Public Sector Future podcast

Episode 15 - Data curation for sharing and crisis response

Olivia Neal [host]
Professor Dame Angela McLean, [guest]

[Music]

OLIVIA NEAL: Hello, and welcome to Public Sector Future. This is a show for anyone who cares about using digital approaches in the public sector to deliver better outcomes.

I'm your host, Olivia Neal, and together we explore stories from around the world where public servants have been successful at driving change. We meet the people behind the stories, hear their firsthand experiences and their lessons learned. Throughout the series, we discuss technology and trends as well as the cultural aspects of making change happen.

OLIVIA NEAL: I'm joined today on Public Sector Future by Professor Dame Angela McLean. Professor Dame Angela McLean was appointed as the Chief Scientific Adviser for the Ministry of Defence in September 2019. She is a Professor of Mathematical Biology in the Department of Zoology at Oxford University, a Fellow of All Souls College and Director of The Institute for Emerging Infections of Humans. Professor McLean as also co-developed the Oxford Martin School Restatements: an activity which restructures and presents the evidence underlying an issue of policy concern or controversy in a short, uncharged, intelligible form for non-technical audiences.

Thank you for joining us today.

DAME ANGELA MCLEAN: Oh, yes, a pleasure to be here.

OLIVIA NEAL: Maybe we could start right at the top and give our listeners who are all around the world a little bit more context on what your role is. Could you tell us a little bit more about what does a chief scientific adviser do in the Ministry of Defence?

DAME ANGELA MCLEAN: It's a pleasure. Here in the UK, we have a system where most of our government departments have an external chief scientific adviser. So we tend to be people who've been working in academia or elsewhere who come in to be scientific advisor's –for a fixed amount of time. I think that's all done on purpose because we come with an outsider's eyes and sort of a career spent outside government, really knowing about science, not really knowing about government, and that has some – also, it does have great purpose, you know, you see this and you say, of course, that's a weird way to do stuff, why are you doing stuff that way? When you've been in an organization for a very, very long time it becomes so much more difficult, on Fridays, still, I'm an academic infectious disease modeler in Oxford University. And then four days a week here I am the Chief Scientific Adviser to the Ministry of Defence here in London.

OLIVIA NEAL: What an interesting combination of roles. Do you miss having your full-time opportunity dedicated to your research? Squeezing that into a Friday, that must be a lot you're trying to fit in.

DAME ANGELA MCLEAN: It's a lot to fit in. It turns out that the things have happened, that being an infectious disease biologist has actually been a large part of my Monday through Thursday job, as well, because right across government, so many of us have committed so much time and effort to COVID response, and actually, that's just

been incredibly interesting and sad and rewarding to be an infectious disease biologist in government at this time.

So, no, I couldn't say that I miss my academic job, no, it's been really, really interesting time to be in government.

OLIVIA NEAL: So, when you joined this role and you came into the Ministry of Defence in 2019, you have a quite a large scope of responsibilities in areas and engagement across the Ministry of Defence and wider government. How did you narrow that down and decide on what your initial priorities would be?

DAME ANGELA MCLEAN: So, I've done some other work much more external, so much more kind of outside the fence, shouting in, for quite some time so I did know that data sharing within and between departments in government was a real challenge. And that was one of the reasons I thought perhaps I had some experience where I might be able to help, because that's also true outside government.

I mean, a large part, always of all of my working life, has been finding the relevant data and persuading people to share it with me. So, I came in saying what I would like to be different when I leave is that the Defence has figured out how to do data curation for sharing. I have to admit, I've modified that a bit now, I've come to see that will be a never-ending task. I'm now hoping that by the time I leave, we've made a really good start on that.

OLIVIA NEAL: That challenge around better data sharing, you mentioned two things there. You mentioned your challenge on persuading people to share data with you when you were in an external role, and then the focus that you have within the Ministry of Defence on data curation for sharing. And I think that's a really interesting foundational element to start with is starting on that curation side and that's something that I see as a challenge when we talk to many governments around the world, is they know they need to get better at data sharing, but they're really struggling to know where to start. And I wonder if you could tell us a little bit more about what you mean and what you encompass within data curation, because that sounds like one of the foundational areas that you're seeing.

DAME ANGELA MCLEAN: First of all, I'd like to say that this issue of curation for sharing is a lot more difficult than just curation. And if I'm going to share my data with somebody, I have to have labeled in some way, so well that they will understand what I meant, not just what I say. We all know that the metadata, the way that the data is labeled is incredibly important, so that's the first thing.

I think that one of the things that's going really, really well in Defence recently is real clarity about priorities. And one of our absolutely clear priorities is what we call multi-domain integration. And in my opinion, at least one of the most important tasks within multi-domain integration is data sharing across domains, so in defense, when we say domains, we mean things like land, air, space, and so on, and a large part of that task to integrate those is to be able to share the right data at the relevant speed from one domain to an another and back again.

OLIVIA NEAL: And in starting to move that forward and move that priority to a space where when you leave this role, you're going to be happy that it's moved the whole organization forward. Are there any activities that you're undertaking now which have been successful or which would be useful for other people to learn from?

DAME ANGELA MCLEAN: A step forward that I'm very hopeful about is the identification of priorities, so one of those is that we are going to get after the command and control. The command and control is where, if I'm land, I say the land and I say, where am I, where are they, what do I want to do, how do I get there? But you can see,

that if you were trying to do that with land and air, suddenly you don't double the number of questions because you've got all the attractions as well.

We're starting to have a very clear set of objectives in a limited arena where we're going to discuss, right, how are we actually going to do this?

OLIVIA NEAL: And it sounds like in order to do that, you're having to bring together groups of internal stakeholders to come to those shared set of priorities and those clear criteria.

DAME ANGELA MCLEAN: Well, best so, I don't have to do it all myself, so one of the great things that Defence is done is hired a chief data officer, and we were very lucky to find somebody called Caroline Bellamy, who I think is just fantastic, and that's one of the things that will make me very happy when I leave is if Defence still has a chief data officer, is still listening to her when she talks to them about how important this task is and how much more than just establishing set of data standards. That's one thing.

I think there's an interesting scientific piece there which is to do with, well, how do you make sure that the right questions are getting asked about what information do we need to share, why we are sharing it? Is there a better way to do this, rather than just recapitulating the old way of doing it, which was electronically?

OLIVIA NEAL: And I think that's a really interesting point about making sure that the right questions are being asked, and I particularly liked the angle that you're really emphasizing on is there a better way, and not just do we use the new technology to do the old thing, but online, do we build new capabilities, do we build new understanding in? And one of the things that leads me to think about is the ability for public servants to have the skills and the knowledge to understand what these right types of questions are to ask and to have those informed discussions and conversations.

And as we're seeing a greater prevalence of technology and digital approaches in almost everything that we do, one of the things I think we often see in civil service organizations around the world is that our public servants aren't necessarily equipped with the right skills and language and understanding to help those informed discussions, and particularly to think about opportunities and risks, and risks both of change, but also risks of status quo as well. And I wonder if you have any thoughts on whether that is an area that needs to be built on. And if it is, if there are any ways that you've seen work well to start to address that.

DAME ANGELA MCLEAN: Well, I'm glad you brought up the word risk, because I think that is a very useful language for thinking about things that might go wrong, like they are to go wrong, and then really what to do about it, if it did go wrong. I think that's a terminology that could be easily – more widely used across civil service, and I think it's a really great way for senior management to kind of reach down into the siloes of their science because that's where the expertise will lie to really do that risk analysis and to find out what's a hazard, who is exposed, who is vulnerable, and then across the whole suite of questions that come when you think about your motivation and management methods.

I think we can do more of that. The other thing, I think, long term, all of us need to think about how to get more science expertise right into the heart of government. civil service is full of terrific scientists, and I feel like I have a responsibility to persuade some of them, not all of them, that it is not a dereliction of their duties to basically become a generalist with a view to bringing their science, skills and knowledge to a leadership role in the fullness of time, and that's not in any way to denigrate the fantastic generalists we've had. I think I call more people who are generalists now, but deep in their bones, as scientists, you know, they have a nose for, is this evidence any good, was the control really a good control? When somebody says a study says what do they mean, all these

sorts of things that I think scientists just do without thinking, and so I think everybody with a commitment to the evidence will do it without thinking. I think there could always be more of that.

OLIVIA NEAL: I think that would bring a really interesting new balance to some of the discussions that take place, sort of those different perspectives. And so part of your role within the Ministry of Defence is to be an independent person who is operating as a challenge function, and really, as you mentioned earlier, ensuring that the right questions are being asked, that the engineering and science advice is robust, and that challenge function, in various forms, whether it be for science advice or for spending on technology or a transformation, in different places, it's something that we're seeing governments around the world starting to increasingly put in place. It's a difficult role with lots of fine balances to be had where you're keeping independence, but also helping an organization move forward. And I wondered if you had any lessons that you could share from your role on what you've done to make that go well or things equally that haven't worked well.

DAME ANGELA MCLEAN: The very first thing that I would say is it is okay to be challenging and that I think it's of course one of the great gifts of the job I have, is that my colleagues do remember that that's why they hired me. It is nevertheless a balance, you know, because essentially, if you are too much of a pain, people won't listen to you. And I do think that's one of the most interesting things about the job is finding that balance of being a trusted colleague and a critical friend.

I mean, let's face it, a critical friend is really annoying because they know you well enough to get the thing that you lie in bed worrying about, right, but I do honestly believe that that's my job. I think it is, I mean it – and actually, that's one reason I think it is much easier for those of us who are external. I am not trying to build a career in civil service. I have one of the world's most beautiful offices, sitting and waiting for me in Oxford, with a sofa on which I can lie on, and how great thoughts when they finally get fed up with me here, and I think that is very reassuring for when – you know, why sometimes go – did I go a little bit far.

There have been occasions when I thought that was pushing a bit hard, but somebody has to, and that is one of the things that's quite surprising when it comes to the civil servant rather than an academic. Academics are really quite hard on each other. And we don't really view it as rudeness, we just view it as trying to get straight to the point because time is a bit short, and what we're trying to do is quite difficult.

I had a very interesting discussion, actually, with another bunch of DGs when I was new, because I said, why are you so polite to each other? And they said it's because we have to make things happen together. So, civil servants can't afford the sort of wildly organized chaos of academia which imposes a cost on very direct criticism of each other.

So, I do think being grist in the mill, which I know I am, it's a good use of my time. I can see why the civil service can't be as direct as academia is. I wonder if it couldn't be more direct?

OLIVIA NEAL: So, moving on, to thinking about the implementation of new technologies and we're seeing so many more capabilities that are available, so much more quickly than necessarily in the past. Could you tell us a bit about how you're working or how teams around you are working to think about, as the access of those types of capabilities does accelerate, how we can make sure that the implementation of the new technologies is done in a way that is responsible and thoughtful?

DAME ANGELA MCLEAN: One of the things that we had to work at very hard, here at Defence, I think because we're such a large organization, is connecting up the different bits of our organizations that are responsible for

delivering new capabilities. So, largely speaking, what we do in science and technology that I'm responsible for, tends to be what we would call a lower technology readiness level.

In our terminology, that really goes through three phases, what we really call science and technology, which is basically things that – you can't buy. You've got to invent yourself and then try and persuade somebody to make it for you. Through innovation, so things that you could buy a version of, but then you'd have to do something pretty smart in order to actually make it work with the tasks that you've got, through to the capability, the things that we need to buy and use, right here and right now. And we had a really successful couple of years in being very clear across that pipeline. You know, it's not linear, but what a pipeline that we have a good language of sharing what it is we're trying to do, and we understand that no one of us can do that whole thing, so we have to work together.

So that's one thing, sort of joining up, across the entire pipeline from science and technology through development to delivery. That's one. Another, I would say, is we do think seriously and profoundly and with external help about the ethics of what we do.

OLIVIA NEAL: When you are thinking about the ethics of what you do and the guidance that is given, is that something where there is collaboration, not just maybe within the Ministry of Defence, but across other departments or internationally as well? Because these are areas where we're all kind of learning and developing so quickly.

DAME ANGELA MCLEAN: The major effort at the moment is, within the UK, within our own ministry, with help from academics, really across the world, to help us with our own ethical decisions, and of course, we are very interested in what our allies are discussing and have decided on those questions, so both, of course. I mean, like any ethical decision, being able to talk to ally about what did you decide, have you dealt with this, it's incredibly important.

OLIVIA NEAL: And then just coming back into the UK focus, within your role, there's a network of chief scientific advisors across government departments, does that network come together and work together across different departments, and are you seeing trends in things that you're working on together, I mean, potentially outside of your COVID response and that more generally in the ways that you're working within departments?

DAME ANGELA MCLEAN: Well, I was going to say the COVID response kind of supercharged all of that, and really moving it out of the way, because there's nothing like having to work with a bunch of other people in an emergency to build trust and trustworthiness together, and so I think, to me, the CSA team feels very, very strong because we have done so much work together under a certain amount of pressure for the last 18 months.

There's a topic that we're talking about a lot in the CSA community that I'm very excited about actually, which is, take the things we learned from the COVID response in order to think more widely about risk management for this thing called the National Risk Register and I think that is a great way, a different way to work on this task of putting science right at the heart of government, there it is, the National Risk Register , which sits there, and having had all those risks materialize, I think it's a terrific moment now to say, hmm, what do we wish we'd done in advance to that one, what should we therefore now do in advance of all the others?

OLIVIA NEAL: And I think that sounds like it loops back nicely to one of the things that you were talking about at the beginning, which is the importance of data curation and data sharing, because of course, during COVID, we saw that be just so central.

DAME ANGELA MCLEAN: You hit the nail on the head, Olivia, absolutely. Absolutely, that conversation has several strands and the strongest unifying strand is what dataflows must we have up and running on day minus one? And how should we have those conversations and that's in many, many places, but we're not starting at zero. we have these marvelous lists of the things that we're afraid of also then you have this experience where some of that data was available but not all of it at the moment that we needed it, so we talk about, right, what can you assume will be available? What do we have to work on now so that it will be available? there might be some doors that have to be kicked down, actually, and I feel really strongly that we must learn that lesson. The lesson we learned from COVID is not only a pandemic preparedness lesson. It teaches us something about having a risk on a risk register at the beginning.

OLIVIA NEAL: That's a very powerful example of collaboration across government environments to tackle the most important challenges that the country is potentially going to face. You mentioned, in talking about the kind of development stages of looking at new technologies through the invention and the acceleration, the purchase of new areas, ways in which partnerships can sometimes be important, and the relationships then between government and academia and industry, and I'm interested if you could say a little bit more about what that means in reality and if there's ways in which the partners in that can make those more successful. Because I think in the Defence space, we see more partnerships happening in a more proactive and transparent way than maybe in other areas, and I'm wondering if there's lessons on what makes these partnerships work well.

DAME ANGELA MCLEAN: I asked that question of somebody once, actually. How do you make this cross-government working work so well? And he gave me a one-word answer, that he said three times, practice, practice, practice, so I think that's one of the things that the military does because – by the time the military is there, there isn't any other option – because they practice things, and that I think is generalizable. I think actually it's one of the great privileges, actually, of being a scientist, trying to help the military, as it's an organization that takes practice and experimentation extremely seriously, and investment.

OLIVIA NEAL: I think, absolutely, that practice of building these relationships doesn't happen overnight. It's something that develops over time. And one of the things that we're taking part in from a Microsoft side, and it's really being led by the UK is the Pacific Future Forum, which is coming up in October. And I think that's an interesting example of something that's bringing together both industry and governments from around the world and different perspectives into one place, and those types of events are maybe part of helping move those conversations forward.

DAME ANGELA MCLEAN: I think that's right, the more we can work across our silos, the better. There's a cost there, though, of course, because we've always got too much to do in inside our silos, but I think we do learn though that the military can teach us again and again and again, that – that effect is always going to be much better delivered if it's been practiced first. Often, we'll require more than one domain of expertise.

OLIVIA NEAL: So, one final question from me, which we ask to all of our guests, which is, within this show, we really want to focus on and share the successes of people working in public service I'm interested to know if there's anything in particular that's been happening either within the UK or within another country, which you look to for inspiration or a piece of work that's being done particularly well.

DAME ANGELA MCLEAN: Let me give you one that I'm incredibly impressed by. I am proud also because it comes from our Defence Science and Technology Lab, so declaration of interest, and that is the way that the STL steps literally into the breach in very difficult times in March 2020, when COVID was spreading in the UK. We knew that we needed modeling, and so that's my community, in order to figure out what was happening, how fast, how quickly we might expect our interventions to have any impact.

Lots of highly relevant data was being collected in the NHS, but the NHS was simply unable to give that data to that set of academics. They weren't allowed to. And into that gap steps DSTL statisticians and modelers and said we can be a data haven, we know all about anonymizing data, we know all about handling the most secret data there is. We can handle that side of it. We can handle the nondisclosure agreements, so this rather diverse set of academics can get permission to work on that data.

And from that intervention, which I know, took a huge amount of time, a lot of very long nights worked. It became possible for large amounts of the relevant data to flow from the NHS, from Public Health England also, so that it could be properly analyzed in ways that allowed us to make better informed decisions about how we had to intervene and when, and I think that's an inspirational application of actually what was military know-how to a civilian emergency.

OLIVIA NEAL: Fantastic. I think that's that sounds like one which hopefully is setting a foundation and a precedent for things which could happen in the future and empower some of the areas that you've been talking about linking back round to the importance in the foundations of data and the decisions that we're going to be making and in managing future risks as well. So, hopefully there's lessons that will be learned there, which will be extrapolated and built upon for the future too

DAME ANGELA MCLEAN: Absolutely, right Olivia.

[Music]

OLIVIA NEAL: Thank you to our guest, Dame Angela McLean. And thank you to you for joining me today on Public Sector Future.

Our goal is for you to learn something new and be inspired to think differently about your own digital transformation journey. If you've enjoyed today's episode and want to help other people find it, please share, rate, and review the show. It really does help people discover new shows like this one. And listen and follow wherever you get your podcasts.

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Reach out, send your questions and feedback. You can find me on Twitter @livneal or on LinkedIn or please do e-mail us at ask-ps@microsoft.com.

Thank you very much and we'll see you next time.

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