

Hello everyone, I'm Alison Pritchard, I head up the Government Digital Service or GDS. I'm also head of the Digital Data and Technology function in government. It's worth saying in organisational terms we're part of the Cabinet Office in GDS; that is we are where we want to be. And we claim to be very different when it suits us. So harnessing that difference is a great role that I enjoy in my job. So next slide, please. So thanks very much for giving us your time today. It's great that we've got time to talk through digital data and technology, we're going to showcase digital data and technology across the piece in action as a function and as a profession. And whether you're part of the profession, whether you want to know more, someone who recognises that digital is a vital part of ongoing Civil Service capability, or maybe just downright geeky. All of this is fine. And we'll try to make this session relevant and interesting to you. And we're going to do that through the lens of COVID. And most would agree that whilst clearly a medical emergency, the response to COVID has been highly digital and data driven. And that's what we're going to touch upon in this session. So first, you'll be hearing from me briefly setting the scene. And then we're going to go into a panel discussion with colleagues who have been working on the very front line of the COVID response. Now I know they're highly energetic, they're opinionated - in a good way - keen to engage. So I've bigged you up there, panel. I know Paul Maltby has been tweeting that you can expect this session to be feisty. So I don't know where this will go. But we definitely going to try and generate a bit of debate when we come on to the panel session. So expectations are high, folks. And we're going to make time for a couple of questions from the audience. So please add those to the Slido box that you'll find on the right of the video feed. I think you may need to click the "start conversation" if you haven't already done, then make sure you're on the Q&A tab. But that's what we're going to discuss. Next slide please.

A bit of context: so there are some 18,000 people working directly - 18,000 civil servants - working directly in digital data and technology across government ranging from user researchers to product managers to developers and web operators, a whole range of different skills and experiences. And the function is the operationalising of that capacity and capability across all departments. So in GDS, as part of the Cabinet Office, we set and embed cross-cutting strategies, for instance, on the use of cloud technology. We manage and develop capability, including the DDaT fast stream, the academies and bringing people up to speed on new skills. And we deliver some key cross-cutting products such as GOV.UK, which I'll mention in a moment as well. And all of this has been brought to bear during COVID, where it's been essential that the function across the piece has been able to deliver results quickly and effectively for the nation. So next slide. I'm going to cover four areas briefly. Where the DDaT function across departments has responded to coronavirus. And those four areas include the kind of harness of the collective power of where DDaT across all departments has been able to come together and address the common challenges that we've all faced. And one of those good examples has been in the interoperability of services so that we can remote work, for instance, at pace and I'll say a little bit more about that when we come on to that particular section. We've also been in the heart of setting up new services at an unprecedented rate. So the ability to shape policy thinking into digital services has been key to be able to support the needs of the nation and of citizens. GOV.UK, which is one of our main products, has been integral to the government's response. And I'm going to talk a little about that as well. And I'm also going to make reference to the scaling up of what we call common components. So pieces of technology that we create once and then get used multiple times across

departments and the wider public sector to be able to operate at pace and at scale. So I'll talk about that as well. On to next slide.

So this first area, actually, I think we may be on to the next slide as well, please.

Okay, so this area reflects the ability for us to be able to bring people together at the beginning of the particular crisis, and both break down barriers across departmental responses, and also to be able to draw upon assistance from the private sector, large and small, where an awful lot of the knowledge and the ability and the capability rested. Now sometimes those barriers that have been in place were imagined, sometimes they were real. But what was really clear was that with a very clear need, and very clear use cases, we were able to break those barriers down through collective working. We're highlighting that we drew in as well Devolved Administrations, and those from local authorities to be able to reflect on the broadest challenges that we had. So in GDS, we were convening a regular working group of Chief Digital Information Officers across government to be able to address those common challenges. One of those examples I've mentioned already was around interoperability. So from an environment where historically we were struggling to be able to use each other's technology and connect in with different systems we were using all be that Microsoft or Google Suite for instance. Almost overnight, we needed to fix the challenge of being able to work seamlessly across boundaries. And we did that through really key supportive working with each other to roll out new pieces of technology in some cases, including Chrome browser in the case of the Home Office, for instance. In others it was realigning some of the security protocols that allows us to operate. Did this in conjunction with the National Cybersecurity Centre, because of course, we needed to do this safely and securely as well. And this culminated in the first ever virtual cabinet meeting, of course. So, moving from a series of blockers, through to operating at pace and scale was really quite an exciting and dynamic moment for us to do that. We're now paying the dividends - we're now securing the dividends - of being able to break those barriers down. We move on from interoperability on video conferencing, to interoperability around documentation, workflow and other things that are now clearly on the agenda with a demonstration we can do this at scale. We also did a lot of work actually around triaging and brokering resource. So we had offers of help from the private sector, for instance, from the Formula One teams who were very rich in data science and engineering, right the way through to smaller SMEs and others that have specialist knowledge and we were working hard to match demand with supply at pace.

Interestingly, it has proved to be quite challenging to be able to regularise offers of help through to directly matching people with organisations, getting them on boarded, and actually getting them working to appropriate terms and conditions. The more we do this kind of thing, the more I think we'll be ready to react to any other surges of any type where we need to be able to bring a resource in quickly and at pace. Next slide. So the scaling up of services at pace - I think we're one slide too many - can we go back one slide? So the scaling up of services at pace, caused us to create almost 100 new digital services over the last few months across the breadth of government departments. And one example I'd like to draw out for instance, is the clinically extremely vulnerable people service - the service provided to those that are shielding. And this was spun up from policy decisions through to technical solutions in only four days, which is quite remarkable - in conjunction with colleagues, including those who are here on the panel today. And within four days, food parcels were being delivered. As of the end of June, over 2 million food boxes have been delivered. So it's an example of a

service that delivers right the way through to impact on the ground. What's interesting about this service, is that it's fundamentally built on the flow of data. So we were taking data from the likes of NHS Digital, we were passing it along with data held by DWP and MHCLG and ultimately passing it on to supermarkets and food retailers to be able to ensure that food parcels and priority shopping positions on online shopping were offered to those in the greatest need.

Having said that, it generated some really interesting challenges, that I think we're now focusing on how to resolve and how to take forward. So, you know, passing data across departmental boundaries remains a challenge. I think interoperability is still nascent. We've generated some interesting challenges around data ethics, data quality, data safeguarding. So in the case of <inaudible>, for instance, we were finding that there were many many duplicates of information on the data that was being managed between us. Now in deduplicating that data, by removing those duplicate rows, we were ultimately making decisions on who was going to get a food parcel and who wasn't. So the algorithms we were running to do that were having a direct impact on the delivery of food to those at the end of the chain. And it was demonstrating the need for us to think about steps in automation, etc. How we ensure that the ethics behind this are safely baked into the work that we're doing. Data safeguarding, a key important challenge given that we were passing health data between various boundaries, and many including for under 18s had an awful lot of sensitivity we will need to handle very carefully, but we were learning and we were being able to resolve this quickly and at pace. Stay on that slide. So, talking now about GOV.UK. GOV.UK has proven to be an integral point of contact for citizens to engage government and for government to engage with citizens. So the main coronavirus site was hosted on GOV.UK within five days. And within 24 hours, we got three quarters of a million page views and a peak 130 million page views in a week, which is enormous. And the resilience around GOV.UK needed to be maintained and protected. But it plays into the future and further vision for GOV.UK because when we established it 10 years ago, it was primarily around creating a consistent journey and saving costs in multiple portals. But actually, both during EU exit and during COVID, it's demonstrated its worth of being the place at which citizens can engage with government in a single portal, but also the way that government can understand citizens through the analytics in the way that people engage with GOV.UK and the services on it. So we're already using machine learning within GOV.UK, to be able to learn how people tend to follow the journey that they're on, the type of services that they need to be able to utilise, and we're using that to serve up better journeys for people engaging with government services more generally. And the next slide.

My fourth point is around common components. And this is where we've been building, at pace, the common components that exist such as Notify and Pay, for instance, that have been used across departments and across the public sector to meet a growing need at scale as a result of COVID. We had some 700% increase in the number of notifications, both email and SMS, going out as a result of the coronavirus emerging peak. And we actually sent our one billionth message during this time, which happened to be for a coronavirus service. They won't have known that, but it was the moment when Notify broke through that barrier of a billion messages and we go on from there to be able to design Notify in a way and be easy for you to find, easily set up and be used by others. So coronavirus, has shone a spotlight on digital and this is where we've had the benefit of being a mature function. The tools we had available, the expertise we've had to hand have allowed us to really meet the challenge

head on. That's true really for the centre of government as well as the departments at the heart of delivery.

Next slide briefly.

So where next on digital data and technology? The focus remains on a very joined-up, trusted and responsive experience for user needs. That means we'd continue to focus on cybersecurity or on the ability to ensure that we're offering more personalised services, the data is joined up and operating across boundaries, and we're going to focus specifically also on data in conjunction with colleagues in DCMS and ONS and others across government to make sure it's interoperable and is at the heart of both policy development and the way that services are functioning. So we need and expect - and citizens expect - high-quality data-driven services. And that's going to be at the heart of what we're doing next. Playing a role in growing digital capability for the Civil Service, making sure that digital skills and thinking is embedded into the workforce specifically. So digital transformation is not new. And it's certainly not over. But I think this is the point at which I'm going to engage colleagues on the panel, test their thinking on where we are. So if I can have the the next slide. And this is where I'm going to invite the panel to introduce themselves. So in the order on the screen, John, just say who you are, what you do and tell us something you do outside the office as well - give us a hobby or something that we can picture you outside the office. You may choose not to.

Okay, hi, everybody. Real privilege to be invited to to join the panel alongside some great colleagues and I'm an absolutely passionate civil servant. I recently just joined the Ministry of Defence. I'm Director for Digital Enablement and that covers a bunch of technology stuff and also innovation and some fascinating stuff that we have in defence at the cutting edge. I'm really passionate about the DDaT profession, and I've worked in other departments in Work and Pensions on Digital Academy and those sorts of things in the past. I've left the minimum amount of time for my dull hobbies which usually right now I kind of like, basically use the COVID as an elongated Christmas period to just cook loads of stuff and not exercise enough, but yeah, I should probably use that as a check to get some better hobbies. Thank you. And Hello, everyone.

Indeed. So I think you set a bar there that we can work to.

Lorna, introduce yourself.

My name is Lorna Gratton, I'm the director for digital and tech policy at DCMS. I don't have a lot of spare time because I have a toddler who accompanies me in my house at the moment. But when I do have spare time, I'm a really keen cyclist, as you might be able to tell by the bike behind me on the wall, which is a real bike rather than just a picture.

Excellent, nice to hear. Thank you, Lorna. And Paul "Mr Feisty" Maltby, please introduce yourself.

Paul Maltby, I'm the Chief Digital Officer at MHCLG. So I look after the technology of the department, internal and externally facing services, but also working with councils on their digital agendas on the services that they run. And also, I suppose, making sure we've got an internet age, strategic policy

advice, as a big policy department, we work closely with colleagues in say things like planning reform. And I've got a feeling that question is coming about my hobbies. And it's always a tricky one to do. I was thinking back to - I had the great vision and prescience and obviously it was just an accident just before lockdown. I repaired my storm-damaged shed in the garden, which I took weird enjoyment in but since it's proven actually invaluable in just being able to have somewhere else to do endless video calls or to go and sit in the shed and listen to music after work.

You're working from a shed, are you?

Not yet. Sometimes. <laughter>

Excellent.

Thank you. And Nimisha?

Good afternoon, everyone. My name is Nimisha Patel, and I'm the CTO for the Cabinet Office. I joined back in November last year and joined from the private sector. So quite new to the Civil Service but similar to what some of my colleagues have said, really, really passionate about the things we do here in the Civil Service. I've been part of many of the things Alison touched on. So my first few months have been incredible. I have two hobbies that I'm going to talk about Alison, I love to bake and I love to bake 3D cupcakes for children's birthday parties. I also like to perform and my last claim to fame was being on Top of the Pops back in the 90s as a background dancer to 2 Unlimited so for those of you remember, No Limit, you might see me in the background doing a little bit of a dance.

Nimisha, I never knew this. This is a side of you I wasn't aware of so that needs to be explored further and as far as cupcakes are concerned, aren't they all 3D?

Oh, well - depends who you're speaking to, I think the little characters on top are 3D,

So I'm getting a strong sense of eating, and a little bit of exercising, amongst this particular panel. So I think, do make your own decisions, audience, as to how fit and healthy this group is. Look, we're going to go on to our first question, which is, so next slide, please. I've started by outlining some of the good things that were happening. And it's right and proper that we celebrate those things we've done well, but what has it also taught us around what we still need to fix? Let's go back up the order this time, but feel free to offer your thoughts as and when you chip in. But Nimisha, why don't you start?

I'll start by saying I think our response to COVID-19 has been nothing short of remarkable, especially when we think about some of the services we've stood up in a matter of days, and bringing people together from all across government. That said, on reflection there are a few things we can do better. And I think there's a need to invest in more technical expertise. The two areas that come to mind are architecture and data. And I think as we start to tackle the broader challenges of interoperability and tackling our legacy estate, I think those two capabilities are going to be even more important to us, and things that we don't want to rely on third parties to deliver for us. Alison, you touched on us engaging with many outsiders in terms of coming in and helping us - one of my observations would be that I don't

think we necessarily used our existing third parties and suppliers as effectively as we could have. I think we solved a lot of our problems ourselves. And I think moving forward, I certainly would begin to hold some of my strategic suppliers just as accountable and particularly part of my extended table when it comes to solving problems. Thinking about how we break down barriers and solve some complex problems.

It's a really good point. I mean, my sense is to be more scalable to be able to react at scale in tapping into capacity. We can't do that solely internally. But I'm wondering whether, you know, we still need to learn how to do that better don't we, because it's not just can we get hold of bodies? But how can we, you know, put chunks of work to other partners to be able to support the work we're trying to do. It's a skill that we need to develop further, I sense. So Lorna, Nimisha mentioned data there. I'm guessing that something that's on your list as well, but how do you see the future?

And yeah, a couple of reflections on this from

DCMS's point of view. So one of the things we did in the department is, as you know, I'm sure many of you will have read in the papers Number 10 held a digital summit, where they got the great and the good of the tech world mobilised, and asked them to put their resources to helping government with the COVID crisis, and one of the things we found was actually policy teams were not particularly well-equipped to deal with those offers when they came in. So it really struck us that we ended up sending some staff down to NHS x, to help them triage the many, many offers they got in from tech teams, because they didn't have an awful lot of people within their sort of policy functions, who spoke well to tech companies and who understood what they were being offered. And that was the same across broader Whitehall in our experience as well. So we got some fantastic offers in from companies, but we just didn't quite know how to deal with them. And so there's something about embedding the capability right across the Civil Service, and making sure that policy officials have got access to people who really understand what it is that is happening in the digital and tech space. So even if they can't deal with it themselves, there's a pool of people that we can draw on to make sure that we collectively as HMG are making the most of what it is that we were being offered. Then two other things. I think the importance of everyone having good broadband has become extraordinarily clear to us all. The number of times I've been on calls in the last three months with people dropping in and out on the video. And obviously ministers are really focused on getting everyone a good broadband connection. And I think that we will be doubling - certainly in DCMS - we'll be doubling down on that, and thinking how we can get that delivered as quickly as possible. And then thirdly, exactly to your point on data, the importance of having a good data regime where we get good quality data with consistent standards that that data is available, and it is responsibly used, and we've got the skills in order to be able to use it. It's something that has become extraordinarily evident to us all. And my department will be publishing a national data strategy later in the year, which hopefully is going to set out some of the government's positions on this and enable industry and government to make better use of data going forward.

Thank you. I mean, it is very clear to me that the the ministerial and senior leadership drive on data is going to allow us to to overcome hurdles, inertia in the system, whatever you call it. And we're going to break through so we've been talking about it for a while, it feels like we've lined everything up. We know

what the challenges are, we now need to get on and fix it, don't we? Paul - have you fixed it, or have you got much to do in MHCLG, do you think?

I think there's quite a bit to do. I would start though by saying - I think you've already said it - quite how quickly our teams responded. I mean, we got a call, I think from Emily in your team on I think a Thursday night - we'd stood up a team to help on the shielding service on the data side, on the Friday. By the Monday we had a working pattern to be able to make that data accessible to local authorities and that's just really testament to the the quality of people we have and the energy around us. On my list were things like actually if you like the digital capability of our policy colleagues, also data, which both Nimisha and Lorna have already talked about. So a couple extra for me, I would say the thing about components is quite an interesting one. So I think things like GOV.UK Notify is such a tremendous thing. I think we often don't talk about it enough as really a game-changer in how people are able to spin up new digital services. Very, very important stuff. But actually, when we were building the shielding service with colleagues from across government, it was remarkable how many of those smaller little technical patterns are still missing from our armoury. So things like an address picker that doesn't just rely on free text but actually means that you can get the data accurate as the data goes into the system. We're sort of missing - we were doing things like routeing, getting addresses to local authorities. It sounds really simple. But postcodes often cut across local authority areas, so it's more complicated than you think. All these little things when you're trying to spin up a digital service, they're all bits of friction, of course, when we were doing it at such speed, they are more grit in the system, then perhaps you might expect, so that was a bit of a learning thing for me. I think the other thing was about local government. And I would say that I suppose from MHCLG, but I think often we've talked about the digital services agenda, the data agenda, very much with a central government fixation, and sometimes a Whitehall fixation, frankly, and I think we realised the extent of the difference in digital and data capability in local government in those first few days. And indeed, throughout the few months. Some extraordinary work going on in local authorities, people spinning up services for volunteers and other things really, really quickly, really, really high quality. We were helping them share and reuse these things as digital folks like to do, but clearly there's very sort of a mixed level of capability out there and indeed understanding so I think making sure we understand that local government is an essential part of frontline service delivery, when we're sitting central government, will be a real step forward.

Yeah, we should pay credit, absolutely. And I suppose to your point around colleagues in the policy profession, I think one lesson that we have learned is that as you are simultaneously building policy choices around what you want to deliver - and how - was you're trying to build a technology at the same time, and Nimisha will appreciate this, you're making architecture choices in the technology space, that have consequences and what your policy choices are. And I think we found that quite hard to be able to move at pace whilst wanting the policy choices to be worked through when actually it's a very complex policy space with multiple interests trying to be resolved

An accidental form of technology choice and service design, with colleagues making what they think are policy choices, but with very much limiting them the technical solutions on the way.

Yeah. Brilliant, John, what are your thoughts? What was the experience in MOD - what you'd like to do differently, or more of?

So yeah, I mean, I think we've had a fascinating - I suppose there's a conversation around how many years worth of progress we managed to make in the matter of a few weeks. We accelerated things like security policy, we ramped up the bandwidth and enabled tens of thousands of users who couldn't previously connect to our services remotely to be able to do that. So there's a significant amount of effort went into the tooling and colleagues have done that. There's also some some joint work that was done in mobilising the troops, literally, to support NHS colleagues setting up hospitals making sure the infrastructure and data could be shared. And we could deploy people to priorities and locations at a pace that we've not done before. So the military really came into its own and was quite heavily leaned upon to deliver things like some of the services that you're seeing in hospitals, or tracing and COVID services, that kind of thing. In terms of the gaps, I think that there's been a huge focus and rightly so at the start of getting the tool and capabilities in place. The gaps that I think that we've still got, I think it's going to be absolutely fascinating to see how these things get funded, and continuously improved going on, because I don't think we thought them through the lifecycle because of the pace at which we implemented them. And, a huge bit - there's quite a lot of this on Slido as well - it's about what people do with them when they've got them. So effectively, I guess I'm quite fortunate to have been working in this profession for like, seven, eight years in one form or another. And my Civil Service experience pre-that was a lot of reply-all culture, lots of mail, lots of noise, that distracted and didn't allow me or enable me or support me to deliver with the priorities. And so making sure that people understand how and when they can use those capabilities and skills going forward and making that learning and practice and buddying up really easy and easy to access and give people the confidence to use the tools properly in a really optimised and effective way, I think is properly transformational for the Civil Service. So by all means, yeah, all of the tools and the kit that we need to work well and be reliable and fast - and infrastructure to support it, but the ability and confidence to use them effectively in the role to really game-change the Civil Service is the biggest gap I think we've got to fix.

Thanks John. That might well segue neatly into the next question. Because, you know, I'm conscious, we're always latching on to the next buzzword etc it used to be blockchain when that was going to be the answer to everything. Artificial intelligence, machine learning, robotic process automation, automation more generally, you know, the framing of this question is kind of moving beyond the hype, what do you predict is really going to make the biggest impact on the way that we work and on the impact on our users and citizens and let me start with Lorna in that regard.

Certainly - in the interest of full disclosure, I come at this from a slightly different perspective to the rest of the panel members, in that I'm a member of the policy profession rather than digital and data - you can be an honorary member of the DDaT profession for this hour - Thank you very much. So my answer is perhaps tilted towards that point of view, but I would certainly say that we need to make sure that we've got the frameworks for operation, right. So by that, I mean, that we need to make sure that we're getting the rules of the game, right, and that we're getting people to understand what it is that we have to have in terms of advice on making data safe and ethical, whilst also enabling innovation and respecting users' privacy. And that's a really tricky balance to strike. And the government has got various sources of expert advice on this from the Centre for Data Ethics and Innovation and there are lots of other bits of government that have got internal views, but we need to do that both for the public sector and then set the rules of the game for the private sector, so that we can have a genuinely pro-

growth and pro-innovation regime, but which users still have confidence in. And I think there's a real premium on getting that right. And internationally, we see that lots of countries are still trying to do that. And we're certainly at the forefront of efforts to make that happen. But until we get that in place, I think that we won't really manage to harness the benefits of it across the economy.

I get that - so being devil's advocate a bit, and I'm going to ask Paul for a view here. You know, we often hear about the things we need to put in place to be able to secure the benefits, what's going to take us getting beyond those challenges and actually secure - we've got a spending review coming up. We're going to be putting our great ideas in. Paul, what's going to be at the heart of your spending review thoughts for great progress in MHCLG.

That's a question. I think on this question of the sort of AI and data side, it's really interesting, because I think we all think there's a huge amount of potential there. But I think if we're all honest on the panel, I wonder if this is true for all of us as well, is that when we hear as you know, when we're talking about AI, there's a bit of us inside that properly cringes. And I think partly, that's because when we say AI, mainly, we mean "machine learning, but we'd like some funding, please". But we also know that actually, you know, I helped set up the data science network across government whenever it was - 2014 was it? I've slightly lost track, but it was a while back. And at that point, there was a big cultural tension between if you like, your traditional analysts and data scientists, and over the years that's just become less and less of a meaningful thing. Now, of course, we always need, you know, properly digitally skilled analysts - is fabulous. But now it's sort of normal for analysts to be using R and Python and just using code and it's not the culturally distinct thing that it was beforehand. But the other thing I think that makes us like internally sort of stomach a little bit in turmoil is you need the raw materials for this stuff. We talk about in some of the work with local government about #FixThePlumbing. And sometimes we have to do the, you know, the boring work to get our basic lists of trustworthy, machine-readable data available and accessible. And too often I think we go "let's add in a layer of AI on top of our terrible legacy systems that we all deal with", rather than get some of those basics right. And I wish we had *both* of those things in the mix for Spending Review.

Yeah, both of those things is right, but I wonder whether that's a failure to prioritise? I mean, Nimisha, this concept of fixing the basics is something we kind of recognise within Cabinet Office as well. Where's the emphasis on fixing the basics or doing exciting new stuff that is less boring?

I think there's a balance. Also, interestingly, and I go back to the approach I'm going to be taking to the SR20 grid, sometimes you've got to earn the right to reinvest in innovation and do things differently and I think it does go back to getting the basics right. You know by leaving things out by taking care of what we don't do effectively by streamlining, simplifying, modernising, getting the basics right. I think you then actually take things out that then create opportunity headspace resources to reinvest in things like innovation, and that's how I tackled this in other places. I think the other thing that I would say is, innovation has to be in your DNA. It's not something you add to goals and objectives, bullet point five, and I've worked in organisations - I come from GE where our culture was in GE "imagination at work". It was in our DNA, people were rewarded for it. You were allowed to take risks. You weren't penalised for taking those risks. You were given the headspace to think about what you wanted to do. And interestingly, even in the budgeting process, every multi-year programme had a 20% discretionary fund

to say, look, by the time you develop and deliver this five year and multi year platform - by the time it goes live five years after, it's not going to be as relevant. So unless you continue to address what's going on outside and continue to feed back innovation and new technologies and better ways of doing things, in those multi year programmes, you're always going to be at risk of delivering things that don't add as much value or are no longer relevant.

Okay, thanks Nimisha. John, is innovation in MOD's DNA, do you think?

Without a shadow of a doubt. I made the point and support and build on colleagues' arguments or points really that it needs to be an ecosystem. We have to get the basics right but I guess in defence we absolutely do need to be innovating, we have peak time for our adversaries. We have bleeding edge programmes, a lot of them involve complexity with NATO and allies to do joint operations. And things like the F-35 programme - these are all cutting edge, right at the top of technology game, which 20 years down the line end up in our cars or in our homes. But back to my ecosystem point, I absolutely agree with all of Paul's points about getting the right data and all of that. But essentially, we still need to design for you to meet user needs as well. And we still need to make sure that we've done the research and deploy the solutions in a way that supports their jobs that frees up time for them to do more important things and take the heat and bureaucracy out of some of the painful things that are used within the Civil Service and Defence.

John, without trying to feed you the answer, one of the questions that we're taking from the audience is what do you think is the top thing to get right when delivering a digital service? So I'm wondering whether you're going to talk about user experience as part of that?

I think so. I mean, I guess there isn't a single thing. And for me, my view is very strong, that we need to have, you know, the technology, right. There's been a lot of talk around APIs and work in data across government and things like that. And I guess as we're building services and teams, my time in defence was reusing APIs created for the DWP to work with the Legal Aid Agency to check on benefit claims and remove the need for users to collect that data and send it in through the post etc, etc. And when you start to scale those services across government, the teams are not often engineered or financially supported to be able to scale. And so you absolutely need the platforms and scalability that you've created and things like Notify and Pay for us to be able to plug those things in and you know, in the seven or so years, I've been doing this, things that used to take months or years for us to do can be done in 15 minutes, because you've invested in those services for us all to be able to use. And that's been absolutely brilliant. So I think there's absolutely got to be more of that within the B2B services that enable all of the services to spin up at the pace that they can and to deliver for users. Sorry, that sounds like a bit of a fudge. But we need to do it all - we need to have the research and design elements as well as enterprise-scale robust, scalable technology that we can easily use and plug into that's quite common.

That's good advice. I mean, we've got at least two CDIOs with us on the panel so Nimisha, what would you say to your younger self, if you like, around lessons on what's the most important thing to get right when delivering additional service?

Yeah, it's interesting because I think a lot of the things that go into digital delivery up front are often done correctly. It's the stuff that comes at the end - the hard stuff. How do you drive adoption? How do you make sure it meets users' needs in terms of how it's adopted and used? How do you ensure that you can continue to maintain, iterate and invest in that digital technology in service? And then also, how do you clean up the stuff that you're supposed to clean up as a result of putting that service in place? It's all the stuff that isn't the sexy part of delivering digital technology, but the stuff you've got to do, the discipline you've got to maintain to continue to again, reinvest in technology.

We're trying to make it sound exciting, this is not working. It's a really significant point though around legacy challenge and the paying down of the technical debt that we've built up over the years. And we built it up because we've been doing stuff from you know, for many years in key departments. But there reaches a point where if you don't reinvest, you create barriers to be able to innovate further transformation. You have kind of funding and financial challenges and operational challenges as well. So Paul, do you see it in the same way? Or do you see anything different in how you go about establishing a new service? What's at the heart of your thinking?

So many different answers on this, but I'm going to give a slight cop out and say putting in a good multidisciplinary team is one of the key things because that then allows me to pick on all the other things that those folks bring. And so, one of the things that has changed in the last 10 years is when we're thinking about the digital service, not just thinking about the technology side, but thinking about the design process, thinking about those delivery managers that keep the stuff on track and the whole pace of an agile delivery mechanism going. And I'd say that thing about moving from just one single specialism to a multidisciplinary team is something that actually I think is a big lesson for the broader Civil Service. I think so often in our department - I'm sure in other departments too - we see teams staffed by essentially one discipline, and then ask everyone to have a go at the various different tasks that are available there. And I think things like having that "outside in" perspective that you get through the design process, through user research, through having service designers and interaction designers, content designers, they're all feeding into making a product alongside the developers and the technical folks that make things actually go live is a really important thing that we could all bring. I suppose is that a cheeky way for me to be able to say "and of course we're always hiring". So if you want to come and join the most improved team in government on the functional survey, then please do come and have a look at MHCLG digital.

That is a good point around opportunities, actually, because we're clearly moving into an environment with Civil Service reform where the concept of understanding digital and data, and aspects of technology, are becoming really, really important. Partly because to be part of a multidisciplinary team, you need to have understanding across the boundaries. No one's got all the answers here. I mean, Lorna, you're a member of the policy profession. How do you see the - I don't want to use the word divide - how do you see the connection between multiple professions in delivering the best outcomes?

I actually don't think we've got it right so far. I think that is something that we need to get a lot better at across government - is working together. And so we're leveraging everyone's expertise exactly, as Paul says. And part of that is that the way we set ourselves up within government departments is often extremely siloed. And we have policy people who write the policy advice who maybe send it round for

comment, at the end, to people with a different interest. And that's just not a great way of doing business and places I've worked in the private sector have not done business like that, and have followed much more of an approach that Paul describes, which to me sounds like an absolute model of best practice of having our teams together, merged, so that we draw on each other's experience. Unfortunately, I think we've got quite a long way to go before we get there. And quite a lot of civil servants from the policy profession are not particularly comfortable talking to their more technical colleagues. And I think that is something we definitely need to work on on the policy side and upskilling people and right at the basic level, so they feel comfortable having the initial conversation and then it's much easier once you've got a foot through the door and a way in.

Thank you Lorna - Nimisha, do you think we let language get in the way? I mean, you're a technologist, but when you're not dancing on Top of the Pops are you able to explain the role of technical to others?

I think it's a challenge that we experience in many places. It was no different in my previous organisation. And I think we, as technologists have a role to play in translating what we do into a common language. And I think the most important thing is to ensure that everyone you work for them, the people that are making decisions in these areas are fully informed, and they understand the impact of what you're doing the risks, the benefits, and so that, if nothing else, decisions are made fully informed, around acknowledging what you're doing.

I reflect on the fact when I mentioned the 18,000 civil servants there are 39 job families, many of which are almost policy-minded thinking as well. So when you're doing user research, you're doing service design. These are the kind of things that good policymakers will be doing as well. So there's an awful lot of overlap, I think in the way we should be thinking and working together. Just by way of wrapping up, thank you very much John, Paul, Nimisha, Lorna. Just give me one or two words on what you'd like to see us doing differently that will crack through all these problems that you've said. So I'm going to go back to the order of the slide, John, very quickly, two or three words, what is it we need to do differently?

I think embedding the profession in the mainstream of the departments, we've got a great opportunity and that would be the thing that I would do.

Mainstreaming. Good, like it. Paul?

I was going to say the same thing. I think there's a thing about the digital profession it's such a funny thing in a way because I think in five years time, in 10 years time in 30 years time, you won't have a Chief Digital Officer in anything like the same sort of way. There's just going to be common skills you would hope, throughout an organisation, but surely with some specialists that remain in a sort of central role. So I see the big thing for me is spreading those tentacles out, feeding the connections between those different professions, feels to me like the big thing.

Great. Nimisha?

I'd add to that. I think selfishly I'd love to share more and tap into more of what's already been done rather than reinventing.

Brilliant. Thank you and Lorna, you get the last word.

I think we should get better at learning lessons across government and sharing our experiences to make sure that we all reap the benefits of other people's experiences.

Fantastic, thank you all panel. Thank you everyone out there for putting your questions in. I know we couldn't get through all of it, but let's carry the debate on. Thank you.