. And um, you know, here we are 20 years later, and no one thinks of not using them. You know, people were absolutely afraid of the ATM. They thought it would destroy their, their, uh, accounting because the, you know, the passbook has gone, does anyone know what a passbook is?
Delmolino	Oh yeah.
Aronson	So, um, so at any rate, I've always been very proud of my ability to lead people, but also very concerned about the impact on people because I have felt like up until a couple of years ago, maybe I wasn't as focused on that as I should be. And I wasn't. And I don't want to ever be perceived by generations in the future as a person who has led change that's corrupted and ruined lives at the, at the basis of this. So, the, so even though I mentioned we had the technology, we had the data, I was really most concerned not with the people who are using the new technology, but with the jobs that would be impacted by the new technology coming in. And so I made a pact with myself that no project that I implemented would be complete without considering and finding a resolution to that third problem, which is not, not the early adopters and the pioneers, but the, let's call them laggards, which is where I consider myself, it's not so much of an insult. I mean in that, in the slow adopters. What do you do

	with those people and how do you find a place for them in the new world?
Delmolino	Can you tell us how the career compass initiative has played into addressing those concerns? What's, how's that program working and what's next for it?
Aronson	So the career compass is, uh, a two phase challenge hosted on challenge.gov, um, and led by NSF where the notion is that the first phase of it was if you had a little bit of knowledge about people and some specific knowledge about future jobs, maybe five years out, because a lot of the jobs, five years from now, maybe not even, don't even exist now. So if we had that information about you as a person and a job jobs that were five years out, we could give you the person, the opportunity to look at those jobs in, in advance of needing to make a change and say you give you the opportunity to select the one that's most interesting to you. And then once you make that selection to continuously learn and grow so that when that time comes, you're prepared for the five-year out job. Of course. Um, so that part one was just soliciting ideas from the public. The notion there was we don't care if you're an IT developer or a psychologist or you know, a high school student with a good idea. We want to crowdsource these ideas and get a bunch of good ideas in here and hear what the possibilities are for solving this problem. So, uh, we received a slew of ideas. They were brilliant. Um, honestly, I'm a very emotional person. I was, you know, near tears when I read some of these because I was amazed at how clever people were, how, um, engaged they were, how much they understood and empathized with this problem was amazing. Um, and some of them with tremendous credentials and years of study in education and, um, advancing people who had experience already in innovating in education. I was just dazzled. So, we selected five winners from that group. We posted those. And the second part of the challenge was to build a pr-, a pilot, a functional pilot that implemented either one of those five ideas or a different idea of your own, the reason and you, so you don't have to be one of the people that submitted the first five ideas. It could go to a whole different group of people who are IT professionals, pr-, for example, who might have the capability, the ability, the technical ability to implement a solution that somebody else has suggested. And where we are now is, we've received, um, the set of, uh, pilots. We're going to start our actual judging next week. So, we're, uh, in the, tail end of this fabulous experiment.
Walch	And I know you've touched upon this a little bit, but the National Science Foundation has implemented AI and automation in a number of areas. So, can you describe to us your efforts and maybe give some use cases about what you've done and also what's been the reaction of workers and how are you looking to provide the workers with, you know, and your workforce with new skills?

Aronson	So, um, many parts of that question. So, I'm going to start with what is NSF doing with respect to artificial intelligence? And the first part of that answer is the very first concept that I mentioned earlier in the discussion was, um, uh, implementing a tool that helped the program officers at the National Science Foundation identify people who would be, uh, appropriate reviewers for proposals for new ideas. This is a very important, uh, part of what an NSF does is the ideas are very often reviewed by external to NSF experts as science, uh, evolves. There's basic science like, uh, mathematics and physics and chemistry. But there's also now more and more innovative ideas that are convergent, that require uh, convergence of multiple disciplines. And so, for those ideas, it's harder to find experts. It's not easy to find experts for the basic science either. But for the more convergent research, it's, it's, um, uh, exponentially harder because you have to find someone who both happens to have technology and psychology expertise at once in order to evaluate sort of a career compass, for example. So, what we did was we, uh, the, this group of customers who were very concerned about the problem, uh, uh, got together, they had been working to solve the problem in their own, um, let's call them units within the agency. And what we did, uh, was, or what I did was pulled them together into a combined team and ask them to pool their resources and pool their ideas. And in conjunction with the central IT shop, uh, we were able to implement very quickly. We expected this to take two years and within six months we had implemented a solution agency-wide that is a tool that, uh, program officers may use if they wish to suggest a pool of reviewers to them that would be well suited, uh, to the problem. Now, there's a long way to go to, uh, continuously improve that tool, but it's, it's a good starting point. The second thing that happened more or less at the same time was that within our financial shop, the notion of integrating robotic process automation with the budget process and the, the, the tools that are being used in that organization, um, that that emerged as a priority. And that organization, uh, uh, working with the central IT organization was able to bring in, uh, RPA tools, robotic process automation, and begin implementing and experimenting with that.
Walch	How are you looking to provide the workforce with new skills that are needed in this, you know, age of AI?
Aronson	So, the workforce, um, one of the things I'm working on with the COO, CIO Council, uh, uh, thank you to Suzette Kent who's coming later, um, is the, uh, the, I'm working on something called that we call the Udacity experiment. And what that is, is we've gotten a bit of, um, money and what we, and we've reached out, uh, federate federal wide through the council and gotten a few people to volunteer to take a Udacity course, you Udacity is an online training course. This the, the courses we've selected are for data and analytic analysis and data science. And, uh, we've offered this opportunity to people and they're just now jumping on

	the notion here is can we, is there a way we can use tools like you, Udacity to quickly up-skill people who are not IT necessarily, uh, people in the Er and give them the it skills they need to, to use to leverage these intelligent tools. So, the Udacity experiment was uh really kicked off last week in that the students started the training last week. Meanwhile, through the Udacity experiment, because we had sent out the query to everyone saying, well, you know, if you're interested, throw your name in the hat. Well, what we found was that there were a lot of people who are definitely interested in being better data analysts and data scientists perhaps, but they didn't have the basic skills that allowed them to qualify for the Udacity courses that we had selected. So one of the things that we're committed to now, or that I'm committed to now through the National Science Foundation is working with the people at NSF who also wanted, showed an interest in Udacity, but weren't qualified to find out what's the real basic level that we have to work at? Because people want to be able to use these tools. They don't need to be IT professionals, they don't need to have credentials to be data scientists, but they do have access to data. They do have access to tools that will allow them to do this work. And so how do we get the most out of those people and help them transform into the, to the jobs of the future.
Walch	Yeah, that's a great point. And you know, it's interesting to see how this will evolve over time and maybe different courses that you can bring in and how, how, and what to look for when you're, you know, re-skilling your workforce. So, a common theme that comes up around AI is trust within the systems and building workforce trust. So, government workers will increasingly be required to implement decisions made by machines. How can we ensure that there will be workforce trust and confidence in the decisions that come from AI?
Aronson	Well, trust is a such a tricky thing because part of what's happened, I believe, is that we have been trusting AI more and more in our personal lives without, it's crept up on us. We haven't observed and said, Oh, I'm trusting this application to tell me where to go to give me directions. It's, we've, we've trusted it because our experience has told us that it's working. So, I believe that that natural course is the one we should look to for encouraging trust throughout the, the current workforce. And what I mean is we need to, people are making decisions based on the, the data that they have today, and the data is only so good, and they trust themselves to make those decisions based on that data. Well, if, if they see that a tool will come with the same decision or better, then they'll trust it. One of the things that we have been working on in, in one of our initial, uh, AI forays was the notion of how do we document the algorithm in order to enable the person who uses the tool to understand and trust the result? Well, people don't understand algorithms. They, and maybe they don't have to. You know, if you go with thinking like the proof is in the pudding, what they really need to understand is how do I use this tool

	and how do you want me to use this tool? And when I use the tool, does it provide the results that make sense to me? So, we're not introducing tools that take human out of the loop. You know, um, it may make some people nervous to realize that airplanes are flown, uh, with, uh, with, by computers largely. Uh, you know, thinking about that when I was sitting on an airplane a few weeks ago made me nervous. But, you know, for years it's been happening. So, it's just the realization that is causing, I believe the uncertainty and the distrust. Workings- and also things are happening so quickly. We have to be very careful to expend our energy in the wisest possible way, the most productive possible way. So, when I have a team of people, do I ask them to go to vendors and explain algorithms that come with products? Or do I ask them to test a hundred examples of, of this tool and demonstrate through common, through a commonsense approach that it works. I have those choices to make and I'm going to choose the shortest path to success. Part of that is that maybe the people who test the AI should not be the IT professionals, but the people with the problems and the people with the knowledge who will be able to look at it with common sense and without asking anybody else questions and say, yep, that's, that's cool. Now I can do something else. I trust this tool. I can do something else.
Delmolino	So, in the private sector as a, as a core, as a counterpart, it's been increasingly recognized that AI related technologies enable better employee experience or drive productivity, innovation and even higher levels of performance. Do you think government's ready to make similar commitments to AI in this space?
Aronson	I don't really think there's much choice. I think that um, the artificial intelligence is everywhere whether we know it or not, it's been in our security systems for a long time. I think that what we have to do is overcome our initial fear, which I believe, I believe it's important. So I was once in a meeting where I told a bunch of um, Eh, uh, federal employees about the career compass challenge and I heard later that that discussion made them nervous because for them learning that the jobs of the future say five years out would be very different than the present was scary for some people to hear. And I feel bad about that, that I may have frightened people, but I also feel that that's okay because I believe that to be reality and telling someone that something is coming five years from now is not the same as waiting five years and then having it drop.
Walch	You know, AI is a transformative technology and tech transformative technologies bring about disruption and change and it's inevitable that there will be jobs five, 10,15 years from now that are not jobs of today. And that some jobs of today will go away. And we need to make sure that we're consciously trying to look forward and plan ahead. I know shifting gears from low value to high value work is a key goal for the president's management agenda. So how can the federal government equip the

	workforce to make this journey?
Aronson	You know, uh, I believe in Bots, for example. I believe that the way people use excel today, for example, the way everyone uses excel, it's my hope that in the future everyone will be able to use bots that it won't be an IT, um, it won't be in the domain, the solely in the domain of the IT professional, but that everyone will be using these tools. So how do we get from where we are today to that? Well, I think we have to create the foundation so that, uh, the rules exist. So that creating the bots are safe, uh, and non-disruptive to other activities that are going on so that they're audible, auditable, you know, training people so that they do it in such a way that, uh, if they leave, the next person can take it over.
Delmolino	So, Dorothy, thank you for joining our podcast today and sharing your insights. Incredibly valuable. So, I really appreciate it.
Aronson	Thank you.
Walch	While aspects of AI can be disruptive, I think that Dorothy did a really good job making it clear the need to embrace this technology and the disruption around it.
Delmolino	We continue the discussion around how AI is impacting the workforce by speaking with Presidential Innovation Fellows Justin K and Jeff Star.
Walch	Presidential innovation fellows program housed within the US General Services Administration are entrepreneurs and technologists that bring startup thinking to government. They help government leaders take advantage of emerging technologies and practices to build more innovative programs that benefit the nation. We're excited to have two PIFs join the podcast today as they are working on a new initiative to help federal agencies prepare their workforce for automation. Justin Koufopoulos has leveraged his background in product management and social entrepreneurship to serve and two administrations. As a fellow, he's worked with NIH to improve clinical trials and is now working with the VA to unlock the full potential of its clinical data. And currently the 10 times program or 10X program. Okay. And currently the 10X program in creating the AI/ML playbook, Jeffrey Starr brings the program deep expertise in architecting solutions around complex issues in cybersecurity and risk management in his career. He's also focused on WMD proliferation and arms control issues as a PIF. He's helped as a PIF, he's helped the department of transportation model cybersecurity risks associated with autonomous vehicles. Welcome. We're so excited to have both of you on the podcast.
Jeff Star	Thank you, Kathleen. Thank you, Dominic.
Justin Koufopoulos	Great to be here.

Delmolino	So, gentlemen, both of you bring deep hands-on experience with AI in a federal setting and there's been a lot of interest in artificial intelligence in government. Why are agencies wanting to use this technology?
Starr	There were a number of triggers that are drivers that are, uh, compelling agencies to take a close look at artificial intelligence. Uh, probably first and foremost is the changing nature of debt, of data. Um, information that agencies collect to conduct their mission to do their services, uh, is becoming more complex. The data sets are becoming more complex. One good example of that's in the Department of Transportation where I had some prior experience, uh, elements of the Department of Transportation. For example, the federal highway administration is looking carefully at the future of the intelligent transportation system, which we populated by autonomous vehicles driving on the road. These vehicles will communicate with each, with each other in real time, making decisions about maintaining safe distances in differing, uh, road conditions, weather, uh, situations, road hazards, that type of thing. Uh, without human intervention, these vehicles will be, uh, communicating with traffic management systems. So, in order to collect all this data and analyze all this data for safety and regulatory reasons, the Department of Transportation is having to take a careful look and move rapidly towards, uh, adopting artificial intelligence and machine learning methods
Delmolino	How much of AI is hype versus real benefit and how do we evaluate that? How do we know what the difference is?
Koufopoulos	So that's a, I think, a really important question right now. Certainly, I think in addition to what Jeff was saying, another one of the drivers has been the large amount of marketing that's happening around artificial intelligence. Um, but we are seeing real impact in government. Um, we think that, you know, data and the size of the data that's available now is making this something that's real and more real than it was maybe when artificial intelligence sort of first hit the scene, uh, 20 years ago or so. Um, as Jeff is saying, you know, there is real benefit and we are seeing that, especially with agencies that have deep expertise in their data and a close understanding of their problems.
Delmolino	Do we see that there are any significant risks associated with AI? And how are they balanced against the rewards?
Starr	Well, I don't know that we're seeing a lot of risk in the adoption of AI so far in the u s government. It's not proceeding rapidly, um, in the sense that, uh, some agencies are quite mature in their utilization of machine learning methodologies. Those agencies tend to be not exclusively, but they tend to be very technically oriented agencies. NASA for example, or NIH, um, where there's a significant body of related work going on in the academic circles and in, uh, in the, uh, commercial sector, uh, regarding some of the same methodologies and uses of, of machine learning for the

	same kinds of analysis. Um, over time, there will be risks though, um, because as agencies move toward adopting machine learning, uh, there'll be financial risks because you spend money on putting together uh pilot projects, for example. Uh, and so there are risks involved in sort of trial and error and adoption rates. Our playbook in fact, is designed to mitigate those risks, to highlight some of those risks and help agencies mitigate them. And then over time, as an artificial, because artificial intelligence, machine learning methodologies are all about analyzing data, they're also about assisting in decision making, uh, and helping agencies or any corporation for that matter, uh, to make decisions based on data. Um, and so agencies are, are going to become data-driven entities much more than they have been in the past, just like corporations are. Uh, and this compels some change management, uh, requirements, uh, for people to adapt to the new kinds of decision making, the new use of data. And so, there'd be some learning curve involved with that kind of thing. Uh, and finally, uh, machine learning algorithms can introduce something called bias, uh, into decision making bias in our, in the sense that Koufopoulos and I work in artificial intelligence area, we mean it sort of mathematically in how bias, uh, can and how algorithms can react to datasets and infer decisions from data sets given to them. Uh, but of course that bias can also translate into the more familiar political, social and demographic kinds of biases that we're more used to talking about. And so, there are risks that can be understood in advance and that, uh, people have to think about and compensate for. Um, but all of a sudden, we think is manageable.
Koufopoulos	And I just want to emphasize something that Jeff actually said. So, um, we are working on this playbook which, you know, really tries to help an agency that's confronting this question of, Oh, does it make sense for us to actually use machine learning? That's actually really the first question because not every problem really make sense for machine learning. And, um, we saw that there were a number of, uh, kind of traps that agencies could fall into. And so we wanted to create something and we think it's the first thing that does that is actually in the government that pulls together lessons-learned principles from projects that were successful as well as ones that were failures so that agencies could avoid some of those things that Jeff mentioned.
Kathleen:	So, regarding the playbook, how is this process going and, um, you know, what are you trying to accomplish with the playbook? I know you touched upon it a little, but maybe elaborate for our listeners that aren't familiar with it.
Koufopoulos	Yeah, absolutely. So, um, Jeff and I for the 10x program, which is a program within the GSA and the technology transformation service, which provides funding for projects that they feel are disruptive and

	innovative, awarded, um, Jeff and I funding to examine the landscape of where different agencies were at when it came to their adoption of artificial intelligence. And by that, and I think this is actually really, um, unique is, is not just in terms of putting data out for private sector, but actually integrating artificial intelligence into workflows to actually improve the organization itself. And I think that's really important cause that's actually the whole point of this, right? It's, it's not to do AI, but it's in fact to improve the organizations themselves. So that's where we started from. And, um, we ended up doing this research and found, like we said, sort of some of these different principles and factors which differentiated agencies that were more advanced in being able to actually integrate AI into their workflows from ones that weren't. And we can talk about that more, you know, later. Um, but out of that, uh, came this idea of a playbook. We felt that, you know, these are some really important lessons. We heard of agencies that were actually already starting make some of the same, um, mistakes and we wanted to avoid that. And, and so that's where this idea for a playbook came up.
Kathleen:	Yeah. That, that's important to bring up too, because a lot of people will talk about successes, but they won't talk about failures. And I think that you can learn just as much, if not more from the failures than you can from the successes. So, what are some of the common pitfalls that you've been seeing?
Starr	It's a fundamentally different way of analyzing data. Um, and in many cases, agencies have to learn where their data is located, how to access their data. They have to understand more carefully than ever before how their data actually informs their mission requirements. So, one of the pitfalls or most important features and beginning of this journey is that, and it's really to understand your mission requirements in terms of the data you have. If you haven't collected the right kind of data, you may have to go out and collect it. If you haven't, uh, had good data hygiene rules in the past, which is fine, if data resides in your file cabinets, um, then, uh, you have to structure your databases, um, uh, label your data, tag your data, uh, that type of thing. Uh, we found in our research, uh, leading up to the first draft of our playbook that some agencies had fantastic data hygiene, data structuring traditions, for reasons entirely unrelated to machine learning, but when they began their machine learning journey, they were that much further ahead. Uh, second of, and there are a bunch of factors, a bunch of way to answers your answer, your question Kathleen, but a second really important factor is um, skillset, getting enough sufficient concentration, critical mass of people in your agency, in your office who understand machine learning or who can learn enough about machine learning to begin to look at your data to begin to match your mission requirements with your data. And then to begin to imagine how machine learning, particularly we, we talk about AI ML, but really, it's machine learning. What we're talking about here, uh,

	how machine learning can assist the agency.
Delmolino	So yeah, we've heard from several guests about the importance of leadership, having a strong leadership ethic with regard to, you know, how are the agencies going to implement AI, how the workforce will be impacted. And so, within the federal sector we've seen that leaders play an important part in shifting the discussion or focus from maybe job displacement type activities toward empowering the existing workforce to be able to do a lot more. How do, how do leaders engage in making that discussion occur?
Koufopoulos	You know, so I think we found actually, um, in our research in the first phase that there was not enough evidence that really there was going to be a, a major job sort of displacement. We didn't really see that. In fact, the first scope of the research was to identify jobs most likely to be displaced. So, we didn't really see, you know, kind of that as a, as a major risk. And so, we ended up pivoting more towards what we're currently doing now with the playbook, which is trying to actually help bring in innovative new technology. But, um, you know, to, to answer your question, um, I think it's about being, uh, empathetic, you know, as a leader and uh, and forward thinking, um, trying to, you know, give your people the right tools to succeed. Uh, we saw that, you know, the, the agencies that were most successful in integrating AI, um, had leadership bought-in the very beginning and they actually understood why it would be valuable. Um, there was some technical expertise actually there itself, which I think is still important. Um, and so, you know, I think for this audience I would ask like if you do want, and I think AI is just a, it's a case of innovation. It's not all innovation, but if you do want innovation to happen within your organization, prioritizing that in a real way is really key. You know, we, we heard of agencies and GSA is actually, um, one that does this too, which gives time for, uh, internal innovation. So presidential innovation fellows can spend up to I think 20% of their time working on internal innovation as well. And we've seen a lot of really important projects come out of that.
Starr	And, uh, what Justin mentioned was a common theme of a few cases. Now, it wasn't widespread, but for those that were more successful more rapidly, it was a common theme where people on staff who had day jobs so to speak, uh, were given 20% of their time or, or it was legitimate for them to spend 10, 20, maybe more of their time every week exploring AI, trying to figure out how machine learning might help the agency with the boss's approval. Um, and so that kind of innovative, um, workforce practice so to speak, uh, we think is potentially significant with regard to displacement issue. As Justin said, we don't have much evidence at this point that job displacement that is people being put out of their jobs is a concern that we need to, that is inherently tied to artificial intelligence, machine learning. I think job transformation is more likely. That is to say

	my job was going to be changed by my organization, bringing machine learning methodology into my organization. The question is how do I adapt with it? And part of that may be natural, uh, because if I'm not the machine learning algorithm building person on staff, I still have to deal with information like I have always had that information may come to me new slightly different way. Maybe there's some training requirements, but we don't see evidence at this point that those kinds of transformations will result in significant dislocation, for example.
Delmolino	Well that's good to hear. So as AI has this power to transform jobs in this fashion, like you've mentioned, how prepared is the typical agency to handle that level of job transformation and other steps that agencies can take to be better prepared for that?
Starr	Well, I doubt that a lot of agencies that are beginning in their early stages are prepared for it. But yes, the answer to your second question is yes, there are things they can do to prepare for it, but preparing for it is also kind of a natural thing that will evolve during the course of an agency.
Koufopoulos	I think the only thing that I would add is, you know, I, I can't predict the future. I don't think anyone here has that skill. Um, you know, I'm unconvinced that everyone needs to be a software engineer or a data scientist. Um, you know, I just, I think kind of going back to the original point, um, it's really about leadership and culture at the end of the day. Like, are you a leader that prioritizes innovation? Do you care about your people? Um, and what, you know, evidence do you have for that? I think people sense when someone really cares versus when that's, that's not, that's not the case.
Kathleen:	Agencies are looking to adopt AI today or in the very near future. So what skills will be needed in agencies by today's workers in order to take advantage of AI?
Starr	I mean, people will have become, um, more familiar with different uses of data. It's hard to know in advance what the answer that question is to be honest. Um, because machine learning algorithms will change the way a company or an agency or directorate in the government processes or data analyzes their data. It doesn't mean that the results of that analysis are going to be fundamentally inaccessible to the people who analyze their data before the, the, the arrival of machine learning algorithms, uh, machine learning algorithms will also support decision making processes. It's just the process of getting to that output to will be fairly familiar to the caseworkers. For example, uh, the people who actually provide benefits. Now I'm thinking case of VA for example, where Justin has a lot of experience, um, it's the process of getting to those results that will be changed. So, what may be that job transformations may not be quite as significant as what we're implying is what we're all kind of suggesting here in our conversation.

Kathleen:	Given that we aren't able to hire 10,000 PIFs this year, how can we develop or acquire these skills in sufficient scale to meet the needs of the federal government?
Koufopoulos	That's a great question. And um, while we can't hire 10,000 PIFs, just as shameless plug, the presidential innovation fellows program is always recruiting the best talent in technology. Um, so please check us out at piff.gov - P-I-F-Dot-Gov - if you're interested in applying. Um, you know, it's, it's really important to, to ensure that people actually have, um, you know, the opportunity to, to learn some of these, some of these skills. So, I don't think we need 10,000 data scientists to descend on government. I think we need a lot of people who are really critical about the work that they're doing. To your point, you know, does this process actually need to exist? Because I think what we all want to get to is a government that's more effective, more efficient, however we go about getting there. Um, so that's, that's, that's my answer. I think it's, I think it's having those really those critical thinking skills. You know, some analytical ability, some understanding of data, do you need to be a software developer? Probably not. Would it be a good idea to be able to maybe do some macros in excel or you know, kind of know what a database is? I think that's a really good thing. Um, and I actually think that that would be really helpful for a lot of the government employees that we work with.
Starr	Success in adopting and integrating AI ML into your stream does require a certain amount of technical skill. Our theme today has been, it requires more than just that. So, we don't want 10,000 data scientists PIFs um, because it's not necessary. Uh, there are cases where agencies that we've run across in our conversations where agencies that are beginning their AI ML journey and already thinking about problems that they could solve using the data they have by, um, by training AI or by training machine learning algorithms to assist them don't have the requisite skillset. And so, its kind of slows them down for a short period of time, but it's not a strategic slow down. Uh, that means that next fiscal year they've got to put some budget aside to get, you know, some IPAs or some details or some contractors or spend a little more time training in house, uh, to rise up to that sufficient level. The AI ML journey takes time and it takes an investigation and it takes exploration and experimentation. As agencies progress in that direction, they're going to be able to address more and more successfully requirements for expertise. And so, you don't want to, if we hired 10,000 data scientists today, whatever the magic number is, um, it wouldn't necessarily accelerate the adoption of AI ML across the government significantly. It would help people get, you know, this fiscal year they could do a little bit more, for example, but over a longer period of time, it may not be noticeable. Uh, and so I'd rather, I think we would rather see agencies progressing sort of systematically towards looking at their data, looking at their mission requirements, experimenting, bringing on more and more talent, training talent in house, bringing on more and

	more talent. Doing it simple, like you said, Kathleen, and iteratively because if you do simple experiments, you can understand the results of them because there aren't so many variables interacting. If you do a big project, you don't know what's affecting what necessarily. Um, and if you iterate a lot, then you learn and it's in that learning process where success is and the technical expertise will be there.
Koufopoulos	Um, so I, I agree with everything that Jeff says. It's a, it's a slower evolution. We, we are woefully short of data scientists in government. That is, that is 100% true. So, it's true. Um, we definitely, we definitely need them, but I think we both agree that the answer is not just to, uh, drop a bunch data scientists in house. There's lots of lots of steps before then.
Delmolino	Yeah, I'd like to add that. So, our researchers found that many federal workers feel confident in their ability to embrace new skills around AI, ML and automation, but they've been a little concern that their agencies really aren't offering sufficient training for them to acquire these skills. How should agencies approach this new training requirement? And especially since this is likely to be something that's going to be continuous as this field evolves?
Starr	Well they should train, I'm joking. Of course, they should train. Uh, but again, the training requirement is evolving as well. Putting together the right curriculum is a function of the kind of data you have, the kind of mission you have. Um, and I know that in the commercial world, uh, when companies are looking at companies that advise other companies, like Justin and I are, we're writing a playbook to advise government agencies and how to begin their AI ML journey. There are companies that advise other companies in the commercial world how to do the same kind of thing. Uh, and there are curricula for leaders. There are training programs basically for leaders to make leaders a little more acutely aware, not so much how to build an algorithm, but about what these algorithms, what they are first of all and what they can do to help your decision making or to make more efficient your productivity uh, depending on what your nature of your industry is. Um, there are training programs for project managers: how to manage projects that involve different kinds of methodologies than people are normally used to. There are training programs for the d- for the people who are this, you know, in the data world, uh, there are training programs for different kinds of people involved in different kinds of business that might be affected. But remember, one of our key ideas here in this conversation has been that for those people in an agency, in the government or in a company who are dealing with the results of data and analysis, they're still going to get those same results. It's just how those results are generated and how the

	data is analyzed. That's what's going to change.
Delmolino	And I heard you earlier mentioned like this, this idea that people could set aside time or have the opportunity space, like the 20% time you guys, you both have mentioned and to continuously upgrade one's skills to innovate, to try, to experiment. Right? And so, I think especially as this is going to be a continuously evolving set of skills that need to be required, it sounds like we may need to make sure that agencies are thinking about what is that continuous upskilling plan look like.
Starr	Absolutely right, Dominic. And, and I think that we just-, Justin, I together I've come to the conclusion that this is a really low impact and high payoff, uh, tactic: innovation, to help create an innovation culture in companies, in agencies, uh, that, um, that has low impact on the, on fulfillment of the agency mission. And, uh, in terms of diversion of people away from there, so so-called day jobs, uh, but has potentially high impact in helping to, uh, to bring innovation into that agency at almost no cost.
Koufopoulos	I'm sorry, I agree with that. I think that, um, you know what I, what I hear in that question is a little bit of anxiety. Um, I think I would say is a little bit anxiety. Certainly, question about, you know, is my job, um, safe, right? And I would go back to what we were saying before. I don't think the evidence within our project, um, has shown that, you know, there's going to be a mass exodus, um, in the federal government due to automation. But I think your point is right in terms of continuous education and having a culture that values that and really just values the people, right? I think that's what actually mean is, is valuing the people and leaders that care about the people that work for them.
Kathleen:	Yeah. That's great. And you know, we're really looking forward to hearing more about your playbook and I'm sure our listeners are as well. So, thank you so much for joining us today. And for our listeners that want to follow both of you and learn more about your work and the playbook as well, how can they best get in touch with you?
Koufopoulos	So That's press p r e s s @gsa.gov that would be the best way to get in touch with us. And of course, the PIF website, pif.gov. Thank you.
Kathleen:	Thank you
Starr	Thank you so much for hosting us.
Delmolino	Given the number of ways AI will impact the workforce, this has been a timely discussion. I really appreciated the urgency with which National Science Foundation's CIO Dorothy Aronson was arguing for. In many cases, we understand the nature of the changes that are coming and that we need to take action quickly, so we need to overcome our inertia.

Delmolino	Jeff Starr and Justin Koufopoulos shared an exciting example for how we can get started today. Their work also underscores the need to engage and experiment as none of us have all of the answers today.
Walch	Yeah, I agree with you regarding Jeff and Justin's work. We need to ensure that workers are active participants in reshaping their roles to take full advantage of new technologies. For me, Dorothy demonstrated the impact and importance of personal leadership. Government will not succeed with AI if leaders and those with decision making capabilities are not ready to embrace it.
Delmolino	Thanks again for listening. If you liked what you heard, tell a friend or share socially using the hashtag, exploreAI.
Walch	We'll be back in two weeks with an episode exploring where federal AI is headed next. Joining us are GAO's Dr. Tim Persons and Dr. Gil Alterovitz of the Department of Veterans Affairs.
Delmolino	Thank you for listening to Exploring AI in Government, brought to you by Accenture Federal Services. To continue the conversation, visit us at Accenture.com/ExploreAI, where you can listen to other episodes and download relevant research. Or you can connect with myself, Dominic Delmolino, and our guest analyst, Kathleen Walch, on social media. We look forward to seeing you at Accenture.com/ExploreAI