OFFICIAL REPORT
AITHISG OIFIGEIL

Economy and Fair Work Committee

Wednesday 5 November 2025

Session 6

The Scottish Parliament
Pàrlamaid na h-Alba

Wednesday 5 November 2025

CONTENTS

	Col.
DECISION ON TAKING BUSINESS IN PRIVATE	1
ARTIFICIAL INTELLIGENCE (ECONOMIC POTENTIAL)	2

ECONOMY AND FAIR WORK COMMITTEE
30th Meeting 2025, Session 6

CONVENER

*Daniel Johnson (Edinburgh Southern) (Lab)

DEPUTY CONVENER

*Michelle Thomson (Falkirk East) (SNP)

COMMITTEE MEMBERS

*Sarah Boyack (Lothian) (Lab)
*Willie Coffey (Kilmarnock and Irvine Valley) (SNP)
*Murdo Fraser (Mid Scotland and Fife) (Con)
*Stephen Kerr (Central Scotland) (Con)
*Gordon MacDonald (Edinburgh Pentlands) (SNP)
Lorna Slater (Lothian) (Green)
*Kevin Stewart (Aberdeen Central) (SNP)

*attended

THE FOLLOWING ALSO PARTICIPATED:

Seth Finegan (Informed Solutions)
Peter Proud (Forrit)
Sarah Ronald (Nile)

CLERK TO THE COMMITTEE

Anne Peat

LOCATION

The James Clerk Maxwell Room (CR4)

Scottish Parliament

Economy and Fair Work Committee

Wednesday 5 November 2025

[The Convener opened the meeting at 09:30]

Decision on Taking Business in Private

The Convener (Daniel Johnson): Good morning, and welcome to the 30th meeting in 2025 of the Economy and Fair Work Committee. We have received apologies from Lorna Slater. Before we start our brief inquiry into the use of artificial intelligence, I ask members whether they agree to take in private agenda item 3 and all future discussions on our AI inquiry. Do members agree to take those items in private?

Members *indicated agreement.*

Artificial Intelligence (Economic Potential)

09:30

The Convener: I am pleased that, under agenda item 2, we have with us a panel of witnesses to help us to consider the economic potential of artificial intelligence. We are joined by Seth Finegan, the chief executive officer of Informed Solutions; Peter Proud, the chief executive officer of Forrit; and Sarah Ronald, the founder of Nile.

I ask the witnesses to keep their answers as concise as possible, although, given that this is an expansive topic, that might not be possible. You do not need to press the buttons on your microphones—staff will operate them for you.

I will begin by asking a couple of questions. I am struck that, when discussing AI, we seem to be stuck in a binary place—people think either that we are all doomed and all our jobs will be taken over by AI or that AI is a bit like the internet and Google and is just a bit of an upgrade. Given that you all work with AI in your day-to-day jobs, what do you think the impact will be? Where do you think the impact of AI will sit on the spectrum from total change to minor change?

Who would like to answer first? Peter Proud, you maintained eye contact for longer than anyone else, which is a dangerous thing to do.

Peter Proud (Forrit): People are talking about AI as though it is a new thing, but it is not—it has been around for a long time. What has changed is that it has been consumerised and commoditised, so it is more available to the masses than it was previously. We were working on AI solutions at Microsoft in 1996 or 1997, so AI is about 30 years old, which is pretty old.

AI is just a tool. It is worrying that it is a bit like what happened in 2000, when there was hype about the internet—a lot of AI companies are overvalued at the moment, with pretty high price-to-earnings ratios. We should be cognisant that there is a bit of a bubble and that there will be a reset of the valuation of those companies. At the moment, there is super hype, as there was with the internet. Up to 2000, everyone was talking about the internet and there was a bit of a bubble, because people did not know how to monetise it. With AI, we will come out the other side and people will work out how to monetise it. I do not think that it is going to be Armageddon or that there will be drones firing rockets at us any time soon.

Sarah Ronald (Nile): Well, there could be.

Peter Proud: There might be. We need to take a balanced view. AI is a very powerful and useful tool that can help businesses—for example, it can help small companies to do big things—but I do not think that it will change everything overnight, although everyone is talking about that. That is just my opinion.

The Convener: Is it all hype or are we seeing acceleration?

Peter Proud: Things are getting faster.

Sarah Ronald: It is exponential.

Peter Proud: People need to get in place the underlying capability and infrastructure so that they are able to leverage what is coming, which we do not know about yet. It is all about things being composable with your environments so that things can be plugged in. It is all about integration so that people can quickly pivot and do not need to throw out everything that they have done.

For the past two and a half years, we have been locked in rooms re-architecting everything within our solutions in order to make things nice, easy and composable. We are starting to see the benefit of that already. If something new comes out, we just switch it on and plug it in, and then we can take advantage of it. We can programme the new agents that are being introduced to do pieces of work. Previously, there was just general AI, but we can now switch on the agents very quickly to help us.

Does that make sense?

The Convener: Yes, it does. Sarah Ronald, do you agree that we might be getting a bit carried away? You said that there is exponential change.

Sarah Ronald: I do not think that we are getting carried away, but we are missing an opportunity. Right now, AI enables massive productivity growth. What do we need right now? We need massive productivity growth.

I will take my company as an example. Our growth rate this year compared with that of last year is 73 per cent, which is really high. We have not had to increase our operating costs that much on the previous year, because we spent a lot of time working on our AI infrastructure and the agents to enable members of our team to do more than they were able to do using the old ways of working. That is what we need to leverage for the economy. It is not about efficiencies; it is about productivity.

Seth Finegan (Informed Solutions): I would certainly second that. Our business has had substantial growth over the past two or three years. That has been supported by an AI-enabled operation that has allowed us to grow and stay very productive. For us, it is not about cutting jobs but about creating new value and employing more people to do higher-value work.

On the convener's original question, I think that AI has the potential to be genuinely transformational in the same way as computers were and in the same way as the internet has been. The trick to that is pointing out where it will be transformational—where it works and where it works less well. That points to the wisdom of the AI action plan that the Government will be considering. We need to find the sectors in which the most value can be created.

You can be a consumer of AI or a supplier of AI, but I would suggest that an interesting third way involves the intersection of AI power with high-growth sectors in Scotland, such as life sciences, healthcare and clean energy. The AI action plan should be targeted at those sectors, with the Government finding real use cases that can transform productivity and competitiveness, because that is where the most value lies.

There is a lot of hype and myth around AI. There are also real concerns about privacy, security and the outlook for staff, so any action plan needs to tackle those issues, too.

The Convener: I was going to ask a question about small and medium-sized enterprises. Sarah Ronald, you said something quite interesting about the trajectory of your company's growth. You had 73 per cent growth using the same cost base, because AI allows you to be more—

Sarah Ronald: We have largely the same operational cost base, but some new jobs have been created.

The Convener: One of my concerns is that large businesses are twice as likely as small ones are to adopt AI. I wonder whether we are missing a trick. If AI has the potential to almost turn economies of scale on their head, do we need to concentrate a lot more on ensuring that all small businesses seek to use and leverage AI in the way that start-ups almost naturally do? What are your thoughts on that? What can we do to help?

Sarah Ronald: Start-ups will do what is called greenfield. They will not be constrained by legacy infrastructure in the way that businesses such as mine have been. We have built up using current ways of working and existing infrastructure and technology, and it costs money and time to change that. We have absolutely needed the growth that we have had in order to pay for the change to become AI relevant. At the moment, we probably spend £30,000 a month just on subscriptions and on non-billable staff to build the tools that we need for the team, and we have to run the business of today at the same time.

Smaller businesses absolutely need to get on board, because, if they do not start now, the cost of the change will become greater and greater. We are spending that amount now, but the costs will increase as the model makers that provide the underlying layer of our tooling change their pricing. At the moment, the pricing is quite cheap, because they need to get adoption, but, in time, the prices will increase. If our smaller companies and SMEs do not adopt the technology now, it will just get harder and harder.

Seth Finegan: A lot of small companies might be adopting AI now without knowing it. Some people are taking a path that is bespoke to their company and, as Sarah Ronald said, are building their own models and agents to help them to do what they do, but AI is also used for simple administrative activities. If a company that has a lot of expenses uses a modern software-as-a-service expenses tool, AI will be running in the background doing image processing of all the expenses. People also use AI every time they use one of the major search engines, so it is becoming ubiquitous in the tools that companies use. As has been mentioned, companies face a choice: is that enough for them, or do they need something that is a bit more bespoke to their business model that will give them a competitive advantage and which will require investment in higher-value skills?

Sarah Ronald: The value of a company's data is that it gives that company a competitive edge, but, if a company continually uses other people's solutions and does not invest in its own tooling to build something of its own, that data will be with everybody else, so it will not create a competitive advantage. We made the decision that we did not want to put in other people's tooling the 20 years of data that we have gathered from working in financial services and regulated environments. We built our own tooling so that, in the coming age of AI, we have the potential to create higher value and have control. Therefore, there is an issue about data sovereignty.

Peter Proud: There is a counter to that. In business, one of the hardest things in a big organisation—I am thinking back to my time at Microsoft—is the cannibalisation of existing business models. There is the concept of jumping the S-curve—if you do well in one generation, you have to jump the S-curve on to the next one. If you get to the top and then start to go down, that is called the near-death experience of a company. There are books on this. Companies such as Compaq, ICL and DEC did not make that shift to jump on to the next S-curve wave, so they are no longer here.

There are two sides to the issue. The adoption of AI by big companies is what is in the news at the moment, but we should think about the things that will significantly change companies' fundamental business models—for example, consultants' billable hours and so on are now being replaced in-house by AI. There is a yin and a yang to the issue.

The Convener: Thank you very much for those introductory answers. I will now bring in some of my colleagues, starting with the deputy convener, Michelle Thomson.

Michelle Thomson (Falkirk East) (SNP): Thank you so much for joining us. We have jumped right in with the heavy brogues, to use a Scottish phrase. I will just take things back up a level for the record, given that people will be watching this session and poring over the words that you use.

Sarah Ronald mentioned productivity growth, but that is an outcome, we hope, of using AI. I have a question for all the witnesses. What is your sense, in terms of your businesses, of the areas where you think that AI could add economic value? There is a whole range of areas, but automation and supply chains are examples. I would like to get on the record a sense of that from you before we continue. Sarah, could you go first?

Sarah Ronald: We use AI in the back office, so we have done loads in the finance function. You tend to find that it is used in areas that do not necessarily involve cognitive work. We want our team—our consultants—to spend much more time with clients doing cognitive thinking and new thinking, but a lot of their day is taken up with doing input-output stuff. Wherever there is input-output, we try to automate and put agents in there.

We have proposal agents for the creation of proposals. If someone from the sales team is on a call, that call is recorded and synthesised in the tool that we have built, and then the agent will create a follow-up. Once that follow-up has been confirmed, the agent can go ahead and create a proposal. It can go into our company's data store of all the proposals that we have ever built on the same use case—for example, onboarding in a retail bank—and put all those examples and outcomes into the proposal.

09:45

That one task might have taken the salesperson ages—hours—previously, and they would not have known about all the work that the company has done. They would have sooked up time from their colleagues, asking, "Hey, do you know about this? Have we solved this problem before?" That is just one example of where we are able to point AI at a high-value outcome in a way that is easy for the salesperson to use but which creates a much better solution for the client and for us. It is about experience and productivity.

Michelle Thomson: And institutional memory, as well.

Sarah Ronald: Institutional memory, yes. In the services world, when somebody leaves, they take those relationships and that knowledge with them. That has always been a problem and we have been trying to solve it over the years. Now we can solve it, because we have all that data—it was in PDFs and all over the place—and have managed to consolidate it and put it in a readable form for the agents so that they can retrieve it. That data and information is of high value to Nile. We add market value as well as making ourselves more productive.

Michelle Thomson: You also referenced automation.

I will bring in Peter Proud for a generic sense of where he thinks that AI can add economic value.

Peter Proud: We use AI extensively. We have built a platform for running big, secure websites for big clients that are heavily regulated. For one client, the AI tools that we have at the front end have blocked 3.9 million cyberattacks in the past three months: bot attacks, denial-of-service attacks and SQL injections. AI tools have picked those up and stopped them.

When it comes to making us more efficient as an organisation, it used to take us weeks and months to migrate clients over to our platforms and systems, but now we use the agents to read what they have already, break their website down into components and start to recode it automatically. It all about using the 80:20 rule, and we get about 80 per cent of it done. Identifying all the assets and imagery that are on a website could take weeks or maybe a couple of months, but we do it in 10 minutes now. The system will then take that picture and do a call to an AI reader and put all the metadata around it so that all the tagging and everything is done already. That kind of thing makes us way more efficient and enables us to sell to clients and do the expensive part at the start. The capital cost of migrations is coming down significantly.

We also use AI for search. For a global company, we took 10 weeks out of a 12-week process to take an English master website across to 90 languages. The company was able to do a global launch of new products in one go, instead of having a three-month rolling launch. For a multibillion-pound company, that is significant.

We use the tools and agents to do that kind of thing. We are not using AI to replace people's jobs; we are using it to be able to grow our business and make it more efficient without having to exponentially increase our costs.

Seth Finegan: Maybe I can talk more broadly about how, in our experience, AI can create economic value for individual businesses. You have heard great examples already, and we have talked about how AI can be used to automate processes. It can also be used for predictive analytics. I have better prediction across supply and demand, for instance. Companies use AI to improve fraud detection because it is good at pattern recognition and identifying anomalies. You mentioned supply chain optimisation, and, in that example, AI tools can be a great help in predicting supply and demand in any multifaceted problem with many dimensions to it, or any puzzle that you are trying to solve.

Finally, AI helps us to create whole new business models and new services. It gives us a competitive edge; it also gives us innovation. All those factors can apply at the business level.

It is interesting when you look at a list like that. We talk about AI as a single term but, if you broke that list down into the AI interventions that you are making to get those benefits, you would see that AI has many different forms, such as natural language processing, deep learning and predictive analytics. Of course, everyone is talking about large language models because of what is now in the mainstream. In any conversation around AI and in the creation of any AI action plan, you are considering the different outcomes that you want from the different types of intervention. There are different ways of creating economic value from different types of AI intervention.

That list applies to businesses, but how can AI help the whole economy? We are seeing that in Scotland with the investment in the plans around AI growth zones and the Edinburgh supercomputer. Investment and growth come from becoming an AI expert.

I would suggest that one consideration when thinking about what AI adds to the economy as a whole is that it is good to back what you are already strong at. Hyperscalers in the world are investing more in AI than many nations on their own could match. It is therefore about deciding where you want to play. What is your centre of excellence in the broad spectrum of AI capability that will be delivered? As I mentioned, there is something to be said for looking at where you are strong already and what your sectors of the future are in Scotland, and building AI capability and centres of excellence around those.

Peter Proud: I will add one thing to think about that we have not touched on yet. On Seth Finegan's point about deciding where you are playing, if we want to be serious and start to build data centres to deliver these services, the discussion must be about power. People do not understand how much power these things take.

When we think about clusters, we are not thinking about one data centre but about three, and they need to be within 12 miles of one another for latency. The power required for that is about 300 to 400mWh per server per day. That is 1.2GW of power—maximum. The biggest hydro station we have in Scotland produces only 400MW. We do not have the power just now. Between 25 and 33 per cent of all of Ireland's power is used by two companies, Amazon and Microsoft, for their data centres. The citizens of Ireland use less electricity than two companies for data centres in Ireland. There is therefore a discussion to be had around power, because the data centres are competing with the citizens' kettles. If Scotland does not want to go down the nuclear route—and it does not—that negates our taking part in quite a lot of the data centre discussions.

The Convener: I think that Sarah Boyack will come in on exactly those issues.

Michelle Thomson: Peter Proud is absolutely right that there is a discussion is to be had about power. I know that one of my colleagues will come in on that, so I will not steal her thunder, but he was absolutely right to bring it out.

I have a couple of questions about the public sector. You are sitting here as experts, and we are all in the public sector. Somebody referenced some of the work that the Scottish Government is doing, but—and this is an open question—in your opinion, to what extent do the Government and the public sector get AI? I ask that because, historically, particularly in the civil service, the culture is slow, deliberative, thoughtful and reflective. That has worked well in many areas, but to what extent could that prevailing culture, which, as I say, has great strengths, potentially be a weakness when we look at the exponential growth of AI? Sarah Ronald, you nodded, so you need to come in on that first.

Sarah Ronald: I am going to revert to Seth Finegan. I have opinions, but I purposely do not do any work in the public sector. The reason for that is that the velocity is so slow, and the risk aversion counteracts what you and we are trying to do in terms of change. Seth and I were having a chat in the lobby and his business does a whole lot more in that area, so he is probably better informed.

Seth Finegan: Thanks, Sarah. Yes, we do a lot of work across the United Kingdom, including in Scotland, with the public sector. We have done so for over 30 years, and we have seen different waves of innovation come through departments and agencies. We have also seen their responses to that.

In the past 15 years in Scotland and across the UK, the Governments have done a good job of getting on the front foot with digital. We can be proud of the digital services in Scotland and in the UK.

It is not an easy job to transform, through technology, organisations that already have a deep-seated culture. As Michelle Thomson mentioned—and I fully agree with her—a lot of that culture is absolutely appropriate. In an age where you can speed everything up and potentially automate things, you need to be quite careful about how you step into that. Elements of the culture support quite a wise posture when it comes to leaping into AI—at worst, blindly.

However, in my experience, there are barriers to adoption, and they are reasonably well known. Some of them are structural, such as the legacy systems, legacy data, and legacy skills. Some of them, though, are less on the technology side. As I say, you have a strong digital service in Scotland. However, to get the benefits from AI or any other technical innovation, you have to understand how it transforms your operating model. You also have to understand how you can take your workforce through that journey. That is a leadership job. Often when we talk about AI and AI skills, we attach a lot to whether we will train everyone to be machine learning engineers and to understand exactly how to prompt something such as ChatGPT. Maybe we should do those things, but the benefit will be driven by transformation and change, and that is a leadership job. We operate globally, and more could be spent at leadership level in civil services around the world so that they understand how AI can change how the work of their agencies and departments for the better, safely and responsibly.

In summary, the barriers that Michelle Thomson identified exist, but they are the barriers that are familiar to anyone who is trying to go through transformation. Transformation through AI is not necessarily any different from transformation through the internet or digital.

Peter Proud: I have only worked in the national health service. I have spent most of my time in the private sector rather than the public sector, and I can see why Sarah Ronald has taken that strategy.

The slowness in the health service here is unbelievable. We have just finished a piece of work, which is quite a large proof of concept, and we are live across 150 sites. However, people are saying that procurement to go to the next phase will take another 18 months. We have just proved the work—we have just finished it—and it is all working, so why will it take another 18 months? The fragmented nature of the health service, with the 22 different boards, including 14 geographic boards and seven special boards, is complicated. It is difficult to put in national infrastructure across

the health service because the boards all have individual buy-in.

If you want to start to leverage this stuff, you need a collective. The money sits with the Scottish Government, but the buy-in sits locally with each of the health boards. That makes doing anything difficult and slow. I feel sorry for the people in the middle who are trying to co-ordinate it all. I am talking not just about AI but about all high tech.

Michelle Thomson: I know that my colleagues are keen to ask questions, but before Seth Finegan comes back in, I want to introduce one last thread, which is about data. I was recently in Lithuania, where they have created what they call a data lake, which is an aggregated data set of all their public sector data. Of course, that will be immensely powerful when they start to look at preventative spend. Before I stop, I would like your reflections on that. Where are we with data, and do you have a sense of understanding how important it is? Seth, please come in first and finish off on the previous point.

Seth Finegan: I recognise the challenges that Peter Proud has identified. However, I want to give you a success story from the Scottish Government—it is a well-deserved success.

We won a CivTech award about three or four years ago to work with NatureScot to transform how it operates its planning and consultation processes in sensitive areas. We analysed the end-to-end planning process with all of the expertise within NatureScot. We picked about three or four different AI interventions across that service. We built and co-designed with Nature Scotland an AI and data platform. We built that platform and we piloted it. We went through some of the business change with NatureScot, looking at how the platform would change the caseworkers' workflows, and we are rolling it out nationally now.

10:00

That has made an enormous difference, and not just with 10 or 20 per cent productivity gains in various parts of that workflow. In triaging and looking at how sites of special scientific interest are handled, we are seeing productivity gains of 40 or 50 per cent plus. That is a real success. I am proud to say on behalf of NatureScot that it has won digital planning awards that were sponsored by the Scottish Government.

There are success stories out there, not just of technology enablement, but of the business change that goes with it, which drives efficiencies. It is worth just putting on record that there are successes. Too many pilots fail and sometimes they are the ones that get the headlines, but there is a lot quietly going on—a lot more than people perhaps realise.

On your point about data, yes, I think that there is a strong appreciation of the importance of data and of the importance of facilitating data exchange, common data platforms and a common, once-for-Scotland approach to data. There are challenges and, because of the structural legacy, those take time, effort and funding to overcome. However, in terms of strategy, there is a real appreciation of the value of bringing data together on common platforms that make it available for many different uses, including through AI tools.

Michelle Thomson: I invite final comments from Peter Proud and Sarah Ronald on data.

Peter Proud: Data lakes are not new technology; they have been there for ever. Let us use the health service as an example. Everyone in Scotland already has a community health index—CHI—number, so there is an identifier. A data lake is just a series of schemas that is tied to that CHI number. If you have prostate cancer, you have a Gleason score; if you are having a baby, there is an Apgar score; and you will also have a blood pressure score. There is a whole raft of data points and data sets for every single citizen.

If you start to take a citizen approach, rather than an application approach, to data and you have all a citizen's data in one layer—in one CHI number, one national insurance number or whatever the identifier is—and you want to build an app for diabetes, you use that data lake. All you are doing is building the front-end application for it that puts in a call, gets the information and puts it back again. It is that simple. The hard part is getting the data lake in the first place.

I know that a lot of good work is going on just now in the Scottish Government that is starting to go down the route of having a data lake.

I go back to Sarah Ronald's point about the greenfield site.

Michelle Thomson: Estonia.

Peter Proud: Yes. If you have a greenfield site, it is easy to start. You still have the cost of keeping all the legacy systems running while you have the capital cost of building the new system. We did a lot of that sort of work internally in Microsoft, and Microsoft takes a very harsh approach, in that it switches things off—once the new system was in place, the legacy system was switched off. What happens in Government is that the legacy system often gets left on for a long time.

One of the problems that I have found is that, in Government, time is not money in the same way that time is money in the private sector. Therefore, projects drift. I was on an advisory committee, and how dare I suggest putting red, amber and green against a Government project, because that would

terrify everybody. I think that you need to take a much harsher approach to projects by having red, amber and green—actually, I said that we could use violet, magnolia and rose. [*Laughter*.]

There needs to be a much harsher approach to how projects are run because time is money, even though it is not seen that way in some public sector projects.

Sarah Ronald: That point takes us back to organisational incentives. On Michelle Thomson's point about culture and the civil service, unless you are looking at organisational incentives, you will not motivate people to deploy. If you are working on an AI initiative, you should incentivise the civil service to deploy. Right now, I think that it is more likely that if the civil service deployed something that was 85 per cent accurate, people would get hauled over the coals and put up in front of a select committee or something. If that is the likely route, they will stall on that deployment and look for perfection, and that builds up into our not getting the velocity that we need as a country in terms of change.

On data libraries, there is no national data library. I think that we are way behind. Going back to the theme of velocity, there seem to be more announcements about what will happen but no announcement saying, "Okay, here is the plan, and this is when it will be delivered", with all the communication after that point being about the key performance indicator that is being measured between the time of that announcement and the time that the first pound was put down. We are back to organisational incentives, KPIs and running things more like a business.

Michelle Thomson: That is a whole different thread that I will not go into. Thank you very much.

The Convener: Yes, the culture of announcements and the use of RAG status in the public sector could themselves be the subject of a whole inquiry. We will not go down that route. I will bring in Sarah Boyack.

Sarah Boyack (Lothian) (Lab): I would like to come back to the topic that we nearly got to about energy use and the environmental impact of AI. There are potential positives and challenges, including a huge increase in electricity use, although you could join the dots in terms of excess energy production.

Interestingly, a report by PwC six years ago, and one by the London School of Economics and Political Science last year, showed that we could reduce our greenhouse gas emissions through better use of AI in transport, agriculture, water, energy production and food production. There are big pluses there, but how do we get that built in? The Scottish Government's AI strategy does not have a section on environmental or energy policy. If we do not join the dots and make those issues central, will we miss a big opportunity?

Seth Finegan: You are right to say that there is a balance of benefits and disbenefits, which means that it is important to ensure that we have a good way of measuring what is going on, so that we know where we are and are able to strategise around that. I will talk about what we are doing as a business and relate that to what needs to be done at a national level. Our AI charter has a section on sustainability. We are just going through the process for the International Organization for Standardization's ISO 42000 accreditation for our AI systems. Part of that involves considerations around sustainability. Consideration of our business's carbon footprint is core to everything that we do. That starts with measurement and awareness, again on both sides of the equation, and the building in of a carbon reduction plan. That applies at a national level as much as it does at an individual business level.

On the strategy itself, I think that that is something that should be evolved, if you like. If there is an updated AI action plan, bringing sustainability into the action plan would be an essential element of that. It is in our business's AI action plan.

On the earlier topic of data centres, there are real challenges in that regard. You have a great and fast-growing clean energy sector here, and a lot of renewable energy potential. That needs to be harnessed. Much of getting the benefit out of new technology and innovation is about joining things up—specifically, joining up what you are great at and what you will be great at in the future with the challenges and the benefits that you see today. How you bring your clean tech and renewables sector into the advancement of AI in Scotland will be critical to its success.

Sarah Boyack: Is that something of which you are aware? At the moment, we pay £250 million to turn off the turbines every year in Scotland due to constraints, yet data centres could be using that energy in an efficient way.

Peter Proud: It is not just about the power. Scotland has some key things in abundance. It has clean air and clean water, and we are one of the freest nations on the planet—it is not until you travel around the world that you realise how free we are in Scotland. The temperature of the air is also important. Air conditioning in data centres needs to be switched on once the temperature outside gets above 28°C. As you know, it hits the front pages when temperatures in Scotland go above 28°C during a heatwave.

We have cool air, so cooling is quite efficient here. We have the necessary water—in California just now, sinkholes are appearing because the

underground lakes have run dry due to use by agriculture and data centres. We have a few advantages. Delivering consistent power is the issue. We could be looking at technology that, when there is excess generation due to wind, pumps water up into reservoirs in the Highlands that can function a bit like capacitors that hold that energy in. Once the wind drops, we can switch the water on and let it run down the hills through pipes to power hydro generators—that is known as pumped hydro. To go back to Seth Finegan's point about the connected strategy, we are in quite a strong position to do that kind of joined-up thinking.

Another advantage that we have is that there is a lot of unpopulated space pretty close to population centres. We have a lot of things going for us. What is lacking is the availability of consistent power. We probably do not have enough of it to create our own data centres.

I know that that does not answer your question about AI, but it is about the infrastructure, which you need in order to have AI in the first place.

Sarah Boyack: I agree that that joined-up approach is necessary. Both PwC and the LSE talked about significant carbon reductions. We have just been talking about using more energy in a joined-up way, but given that reducing carbon emissions is one of our biggest challenges, what is the awareness in the sector of the opportunities that could come through this? Does it need to be more centre stage in the strategy?

Sarah Ronald: Do you mean opportunities for—

Sarah Boyack: The prediction from PwC was that we could reduce greenhouse gas emissions by 4 per cent—that is pretty big—by joining up the energy, water, transport, and agriculture sectors with AI. That would be a big opportunity.

Peter Proud: I have not seen that prediction before. I will have a look at the issue. In a sense, 4 per cent does not sound like a big number, but it is huge in the context that we are talking about, so that is worth looking at. Certainly, from my time working for a big organisation that created a lot of greenhouse gas in its earlier years, I know that companies such as Microsoft have a positive strategy to clean up everything that they have created from day 1. It is possible to do that.

The issue involves efficiency: it is about teaching the population to use smart power and to use that power at the right times. You can do a lot of that through smart metering and so on, and I think that that gets back to education.

Sarah Boyack: The LSE report said that AI could be used to nudge people into behavioural change by making them aware of the possibilities.

Sarah Ronald, have you any comments about how we can make sure that that happens?

Sarah Ronald: Is it the case that we have one data centre planned? I heard rumours of one.

Sarah Boyack: I think that a series of data centres is planned in Scotland; it is not just one. It is a big opportunity, so there should be joined-up thinking around that.

Sarah Ronald: How many are there likely to be?

Sarah Boyack: Several have been suggested for Edinburgh—three, I think. We talked about one out at Heriot-Watt University, but there are conversations about others across the country, so it is not just a one-off thing, and there is a need to link them into energy storage.

The other issue that I wanted to ask about was energy security. At times of extreme weather, for example, the system shuts down in certain places. Is that factored into the thinking around AI? If it suddenly cuts off, what happens?

Sarah Ronald: There was a major incident last week. All of our stuff just stopped working—it was like, "What the hell?"

Peter Proud: Yes, everything stopped for us.

Sarah Boyack: It happened in here as well.

Sarah Ronald: It was a source problem with the LLMs. That really gave us a bit of a wake-up call, like, "Oh my God, we are so dependent."

Peter Proud: What happened was there was a little blip of an outage about three or four weeks ago in a technology called Front Door, which is actually a single point of failure, as it is the entry point for all services. It got right down to tachometers in lorries, and the lorries could not drive because they could not monitor the hours that they were driving for. Front Door, which is used by Microsoft, crashed globally.

The Convener: I think that it might have interrupted our parliamentary voting.

Sarah Ronald: Really?

The Convener: Yes.

10:15

Peter Proud: The minor blip that occurred three weeks ago was fixed with a patch, but the patch ended up dragging everything down globally. That was not a power thing; it was probably a person thing, because a software team made a mistake.

I run bank websites. Our services and systems need to run 365 days a year, 100 per cent of the time, so the fault was a mission-critical incident. Luckily for us, all the services and systems that

the banks and everybody else were using—not just mine—suffered when the outage happened last week, so it was understood that issues with our service were not our fault, and we were exonerated.

Leaving that issue aside, however, you are right to say that power security and consistency are critically important when it comes to technological processes.

Sarah Boyack: What you say about joining the artificial intelligence strategy to our thinking about carbon emissions and the potential for energy security challenge is helpful.

I will move on to the issue of culture. We have seen lots of discussions in the news about the impact of artificial intelligence—unintended and otherwise—on the work of artists, musicians and authors, and the fact that data and copyright laws are not keeping up with AI because it is moving so fast. There was also a good report by the United Nations Educational, Scientific and Cultural Organization, which talked about a north-south divide in terms of access to digital knowledge and skills.

Have any of you thought about the cultural impact? Again, there are potentially big opportunities, and AI could strengthen our cultural and creative industries but, at the same time, there are unintended consequences in terms of a lack of access to digital technology and the issue of AI taking work that has been done by artists, authors, actors, musicians and using it. Have any of you been involved in discussions on that?

Peter Proud: I urge you all to watch a Channel 4 show that was broadcast last week, called "Dispatches: Will AI take my job?" It is worth watching—I watched it again last night before I came here because I wanted to refresh my memory. In the show, a photographer, a musician, a lawyer and a doctor were all placed in real-life scenarios in which they each had to do their job while an AI competed against them.

In the case of the doctor, the doctor won, in a sense. However, although the AI solution did not quite diagnose everything, it did it in 15 minutes, whereas the doctor took about two-and-a-half hours to get through six patients, and the AI referred the people to the right service, so the specialists would have picked up the issue with each patient. The lawyer was beaten by the AI, and the fees were about £100 instead of £1,200. The photographer was also beaten, as the magazine picked the AI solution for the models. However, the musician won, as the musical score that they laid down for a two-minute session for the film that they were shown was chosen. It was one of the best pieces of journalism that I have seen regarding AI and how it interacts with people's jobs and competes with humans. I think that the members of this committee should watch it.

Sarah Ronald: The point is that, at the moment, AI is really good at regurgitating information. If that source data is well categorised—as is the case in the areas of law and accounting—the answer is normally very good. However, in relation to the more artistic areas, where you are looking at net new product, artificial models and LLMs do not perform particularly well.

Peter Proud: Earlier this year, I was diagnosed with prostate cancer and was sent 12 sheets of paper that I did not understand—I could not understand the terminology or the measurement matrix or anything; I did not understand anything about it. I took a picture with my phone and got OneNote to read it, then I stuck it into Copilot and said, "Tell me what I have. Explain the terms and references and tell me what the treatment is." I got a three-page summary in about two minutes, and it was exactly right. When I saw my consultant at the first consultation after I had been diagnosed, I said, "Right, here's what I think. What do you think?" He said, "Are you a doctor?" and I said that I was not and explained what I had done, showing him the tools that I had used. It took me about 10 minutes to do the research, and he said I was the most informed patient he had ever seen. That shows that AI is not just for Government and organisations; it is for the citizen as well. We need to teach people that they can make themselves not experts in something but more informed citizens, so that they can have discussions with professionals in such circumstances.

I used only commodity technology that I already had on my laptop—I did not go and download anything else. I told the doctor what treatment I thought that I needed, and he agreed, which meant that he spent 90 per cent of the time talking about what I had and how to fix it rather than stopping me crying and getting upset about the diagnosis. If we can get people to use AI to make themselves better informed when they engage with professionals, that will be of benefit to Scotland.

Sarah Boyack: That is a really good example of opportunities and benefits, but I was also asking about data and copyright issues in terms of protecting artists, musicians and people's cultural rights. That could be about consent to use what people have created, or it could be about compensation. Would you want to come in on that?

Seth Finegan: I am afraid that I am no expert on the copyright laws or that particular sector. I was going to just come in on something that Peter said. What his example points to is that change and transformation that are made through AI in

workforces, in people's jobs and livelihoods and in their craft need to be people led.

We have that challenge ourselves, as a business. We have an initiative called AI in the business, which we have very intentionally made staff led. Each team learns about the AI tools that could help their particular team, how AI could help their jobs and what new skills they could have. They then create their own learning pathways to become a more AI-enabled team. I think that that is beginning to work because it has not been just a top-down board-level initiative. We have given this to the people who will be using the AI tools and it is for them to work out how they can get the benefits, how they can avoid the disbenefits and what new training, skills and awareness they need to build up to become competent in using these tools. If you apply how AI will change the jobs in any sector, there are real lessons to be learned from that.

Again, pointing to some of what Peter said, uplifting people's awareness and capability around AI benefits us all. In every single contract that we have, we always bake in that we will do upskilling and provide some free knowledge transfer and free training around AI tools and AI techniques. In the end, if we are to get the transformation right and not see headlines in the press that set us back, we need to create an aware and capable workforce. That will apply in the creative sector as much as anywhere else.

There are specific copyright issues that you point to, but I am afraid that I am not a particular expert on that.

Peter Proud: There is a bigger problem here, which is about security. The "Dispatches" programme did what somebody did to me recently. The first that I knew about this technology was when one of my friends in Seattle got a video of me talking online and made it into an avatar, if you like, but it was not really an avatar, it was apparently a real person. He did a Teams call with me, presenting himself as me, so I was looking at myself. When I told people in the office, somebody said that she would have loved that, but that is a separate thing. [*Laughter.*]

That is frightening and terrifying. Think about someone creating a politician saying, "I hate Israel," for example. By the time that you had a chance to correct that, a lot of damage would already have been done.

Sarah Boyack: I think that that has been done. Sadiq Khan was impersonated online.

Peter Proud: I did not know that. The only case that I know of is that of the person whose voice was stolen for the ScotRail announcements. I think that there was a court case, and I think that she did win.

The law needs to catch up. Copyright, talent management and so on have been around for a long time. It is not just the stealing of people's creativity and ideas, however; it is the stealing of people's identity. When I saw that demonstration of me speaking to myself, I immediately spoke to our teams to make sure that no one would pay for anything after a Teams call. If I had got on a Teams call and said to my finance person, "Transfer 70 grand to that person over there to pay a bill," they would have done it, because it was my voice and my face on the other side of the call. There is a real issue coming.

One of the things I am scared of, because I am getting old now—I am 56—is: when I am 70, what will people be able to convince me of, because I am not quite with it? There is a thing there about identity and whether that person is who they say they are. We were talking about that yesterday. Banks will have to start opening up branches again so that people can go and present themselves, because there is no other way of identifying who they are unless they are standing in front of you. The synthesised and AI-generated image of that person is so real that the person themselves cannot tell it is not them. You will see that if you watch the television show.

Sarah Boyack: I am sold on watching that Channel 4 documentary. Thank you.

Sarah Ronald: There is a good opportunity for Scotland on that. Scotland was the first to publish an AI strategy—I think that it was in 2020 or 2021. The basis of that is trust and ethics. It would be good if we were able to have regulations and controls around the point that Peter makes. I do not know whether we have done much other than say, "Here is the strategy." I did try to find out, but I did not find much.

Sarah Boyack: That has been really helpful, because it was a nice illustration of the massive opportunities that there are. The scale of the tech is moving so fast, though, and there is the global issue in particular: it does not matter where you live in the world, this is happening now. The issues are about how you regulate, protect data copyright and address that whole identity issue. Then there are trust and ethics. That may be good stuff for us to feed back into the Government's AI strategy. The tech is moving so fast and we want to benefit but not miss out. That has been very helpful. Thank you.

The Convener: Thank you. There are some supplementary questions, first from Murdo Fraser and then from Kevin Stewart.

Murdo Fraser (Mid Scotland and Fife) (Con): Good morning. I want to follow up the earlier line of questioning around data centres. Peter, you were talking about grid issues. I met SSE

Transmission on Monday and we were talking about that. Its view is that, right now, Scotland is not a greatly attractive place to put data centres due to what it called the latency of the grid, by which it means the reliability. We can get there, as you fairly said, but that will require huge upgrades in transmission and much more battery and pump storage. That is years away and will come at massive cost. I do not know whether you have any thoughts on what the likely timescale is for getting a data centre built here. From what the SSE people were saying, we are talking five or 10 years at least.

Peter Proud: Also—this is a very difficult political topic—you need to look at the micro-reactors for nuclear to be able to generate the power you need in such a small, localised area. I know that there is a "no nuclear in Scotland" policy, so that is counter—

Murdo Fraser: For now.

Peter Proud: For now. That is counter to the requirements of the power that is needed, which is reliable, sustainable power. There is an argument that nuclear is quite a green power source.

Murdo Fraser: Okay, that was it, unless anybody else wants to add to that.

The Convener: I thought that you were going to express your relief that you are no longer a practising solicitor, given the insight that they are all out of a job. [*Laughter.*]

Kevin Stewart (Aberdeen Central) (SNP): Peter, I want to go back to your point about your interaction with the health service and the 12-page diagnosis letter that you whittled down to three using AI—and the fact that the doctor said that you were so well informed. I am playing devil's advocate here, because the health service—and even some MSPs at points—are overburdened by folk who diagnose themselves. Some folk do suffer from hypochondria. How do we get over the fact that folk like that may use AI systems and then appear at public services or even private companies and say, "Look, this is where I am at. Do something about it"?

Peter Proud: I cannot answer that, because that was the first time that I had seen my doctor in about 25 years. I do not think that I come into the hypochondriac category, unfortunately.

Kevin Stewart: You will see what I am saying about the dangers of AI being used in these circumstances, though.

Sarah Ronald: That will be a very small minority of the population. That is an edge case, I think.

10:30

Kevin Stewart: These scenarios are always a very small minority of the population, Sarah, but folk around this table and general practitioners will tell you that that small minority of folk often take up a huge amount of time.

Peter Proud: When I spoke to the clinician—I got told off for calling him "doctor" because he is "Mr"; so I told him he should call me professor, but that was a separate chat [*Laughter.*]—I showed him what I had done and he said, "My admin could have done that." The point that I was trying to make was that by adopting the tools, his admin could have taken those 12 pages of gobbledygook—

Kevin Stewart: I get that, and I think that that scenario is immense. We could all learn from that because we all get documentation, whether it be from health services or others, where sometimes you think, "Why do we have all this when it could have been simplified and made much easier to understand?" It is the devil's advocate position of AI being used by certain folk, and it will be, as Sarah Ronald rightly says, a minority but a very vocal and often time-consuming minority. How do we get over that?

Seth Finegan: It is worth going back to that earlier point about benefits and disbenefits. Of course, we know from our experience both in the national health service UK-wide and going back to that NatureScot example, that AI is a brilliant tool to help you triage cases that come in. It helps you identify unusual patterns in an extremely effective way. It helps you route cases in an extremely effective way. It creates one of the biggest productivity gains that we see with our clients.

The risk that you point out is real, but, again, why can we not use AI to be more efficient at triage? It can flag that something looks a little unusual or looks as though it might be AI generated. The recruitment industry is full of that at the moment, because we are awash with CVs and applications that are AI generated, but everyone is using AI tools to sift those out. It will be the same in a GP surgery in the future, I think.

Sarah Ronald: It could potentially be a lot better than what exists. Current NHS symptom checkers are not bespoke—they are not individualised and they do not take context from an individual. With AI you can add all that in, so the hypochondriacs can get as much attention as they like.

Stephen Kerr (Central Scotland) (Con): Yesterday, I saw that the Office for National Statistics had said that public sector productivity had gone backwards at a faster rate than has been the case for many years. I am interested in—in fact, I was a little shocked by—what you had to say, Sarah Ronald. You will not have anything to

do with the public sector, because of the lack of velocity.

Sarah Ronald: I do not actively seek involvement with the public sector. The procurement process is too hard and too long at too low costs. There are many negatives with it versus the private sector right now.

Stephen Kerr: Yet, if we go back to Rachel Reeves's speech yesterday morning at 11 Downing Street, our national productivity is now at crisis level and the public sector is a big part of the drag on that. I was really interested in what Peter Proud was saying about the NHS. What are the barriers that we, as politicians, need to remove in order to create velocity around these issues, given the productivity crisis and the great public need that is going unanswered?

Peter, you started us down that route. I think that the convener said that we were not going to go down that particular rabbit hole, but I feel that that aspect is crucial to this whole issue.

Peter Proud: This is a societal discussion rather than one about technology. If I think back to the early parts of my career, when I was climbing the greasy pole inside Microsoft, we had to work like crazy. I used to sleep in my office in Seattle regularly because I did not have time to go home, take a shower and come back again. There is that side of things.

I will be careful how I say this, but working from home has had a huge impact on productivity in the country. If I look at my company, the people who are building the products have self-selected to come into the office pretty much every day. We have mandated two days a week, but the most highly trained people come in every day. I have not found any piece of technology yet that replaces a whiteboard, a pen and a load of people standing around it discussing something. You get to sense how people are feeling as part of that conversation. I have worked in the biggest tech companies in the world, and a pen and a piece of paper are still among the biggest tools for innovation.

There is a societal issue here. The connectedness of people within organisations is important. Microsoft Teams does not replace having relationship and trust. There is something in that, and AI will not fix that. It is a bigger question than just saying that AI can increase productivity. I do not know how much the other witnesses work remotely or together, but I think that you work together quite a lot, from what I know.

Sarah Ronald: Yes.

Peter Proud: There is something about getting a bunch of brains who trust each other in a room with a pen and a piece of paper. Doing that is probably one of the things that will really increase productivity.

Stephen Kerr: That is almost a symptom, is it not? There is a deeper diagnosis here. I would like us to speak to some of the real issues that will hold us back as a country, because we are being held back. What are they? What are the root issues that we need to deal with from a political point of view to facilitate the velocity that we need—not just in the private sector where some things are happening, but in the public sector that supports the private sector, which is crucial?

Seth Finegan: I have been, and our company has been, on the front line of public sector transformation. Having seen some of the challenges with that, I would maybe point to four main things that we see making a huge difference.

First, you must invest in overcoming and tackling your legacy systems, the legacy data platforms and the legacy skills, and allow and invest in new platforms that can more easily talk to one another. We have mentioned data lake technology. I am talking about using a series of technologies and architectures that make it easier for Government to act in a more joined-up, productive way. There must be investment in new technology.

The second element is to do with skills within the workforce. That is not just about having technical skills but about having operational skills and people rethinking their work and whole operating models. Businesses like ours, which are, if you like, cloud native and AI native, have built our entire operating model around technology. Often, we introduce technology into the public sector, but they are still working with a legacy operating model. People have to go on a skills journey so that they understand how the operating model and their job will change.

The third element is that leadership is needed to make that happen. That can be political leadership and leadership in the public sector. It is about leaders understanding how digital and AI will change how we work. There are many great leaders across the public sector in Scotland, and UK-wide, who really get that, but there are not enough of them. If you want to transform and get the benefits of AI and productivity, you must have the leadership awareness of and knowledge about how to get to that.

Stephen Kerr: Are you talking about within the civil service?

Seth Finegan: Yes, within the civil service.

Stephen Kerr: They need to be enabled by political leaders who think the same way.

Seth Finegan: Yes, it is exactly that, which brings me to my fourth point, which is political air cover and leadership air cover. You have to create a culture of innovation and a culture of partnership. We do things—all companies do things—that do not always work, but we learn very quickly and we change, adapt, and move on very fast. The faster that we can do that, the better we are, the more competitive we are and the more productive we are. There are still real issues about the culture of innovation across—

Stephen Kerr: Is that rooted in the risk aversion that we heard about earlier?

Seth Finegan: Absolutely, and that is not unique to Scotland.

Stephen Kerr: Sarah Ronald suggested in one of her replies that—forgive me, I am interpreting what you said—transparency and accountability slowed innovation in the public sector as people were afraid to take bold decisions in case they ended up in front of a committee.

Seth Finegan: I do not think that it has to be an either/or. You can have transparency and accountability with innovation, but you need to understand that, when you are innovating, you do not always know every element of what will be delivered in the end and that there might be some setbacks along the way. What is most important is that you create an environment in which it is safe to learn quickly, adapt quickly and move on. That environment and that culture is not always present in any nation's civil service. It is—

Stephen Kerr: Give us an example of a country where they have that mentality. Estonia was mentioned earlier. That might be a good one.

Sarah Ronald: Singapore.

Seth Finegan: We work in Asia, and Singapore is a great example of that.

That mentality exists here, but only in pockets. It tends to be where there are particularly well-led teams and a lot of time is spent understanding what an innovation culture means in practice. That is when it works.

Earlier, I noted our great results at NatureScot. Recently, we have been working UK-wide with the Medicines and Healthcare products Regulatory Agency. We have introduced AI into its workflows on clinical trials, reducing the time that it takes to run a clinical trials application process from 90 days to 41 days. The chief executive at MHRA was on the BBC Radio 4 "Today" programme talking about that around two weeks ago. That is an incredible productivity gain.

The interesting thing about that success story is that, when we first started working with the MHRA, because of AI myths and things like that, there was a lot of scepticism from some of the experts who worked there. The trick to it was showing them how AI could make a difference, iterating with them, learning as we went and encouraging them to be innovative. We also took a disciplined approach to the value that was created. If we made an intervention that did not create value, we stopped doing it. If we put something in that worked and it worked for them in their workplace, we doubled down on that and rolled that out into a live environment. It is techniques like that that create huge efficiency gains in very complex national services like the MHRA.

Stephen Kerr: It is about leadership and culture.

I see that Peter Proud wants to come in.

Peter Proud: One of the problems is single-year budget cycles. You need multiyear budget cycles for such things.

I am working with people who tell me in May or June that they do not yet know what their budget for the year is. It is also the case that, when they are six months into that financial year, they do not know what budget they will have in the next year.

Take data lakes. Building a data lake is a multiyear project. If you are doing things that are strategic, you need to break away from single-year budget cycles. Creating a data lake involves a five-year change programme. You need to begin with the end in mind, work in an agile way and have a pretty flexible but well-defined project plan. You must also ring fence money for that. For example, you need to say, "We're taking 30 per cent of that away next year and we're going to put it over there."

To fix the situation, you must move to multiyear budget cycles instead of doing things year by year.

Stephen Kerr: You must also have clear priorities.

Peter Proud: And clear priorities.

Stephen Kerr: That is about leadership and culture. However, underpinning all that is, undoubtedly, education.

Seth Finegan: Yes—absolutely.

Stephen Kerr: One of the biggest threats to our economy is our education system. Are we, as a country, in a position to be able to take the fullest possible advantage? Do our people have the skill sets to do that? What is your assessment? What must we do differently?

Peter Proud: The best thing that I have ever done in my career is the apprenticeship programme that I put in place in my company. We have put 20-odd kids, mainly from council estates, through university. We forged a relationship from

further education to higher education and into the workplace. Just last week, one of our three kids got a first-class honours degree in their second language. Three-quarters of our students have gained first-class honours. They work with us four days a week and go to university one day a week. We have relationships with the university. Every one of our apprentices—I think that we have had 30 apprenticeships—has a job now, and are all thriving. All of them came from poorer backgrounds. It can be done.

The sickness levels of our apprentices is through the floor. They are never off sick, because they are too busy to be ill. They do not have any anxiety, because they do not have any time on their hands to be anxious. They are getting industry qualifications at the same time as their degrees. We have relationships with the colleges. We hire them with a higher national diploma. They join us in third year at university. We pay them a very good salary, which is above the living wage—

Stephen Kerr: Are you basically saying that we need more undergraduate degree-level apprenticeships?

Peter Proud: Absolutely. Every one of our apprentices gets a job when they finish with us, whereas full-time graduates are facing unemployment just now. They have two years' work experience, an HND and a degree, with most of them from my company gaining a first. They are paid. They do not have student loans or debt that might reduce affordability for mortgages and buying their own houses. Most of our apprentices buy a house as soon as they graduate. A lot of people cannot do that.

Again, it is the societal approach that we need to look at.

10:45

Stephen Kerr: Would it fit if we redesigned our vision of FE and HE more around the idea of—

Peter Proud: And industry. You need industry as well.

Stephen Kerr: Say a bit more about that.

Peter Proud: You need to start forging relationships with and helping companies like mine. They might not need to be incentivised as such. I am incentivised by the fact that the apprentices are productive on the day that they land, because they have already got an HND, but you need industry to realise that and to educate them. I have done a good job with a lot of companies so that such programmes are not a cost to them but a benefit.

I have been pushing really hard for companies to take on apprentices. You need relationships among the colleges, the universities and the employers, and you need to educate the employers so that they realise that this is a benefit to them, not a cost.

I love my apprentices because they are all brave and they bring fresh thinking. Earlier, I gave the example of removing 10 weeks from a 12-week process. That idea came from one of the students—it was in their fourth-year dissertation. They designed a solution as part of their degree, which was incredible. We need to bring that bravery into organisations and foster such thinking by young people.

Sorry—I am changing the topic.

Stephen Kerr: I want to talk about what is happening in our schools—I know that other members, do, too.

Seth Finegan: As part of our commitment, particularly to our public sector clients in Scotland, we add a lot of social value activities into all our contracts. We have always done that, by which I mean for more than 30 years. One of the great initiatives that we have begun working on recently in Scotland is the digital critical friends programme. We are putting some of our experts into mentoring relationships with teachers in Scottish schools to help them to talk with more confidence about AI and digital matters. That is a great initiative.

We have placement students, and, similarly to Peter Proud's organisation, we offer apprenticeships. However, I am left with the feeling that all these initiatives are being almost bolted on. The core of the curriculum—that is, what is going on in primary schools through to secondary schools before we reach further education—needs to be looked at to ensure that that is creating a digitally enabled workforce from the moment that children enter primary school all the way through, and that it does not just start when—

Stephen Kerr: What kind of initiatives are you talking about in primary and secondary schools?

Seth Finegan: If you look at the digital critical friends initiative, that is about teacher training and giving them the confidence, awareness and skills to bring more digital skills into the classroom from an earlier stage. That comes back to how we are training our teachers.

Peter Proud: We also need to educate the education sector on what tech is, because everyone thinks that information technology is done by a bunch of hoodies who sit around drinking Red Bull while coding at 3 o'clock in the morning. That is not what it is.

Please do not shoot me if this is the wrong term, but I just say girls and boys. Let me just be basic.

We can say A and B or whatever you want, but to me they are girls and boys. In my company, the majority of developers are boys, and we cannot get CVs from girls because they are just not interested; they do not want to be developers. I do not know why.

If you look at the project managers, the scrum leads and the business analysts—which involve the more communicative type of work and which are often higher-paid jobs—those who do them are girls. The person who runs delivery for me is a girl. The person who runs products for me with regard to business analysts is a girl. All the project managers are girls. If you think about taking a product from ideation to commercialisation, you have product definition, which is communicative; product architecture, which is communicative; building test, which is techie; pre-production, a lot of which is communicative; and service delivery and service management, which are communicative.

If you think about the skills in tech, of all that five-tier stack, only one of them is what we might call techie techie. The rest of it is very much business analyst-focused. We need to educate the country about what tech is, because there are lots of roles within it. The bit that will get commoditised through AI is the coding bit.

Stephen Kerr: It is a massive subject. Do I have time for one more question, convener?

The Convener: If it is brief.

Stephen Kerr: Sarah, you spoke about tooling, data and intellectual property. Basically, you were saying that your data is your sovereign property.

Sarah Ronald: That is what I believe.

Stephen Kerr: From a business point of view, I understand that, but I have a concern that relates to that, because the AI that is adopted by SMEs will probably be open source based. The idea of creating a bespoke or customised tool will act as a barrier to the use of AI. Can you say a bit more about that?

Sarah Ronald: We set out on this process 18 or 20 months ago. For us, it was a case of adopting the tools. It was more important than anything else that we started to work with the tools so that our team could learn. At the time, rather than paying another software as a service company for a research platform, we decided to recreate that using vibe coding and so on. In hindsight, if we were starting out now, we would not necessarily make the same decision again, but we have learned a huge amount from that process. The team now has skills and ways of working that we can put into our consulting services that we would never have got from going on training courses. You have to work with the tools.

Stephen Kerr: But training courses and packaged off-the-shelf solutions will probably be more viable.

Sarah Ronald: Yes. That is absolutely fine, because people will still have to adopt those, put them into their workflows and start figuring out how they will live within the organisation.

Stephen Kerr: That is the innovative mindset.

Sarah Ronald: Exactly.

With regard to leadership, whether the teachers are leading the training or the politicians are leading the civil servants, the massive lesson is that they all need to be using the tools. You cannot talk theoretically about it; you need to ask how you are disrupting yourselves. There are two disruptions going on here. There are the industry disruptions and the societal disruptions, but every single one of you should be disrupting yourselves. How can you multiply by 10, by five or by three what you do in your current role and demonstrate that daily? That is the biggest lesson that we learned as leaders.

Stephen Kerr: Our challenge is that, as much as we have ambition and are good at talking about this—the politicians in particular are good at that—the AI Scotland programme for 2025 is providing £1 million to enable SMEs to adopt AI.

Sarah Ronald: That is nothing.

Peter Proud: I spend more.

Stephen Kerr: It is ridiculous.

Sarah Ronald: SMEs will probably not even have access to the tools that they need, such as Claude or Open AI, or be able to link those up to their personal data. All those things need to be unblocked. When it comes to what we should be unblocking, for me, those are fundamentals.

Stephen Kerr: That certainly requires more than £1 million.

Sarah Ronald: Yes.

Peter Proud: Microsoft's budget this year is £80 billion.

Stephen Kerr: Eighty billion pounds?

Sarah Ronald: The biggest risk is not to start adopting it. It is much riskier not to adopt it than to adopt it, so the money and the decisions should be going towards enabling that, because that is the future.

Stephen Kerr: It is a critical risk to the future of the economy, is it not? Not doing anything is not an option.

Sarah Ronald: If we do not do anything, that amounts to accepting that we will not be that relevant.

Seth Finegan: None of us will be able to compete if we are not AI businesses. It is as simple as that. That must apply at a national level as well.

Peter Proud: I now have Copilot beside me in every meeting. If I am talking about any topic or people are telling me stuff, I do research during the meeting so that I can get the facts in real time. Every person in the room can do that. You can fact-check things such as, "Is it right that the energy use of a data centre is 300MWh?" That is what people should be doing.

Stephen Kerr: I will have to hand back to the convener, otherwise I will get switched off.

The Convener: Do not tempt us, Mr Kerr. I bring in Gordon MacDonald.

Gordon MacDonald (Edinburgh Pentlands) (SNP): Good morning. Just to reassure you, every question that I will ask has come from ChatGPT. [*Laughter.*] Yesterday, I asked a variety of models what questions I should ask you guys, and every model gave me different answers.

My first question is about governance. The vast majority of our companies are SMEs with fewer than 50 employees. If they have an IT department, it will consist of only a couple of folk, so they will be dependent on third-party software and one of the AI engines that were mentioned earlier that handle expenses, planning or whatever in the background. We must get it right so that they can make informed decisions and the use of AI improves productivity, which we have talked about. How are AI systems tested, validated and monitored for safety?

Sarah Ronald: I will jump in on that. There are the source models, such as OpenAI, Anthropic, Grok and Gemini. Of all the ones that we have worked with for regulated industries, we tend to go with Claude. All the various models use different standards for the safety of their responses, but I think that Claude holds itself to a far higher ethical standard, which is important in regulated industries.

Peter Proud: We must remember that AI solutions should never be used at the final decision-making point in the workflow. Let us take the example of law. Murdo Fraser will appreciate this. When a young lawyer comes in, they will be given all the easy tasks, but their work will not go out the door until it has gone past a partner. It is exactly the same in this world. What the AI tool produces is a starter for 10. It is the 80:20 rule. It does 80 per cent of things—the easy stuff—and you will probably spend 50 per cent of your time looking at the 20 per cent and making sure that it is right.

When it comes to efficiencies, we are not talking about 80 per cent. You get a 30 per cent gain because there is a bit more overhead in ensuring that everything is right. You have to check everything. I recently did a demonstration on that very point, when I said to the AI tool, "Draw me a picture of the UK", and it put Cardiff in Ireland. It got the shape right. Most of it was right, but some of it was wrong. It did it much more quickly than I would have been able to, and it was quicker for me to tidy it up than it would have been for me to draw the map. You have to make sure that you never let AI be used at the decision-making point. You cannot just chuck something out the door.

Sarah Ronald: The way that you use it is also important. If teams collaborate first, get some ideas and then use the tools, the output tends to be of a much higher quality. If you have done some independent thinking and you are considering asking certain questions, you can use AI to find out what you are missing and where the gaps are. It allows you to think, "What might be a more challenging question than I have thought about here? Are all my questions following the same theme?" As well as getting back much better responses, your brain will engage much more with what is being said. That is better than going straight in and just saying, "Tell me blah." If you do that, your brain does not engage in the same way.

Peter Proud: We are talking about generative AI. There is agentic AI, which involves programming the agents and telling them what to do. I come back to the point that what you get out depends on what you put in. It is all a case of making sure that what you put into agentic AI is right.

Seth Finegan: That points to two things. First, it points to the need to have defined quality, trust and ethics frameworks. The use of those needs to be promoted to SMEs to the same extent that it is to large business and in Government. We developed an AI charter of principles, and we have an AI policy on how we will use it. As I mentioned earlier, at the moment, we are going through the ISO 42000 process for the use of AI in our company and in relation to how we deploy AI and build models for our clients. That gives us a disciplined quality framework to follow, which needs to be backed up by audit.

The second point is about what you do once you have found out that you have ethical, safety or quality risks. That brings us back to the issue of how we handle innovation. When we do not understand something, we often overregulate. The issue comes back to skills and awareness. We need to create environments in which people understand the trust and quality frameworks within which they are using AI and how they should respond when they discover something that is off

piste—Cardiff being in the North Sea, say. Goodness knows what the equivalent would be in a clinical environment. It is important that people know how to respond and how to change the way that they use AI and build the models.

A lot of what we have spoken about today has been to do with large language models and research using tools such as Copilot. Our core business involves building bespoke machine learning and predictive analytical models, which has a lot more complexity in it. We learn all the time about how good those predictions are, because if a prediction underpins a degree of automation and a degree of decision support, it is necessary to know about the quality of that prediction in order to know where you are in relation to how that model has been built, how it is trained and whether it is performing well in different outlier conditions. That is where trust, safety and quality frameworks become absolutely key.

I think that many SMEs would see going through something such as an ISO standard as a potential investment and a potential burden, but those that have gone through that discipline point to the fact that it strengthens them as a company. I think that we should be encouraging that through our AI strategy and the action plan for SMEs.

11:00

Gordon MacDonald: Should there be a role for Government? You have talked about the need for trust, safety and quality frameworks, but we want everybody to be working to the same standard. Given that AI has been around for 30 years, what legislation is in place to govern it? Should we have a regulator? I am not saying how effective these regulators are, but we have Ofcom and the Office of Gas and Electricity Markets. Should there be a regulator that covers AI?

Seth Finegan: There are a number of different legislative tools that point to quality. There are different dimensions around data and security, such as the general data protection regulation and others. We can look at the international picture with regard to how different countries have approached regulating AI. Obviously, the European Union has taken an extremely thorough risk-conscious approach, if I can put it like that, whereas the US, on the other extreme, has taken a very innovation-based approach. That is possibly a political decision about where we want to sit as a nation on the ethical innovation scale.

The challenge for regulation is that it is hard to regulate things that you do not understand. We keep coming back to the point about skills, capability and awareness. Perhaps the wise approach is to right-size the regulation, thinking carefully about the innovation that we want to generate. If this economy is to be an AI economy in five to 10 years' time, it cannot be held back by too much regulation. If we have a lower amount of regulation, some things might happen that we would rather avoid. The issue is how we respond to that, correct things and keep moving forward. I think that the economies that do that will make the greatest gains, even with a disciplined regulatory framework.

Gordon MacDonald: Given that AI has the potential to improve productivity and make businesses more efficient—that is another way of saying not employing more people or reducing head count—what policies are needed to support such a workforce transition? Is that not a role for Government?

Seth Finegan: I might challenge the premise of that. Becoming an AI-enabled economy or an AI-enabled business is about growth. We are not cutting staff. We are growing, because we are more competitive and more efficient. We are employing more staff here in Scotland and more staff across the UK in higher-value jobs.

However, you are right—there is a point about a workforce transformation, and Government has a role to play there. I think that that role relates to communication and education to help the workforce to understand the benefits of AI in their careers. It should also involve the provision of support for retraining and upskilling so that people can have entire value careers that are based on AI. Government must have a role in investing in that retraining and upskilling.

Peter Proud: It is important to bear in mind that we are not talking about competing with our neighbour in the next street; we are talking about making Scotland a player in the global market. Estonia has become extremely successful. Its philosophy is that Estonia is a place to do business, not the market. We should be thinking the same way. If we make Scottish or British companies more efficient, we will be able to compete in world markets with the tools that we have here. The Scottish Government should be thinking about how to replicate the success of countries such as Estonia and focusing on becoming a great exporter.

Glasgow was founded on the exports of its merchants. As a nation, we should be making our companies really efficient so that we can go and compete in global markets. Graduates who come out of university on the west coast of America have an average starting salary of about $150,000 to $175,000 a year, so it is expensive to employ them. That means that it is very expensive for start-ups and scale-ups there, because of the cost of staff.

Therefore, people who build global tools and global solutions here will be able to go and compete in those marketplaces. So far, our company has raised £9 million to build our solution. One of the companies that we are competing against, which are based on the west coast of America, has raised $150 million. It needs that level of investment to feed its business because it is so expensive to do. There is a yin and a yang here.

We have a great opportunity, because we are relatively low cost. Property and staff are relatively inexpensive here, compared with some of the other world markets, so we can be very innovative if we use the technology properly.

Gordon MacDonald: I will leave it there. Thank you.

Murdo Fraser: A lot of what I was going to ask has already been covered, so I will not go over old ground, but I want to pick up on Gordon MacDonald's last point about reskilling people and contextualise that. In the past 20 years, Scotland has had a lot of people in the economy working in call centres. For example, 10 years ago, if I wanted to speak to my energy supplier, I would pick up the phone and speak to somebody in a call centre. Now, everything is on the app, and I am speaking to something which is probably a computer and not a human being because it is all done through ChatGPT. Will we see the death of call centre jobs because they are all being replaced by AI and, if we are, what will happen to the people who have those jobs?

Sarah Ronald: Those are very good questions. It is likely that the majority of call centres and call centre jobs will go by 2030. Given that we have so many people in Scotland employed in those roles, because there is a lot of FS back office, there needs to be a an offboarding plan.

What could the Government be doing? Organisations could start identifying and reporting on how many jobs will not be there by 2030. They could report on the number of people in those jobs who they will reskill and redeploy into their businesses. You could be encouraging organisations to create little funds that allow for a better severance package.

Maybe the AI transition is a little bit like Covid. It is unusual and it will hit every single sector in significant ways. How can businesses respond to help those who will be out of a job?

The Bank of New York Mellon Corporation has created human resources codes for the agents that they have created. The agents that will be in the call centre are on the HR system. Yes, that transition is already happening, and it will be hitting Scotland.

Peter Proud: You have the other side of things as well. The press is saying that the defence sector is flying. Obviously, we have Rosyth dockyard, and we are building ships. We are back to doing some of the more basic things that we were doing.

I live in Fife, so I see what is happening there. Three hundred Malaysian welders are being imported into Scotland to satisfy demand. Going back to the point about FE, HE and industry, we should be producing welders through colleges and apprenticeships to satisfy that demand. I think that there is a big struggle now, following the change of leaving Europe.

If I were starting again, I would be thinking about being an electrician because you cannot get an electrician, just like you cannot get a plumber, a joiner or a welder. None of those jobs will get replaced by AI, so maybe we should be thinking about going back to 1969 and the apprenticeships that we had for some of those jobs.

It is okay to have a services industry as a foundation, but a services industry creates prosperity. People want better houses, nicer cars and bigger this and bigger that, so we have to satisfy that demand in some of the basic services through supplying traditional apprenticeships and tradesmen.

Murdo Fraser: I visited Babcock on Friday. The company is absolutely flying, which is great, and it is struggling to fill vacancies. Going back to my colleague Stephen Kerr's questioning, do you think that our education and training set-up is fleet of foot enough to keep up with these changes in the economy?

Sarah Ronald: No.

Peter Proud: We have bigger problems to tackle in education that are nothing to do with this issue. Behavioural issues in education are prevalent in the news. Assaults are taking place on teachers, and so on, and I think that, as a nation, we have lost control of the classrooms.

We need to go back to basics, and we need a bit of inspiration, aspiration and engagement in education to create opportunity. We should be inspiring the nation to do these four things: to have an aspiration, to look after yourself, to create wealth for yourself, and to embrace education. If you embrace education, you will create opportunities. I think that there is a good discussion to be had here on this panel.

Murdo Fraser: That is very interesting. We could go down that rabbit hole, but that would be a different conversation.

Peter Proud: On schooling, I think the most important thing is that we need to be teaching people to be curious. Curiosity is the most

important thing, because if you are curious, you will learn, and if you learn, you can adapt. Thinking about my career, when I was at school, I did not have a clue that jobs existed that I ended up getting. I did not know there were big global companies that you could work for. I did not know that the salaries that I ended up getting paid when I worked for those organisations were available to people like me.

I was brought up in Abbeyview in Dunfermline and I went to the local high school. In those days, you did not have that aspiration. How do we start to give kids in council estates aspiration? There is a lost generation sitting in council estates that we should be giving inspiration and aspiration to. I know that that is a separate discussion to this topic—sorry.

Seth Finegan: A point was made earlier about coding skills, and I would add that sometimes there is a bit of an obsession about that. There do need to be apprenticeships and qualifications that are specific to particular technologies, but what we are really talking about is the development of problem-solving skills.

Our whole business is building large data and AI infrastructures. Probably a third of our intake are people from computer science backgrounds. The others might be from an arts background or a humanities background, but they are great problem solvers, and they display the curiosity that Peter Proud mentioned.

How do we encourage that through the education system? I think it is easy to have a simplistic approach of saying, “We have to start training everyone in Java” and things like that. However, no one will be coding in Java in the future. The number of people coding in Java will be going down and down, and the AI will be doing it. It is about thinking, curiosity, design, and problem-solving skills. They are what we need to be developing.

Peter Proud: Sarah Ronald is a great example of that. We use her services. Getting the user experience right and the integration among the human, the interface and the machine is the hardest thing to do, and all of us struggle to fill those roles.

Sarah Ronald: Yes—we need critical thinking.

On the education point, one thing that all institutions—whether in higher education or secondary education—could be doing right now is embedding the tools in the curriculum, so that students can come out with agents that they have built that help them to be productive. I can see a future where, if I went for a job, the company is hiring not just me, but me and my stack of tools—agents—that help me to be much more productive and have specialist knowledge of something.

There are some amazing examples at the Wharton school of the University of Pennsylvania. Ethan Mollick is worth looking at. Two or three years ago, he start teaching his MBA students with such tools. I had a conversation with the University of Glasgow, which said, “No, we could not copy that because we have not agreed, as an organisation, which tools we will have and we could not put them into the curriculum because of cheating.” It was just barrier after barrier after barrier.

We already have a path of where it has worked previously. Let us copy that and steal with pride.

Seth Finegan: It is often said that AI will not take your job but someone who is good at using AI will. I think there is a lot of truth in that and that should be fed into education policy as well.

Murdo Fraser: You have given us a lot to think about. Thank you very much.

11:15

Willie Coffey (Kilmarnock and Irvine Valley) (SNP): What a fantastic conversation we are having this morning. As an old computer scientist and software designer from the 1970s who encountered AI at Strathclyde and wondered what the future would hold, it is with a mixture of wonderment, amazement and horror that I watch what is unfolding. I want to touch base with you and get your views on the ethical side of all this and whether there is any ethical dimension to AI whatsoever.

Peter Proud, you have given us a few examples this morning. One of the things that I have seen more recently on Facebook, which about 3 billion people on the planet use, is that as soon as you do something on there, you are bombarded forever, are you not? If you go to buy a washing machine, you do not get hundreds of salesmen coming to your door five minutes later, but you get bombarded in that way on Facebook. That is a simple example, but it illustrates where there is a lack of control or understanding and where the boundary between support and intrusion can be crossed. How on earth do we begin to build in protections for citizens in the rapid development that we are seeing?

Sarah Ronald: We will learn a lot from the regulated industries, which are having to address a lot of those questions now because of the consumer duty or other legislation under which they are held to account. They are looking at such frameworks and considering things such as, “If one of our core values is collaboration or inclusion, how does that show up in the digital onboarding journey? What does that actually mean?” The problem that most of them have is that they have not thought about it. They have nice words, but

they have not thought about what they mean, so they cannot codify that into the algorithm and therefore be confident about the ethics when an outcome is created.

Seth Finegan: That brings us back to having a clearly defined ethics framework. That would not give us the answer in every situation, but it would at least give us a frame of reference. As we learn more, and as different examples come up, such as the Facebook example and others that will make the headlines, at least we would have a frame of reference to go back to and ask ourselves what we think about those, given what we have said our ethical stance is. If we thought that something was unacceptable or high risk, we could at least make an intervention. It would give us a framework within which we could begin to understand the ethics of how different algorithms and different businesses work and then try to make interventions, some of which might be policy interventions.

Peter Proud: People have a choice. I do not use social media—I just switched it all off. If you read anything by Sir Tim Berners-Lee, who invented the internet, you will see that he says quite clearly that he sometimes thinks that we should never have invented it because he does not know whether it has done more harm than good. People ultimately have the choice whether they want to be exposed to that, and they can just switch it off. Social media is creating a lot of anxiety among the youth because they see all these people having a great life and having great fun, but 95 per cent of it is fake and nonsense. I think there is a reset coming for that kind of stuff.

Our generation in this room—or most of us anyway—had proper friends and we got a ball and played in the street. This is about getting back to the basics in life. I am fortunate enough to still have friends I had when I went to school. I think we realise that fake, artificial life, self-gratification and instant gratification—the instant hit—are not a good thing for society as whole. Getting back to basics, which we have covered a couple of times, is maybe not a bad thing in life. Things have happened too quickly with digital, and we have not kept pace with it as a nation and a society.

Seth Finegan: I do not want to get into a generational argument. People talk about being a digital or social media native, but I have a 14-year-old and an 18-year-old, and they just ignore what they do not believe. They know who their friends are and the services that they use, and they have an awareness of the dangers. I think we sometimes underestimate the ability of younger generations to self-police this. There are real risks from social media, and there are terrible stories of those risks, but I have a lot of faith that future generations will be able to work those through, create ethical frameworks and, as Peter Proud said, perhaps make more of their own choices about how they use technology than we think they will.

Willie Coffey: On the whole fakery agenda, there are some incredibly good things out there, but there is some really dangerous stuff going on as well. Peter Proud talked in a lighthearted way about talking to himself on Teams—to a faked AI bot—and a much more sinister application of that kind of thing is possible. I was trying to get to the heart of the AI tools themselves. Is it impossible to build in any conscience in AI software models or do we just have to oversee it working in practice and take some steps to try to moderate it or to protect people?

Seth Finegan: You can always build in constraints on how any software solution behaves. Tracking how AI software solutions behave is more challenging due to their nature. Inevitably you will have frameworks that look at the consequences as much as what the inputs were and how algorithms were designed and built, but you must have frameworks that look at the impact, because it can be difficult to predict.

Sarah Ronald: There is something called the lethal trifecta. You can limit the access that the agent or the AI has. You do not want them to have all three of these tools. One is access to external information, the second is access to an individual's personal information within a company, and the third has gone right out of my head.

Peter Proud: One of the things that the Government needs to think hard about is the criminality: where is the crime actually taking place? If you are sitting in a house in Scotland and somebody from, say, Iceland—let us be neutral rather than using the normal places to point fingers at—raids your bank account, where is the crime actually taking place? Is it taking place in the UK where your bank account is being emptied, or is it taking place in Iceland? How do we get the Scottish police force or the British police force to engage with us while the criminal is sitting in Iceland? I would imagine that the Icelandic police probably do not really care about somebody nicking bank accounts in the UK, because they are more worried about criminality on their shores.

That is an issue in this world of AI and fraud. The UK had £1.7 billion of fraud last year, most of it through social media and tech. The banks in the UK are very quick to pay out, which some people think is a good thing. They do not do that in Germany, so the Germans take much more responsibility. Think about getting compensated for your house getting burgled when you left your door unlocked. If you did not get compensated for that, you would probably make sure that you locked your door.

There is a big discussion for the Government about criminality, which AI is making worse. The way that people can use AI agents to find out about somebody, impersonate them and start to harvest their passwords and so on is a real problem in society now. Criminality around about AI and location needs to be thought about by Government at all levels. This is not on topic, but criminality could stifle AI.

Willie Coffey: Thanks very much for that. How do we ever get to a point where the citizen can shape these tools? My experience is that they do things for you, but they also do a lot of things to you whether you like it or not, such as in the Facebook example, where they bombard you with adverts and so on that you might not like. How do we ever get to a position where a decent, honest citizen can participate in shaping what these models do in the future? That is about building an ethical framework into the mix somehow, but how do we get that replicated in the tools that will be let loose on us in the next five, 10 or 20 years? How do we make sure that that is a key element in the design of AI systems for the future?

Seth Finegan: There are now pretty mature techniques that can be used to make sure that the AI services that are built are user centred. A lot of what our business does—and what Sarah Ronald's business does—is about putting the user first by understanding exactly what they need and how to deliver on that. A lot of what is good about modern government digital systems is that they have user research and service design thinking built into them. The question that arises as a private sector player is: how much do you do that research—how much do you create a service that is dedicated to the citizen or the user? My cautiously optimistic view is that if you are offering a competitive service to consumers, it had better work for them, and get a good reputation for working for them. Those acting in good faith in the marketplace will design systems that work for citizens and users, and they will come to dominate. We will go through a period of good and bad AI that will just have to shake out at some point.

Sarah Ronald: On setting controls for what companies can do with data, I think it is very hard to address what Willie Coffey has just said. In regulated environments it is much easier because you are doing the research, designing in a human-centred way, baking in values, and making sure that there are good outcomes. Social media is optimised for attention and engagement and if the user had control over the elements of what they want to happen with the data, that would kill off all the social media business models, so those businesses are not going to do that. They are not going to design anything in a human-centred way because they want your attention.

Willie Coffey: They want to sell you things.

Sarah Ronald: Yes. I do not let my kids go anywhere near any of that stuff, because I think it rots your brain.

Willie Coffey: Peter Proud, will AI models ever have an ethical bone in their virtual bodies?

Peter Proud: I did a talk recently and I said it is like a shovel—you can use it to dig your garden and feed your family, or you can use it as a weapon, and it is the same for any tool. You can use every single tool that you can think of for a good thing or a bad thing. It is not about AI being bad; it is about actors being bad. You could put in legislation. When it comes to data, these companies have always leveraged the fact that the law has been about opting out of something instead of opting into something. You could enforce it in such a way that people would have to opt into sharing their information rather than opting out of that. That is one area where legislation takes a long time to catch up. You could take such simple measures.

This is a huge discussion topic. I think we need to simplify things because AI is such a ubiquitous term and people really do not understand what it means in a lot of cases. We need to focus on the fact that there are bad actors and good actors. The criminality, the negativity and the bad things that are happening are still being done by people behind the scenes; it is not necessarily AI that is doing them. You can programme it to do bad things, but at the end of the day it is still a person programming it to do the bad things, so you need to start thinking about that. The machine is not the bad thing; it is not a thing that will go and do something bad. It is human actors behind the scenes who enable that to happen. You need to focus the law on that and not on the technology.

Willie Coffey: Many thanks for that.

Kevin Stewart: As we have been sitting here, as always, I have been doing a bit of research, which some folk find annoying. Some people think that MSPs shouldna be on phones, laptops or Surfaces while we are in committees or debates, yet you guys have said that we should be doing our own research all of the time, and I would agree with that.

Sarah Ronald, there is a phrase on your website:

> "millions of people struggle with services that weren't built with them in mind".

Some would argue that a lot of services delivered by the Government and by the public sector more widely are delivered without people in mind, and you have given some examples today. Seth, you are obviously heavily involved in public sector work, and Sarah, you have told us that you have

avoided it. Peter, you have given us examples of where you think it is going wrong and you have highlighted lack of innovation, risk aversion, single-year budgets and, in some cases, overregulation. One of your examples was about NHS procurement and having to deal with the territorial health boards and the other boards, too.

11:30

One of those boards, of course, is NHS National Services Scotland, which is supposed to help with those procurements. Could AI be used to make that procurement process better? Could AI be used to get what everybody wants but instead of that argument taking place during the course of the procurement, all of that is done and dusted beforehand because of the use of AI? Are there opportunities there where we could get many more bangs for our buck, better procurements and, at the end of it, better services for people?

Peter Proud: I do not think that we should allow AI to make the final decision.

Kevin Stewart: No.

Peter Proud: That final decision would still have to be made through the right processes and committees. However, the research could be done a lot faster, the checking of things and the generation of documentation could be done a lot more quickly, and the understanding of the proposals that have been put in could be made a lot more efficient through the use of AI.

Kevin Stewart: Grand. Sarah Ronald, if that landscape was much easier, would you consider working with the public sector?

Sarah Ronald: Yes, if it was much easier to get through the procurement and to then work on the other side of that procurement, we would consider working with the public sector. You mentioned our website. I should just add that we designed the social disabilities payment a couple of years ago, so it is not entirely true to say that we never work with the public sector.

Seth Finegan: We do a fair bit of business in the UK and Scottish public sectors. The procurement process can be lengthy, sometimes with good reason but sometimes with a degree of frustration. I agree with Peter Proud that there are obvious AI tools that could help with the administrative side of procurement. However, if the outcome for procurement is the Scottish pound being well spent and citizens getting better services, it also needs to be about you creating the right marketplace and attracting the right firms in this new age of technology and data. Just having start-ups is not enough; they need to be taken to the scale-up stage as well, to the point where they are real challengers of the existing marketplace.

I believe that creating a dynamic marketplace, where companies such as mine and Sarah Ronald's find it easy to sell into Government, is the route to getting better public services to citizens. There are administrative gains that can be made with AI on the way, but they will be dwarfed by having a really healthy, dynamic, AI-enabled marketplace.

Kevin Stewart: Peter Proud rightly made the point that any of the decisions about awards of contracts and so on have to go through the decision-making process as it is, but putting all of this together is often the most difficult thing in terms of a procurement. You talked earlier about the lack of use of RAG ratings in some regards; that has not been my experience in Government. Sometimes, there has been too much use of RAG ratings, but the emphasis is always on the risk aversion and on red.

Do you think that the use of these tools and the education of those who are building a procurement document could make this so much easier for all of us, almost ensuring that you get the service delivery right? I can see Sarah Ronald nodding.

Sarah Ronald: That is categorically a yes.

Kevin Stewart: And nobody is disagreeing with that, so your message is that the Government—the civil service—must make much more use of AI. One of the terms that Murdo Fraser used was "fleet of foot". You have obviously had a lot of experience with the Government. Is the Government fleet of foot enough in terms of taking advantage of the latest technology?

Seth Finegan: In pockets. There is some very good practice here. As I mentioned, we have been on the CivTech Scotland innovation accelerator twice. That has worked very well for us, and I think that it has worked very well for the agencies that we have delivered into under that. It has allowed us to bring our own investment into an AI-enabled product suite that we have to the Scottish public sector and matched with our own funding that we received from the CivTech programme. In addition, earlier this year, we opened up in Malaysia to serve an Association of Southeast Asian Nations demand. We already had an Australian company to serve demand there.

Scotland has such an amazing heritage of innovation, and it does happen here. We have built platforms with places such as Registers of Scotland and NatureScot that we have then taken to the world. We did the first digital register—at Registers of Scotland, about 14 years ago—and we then took that technology to New South Wales planning in Australia, built on that, invested in that, and brought it back again. It happens in pockets,

but the overall culture of innovation is not there yet across the public sector, and that is not unique to Scotland.

Kevin Stewart: Let us stick with planning. Singapore was mentioned as being at the forefront of the use of technology. Singapore has used what Peter Proud describes as its data lake to ensure that it has the right planning for the future. We are not at that level yet. Are we making best use of the massive amount of data that we have? Are we using our data lake to our advantage? How could we do that as quickly as the likes of Singapore? What do we need to do?

Sarah Ronald: Singapore started in 2019, so it is six years ahead of us now. We need to look at what data exists so that we know what data exists and what format it is in, figure out how long it will take to get it into a machine-readable format and then look at the use cases. Government is massive. If you are going after a procurement, you would need to look at the specific use cases, measure the difference that it makes once you have redesigned the workflow with AI and then share that more broadly.

Peter Proud: In Scotland, we seem to have a problem with going from ideation to commercialisation. There seems to be a chasm between the two. I am an adviser on Richard Lochhead's tech council. One of the other people on it, who lives in California, said that Scotland has more top universities per capita than anywhere in the world. If you think of that 40 by 40-mile strip in Scotland, we have amazing universities from St Andrews to Glasgow to what is going on in Dundee with gaming and security and so on. We have a world-class education system here. We get the start-ups going, but it is hard to get the scale-up. We have to export to get the scale-up. We are going through this as a company.

I think that, as a Government—and this is away from AI, but we are very good at this kind of stuff—Scotland could go from the ideation into the initial seeding into scale. The way that we could go to scale as a community and an organisation and a country is to export like we did in the 1800s. We just need to do again what we did in the 1800s—and the 1700s, through the enlightenment—to make this country amazing, because such an approach is not new.

We are great at doing tech and IP; we are great at doing the initial thinking and coming up with great things. I do not know what it is, but as a nation, we just seem to struggle with the next stage. When I worked in Seattle, there was a group of people called the MicroScots, because there were 300 of us there, working for Microsoft. We should be trying to keep the talent here instead of having to go abroad to do well. That is something that we need to be thinking about.

Seth Finegan: I could not agree more with the point about scale-ups. Too often here—and I see it UK-wide as well—companies do well; start-ups do well. Then they start to scale up and, sooner or later, a large foreign multinational comes along, buys them up and takes them off the playing field. How can you have a dynamic marketplace if, as soon as a company gets above the parapet, it gets bought by a multinational? It is no longer competitive, and it is probably no longer as innovative or as fleet of foot.

Governments need to protect, encourage, and invest in their scale-ups and encourage them to export, support and be really intentional about taking companies all the way through so that they are genuine challengers domestically but then are challengers in the international market as well. We do not see enough of that. If our group chief executive officer were here, she would talk about the Australian experience anecdotally and say that attracting investment is great for the growth journey, but that we should be careful that we do not just attract lots of foreign ownership. We need investment here that stays here and grows jobs here so that people want to build their careers and stay in Scotland.

Peter Proud: Yesterday, we gave everyone in our company stock options and shares. Bar one person—because he joined after we had sent out the letters—every single person, right down to the apprentices, got shares. I had to sit in a town hall meeting for an hour explaining what it meant to get shares and stock options in a company, whereas in the States everyone wants shares. I was getting questions like, "What does this mean? Is this a bad thing?".

I have been fortunate to be an entrepreneur in residence at the University of Strathclyde for the past four years. I have sat with students to talk them through what it means to start up a company, and I have lectured on starting a business. We are very good at teaching the technical aspect of things—we are very good at chemistry, physics, maths, engineering and all that stuff—but we need to drive more entrepreneurial thinking within those subjects.

Entrepreneurship is not a subject in a university; entrepreneurship is a state of mind. We could be better as a country at promoting entrepreneurship in educational institutions and starting to harness people to think in that way, instead of just thinking about getting a job or saying, "I want to be a physician". It is fine to want to be a physician, a clinician or an engineer—but be an entrepreneurial engineer, not an engineer.

Kevin Stewart: I probably have hundreds of other questions, but I know time is precious, so my final question is about the scenario of folk moving elsewhere or businesses here being bought up, and the fact that, as discussed earlier, the investment by Government is pretty low.

Do you think we should ensure that, with investment by Scottish Enterprise or the Scottish National Investment Bank in start-up companies, which will hopefully succeed, there should be some golden handcuffs to make sure that the company is not eventually bought up from elsewhere, so that we can maintain our own growth and our own people?

Sarah Ronald: It is probably better to make Scotland a thriving environment for a business to choose to stay here, rather than handcuff it. If you handcuff business, you might stifle investment by the mere fact that the business cannot get access to the right resources. Businesses face a load of headwinds, and it is challenging to get experienced people to move to Scotland. Many of my peers with businesses have already exited Scotland. They are approached all the time by countries that are hungry to take over their businesses and are laying out a red carpet for them.

Kevin Stewart: Let me put that another way. Should the likes of Scottish Enterprise have a substantial share or stock option in some of the companies?

Peter Proud: I was going to make that very point. There is a difference between a grant and an investment. If you give a business money as a grant, with nothing coming back, there should be absolute conditions about what they are going to do. There should be a yang to that yin. However, let us say you put in an investment and take a 20 per cent stake for £5 million in a company that is valued at £25 million. If the company then sells for £100 million, you get a five-time return. The Scottish Government gets £25 million back for its £5 million, and it can ring fence that to put it back into other companies. That approach should be given a chance to grow as quickly as it can: if a company is sold, the money can be regurgitated back into the community.

11:45

There is a bigger discussion—which I had recently—that is about how to think about building a sovereign fund like the one in Norway. It would not be Government money but enabled by the Government creating a competitive environment that brings in inward investment, so that a sovereign fund could be created inside Scotland.

We missed the opportunity with oil to create such a fund. I think that we have an opportunity with renewable energy, leveraging what we have done, to create a sovereign fund. We should have a target, such as "We will have a £30 billion sovereign fund by 2035", and then put a plan in place. There are pretty good investment companies here in Scotland—the Baillie Giffords of the world—and we should start looking to see how they can help to make that happen. Putting a plan around a sovereign fund would be a good idea, rather than just giving money away.

Kevin Stewart: You probably should not have started on the Norwegian sovereign wealth fund. [*Laughter*.]

Peter Proud: Sorry.

Kevin Stewart: I will not ask more questions about that.

Seth, do you want to comment?

Seth Finegan: I just want to emphasise that, yes, this is about start-ups but it is also about scale-ups. It is a question of creating a journey and a pathway all the way through. Start-ups can give some great headlines, just as innovation pilots can give great headlines, but that is not what counts in the end. They have to come through, scale up and be real challengers domestically—create value, growth and prosperity—and then take that to the world.

Kevin Stewart: I want to thank you all for your evidence, which has been most interesting.

The Convener: I believe that Michelle would like to ask a brief supplementary.

Michelle Thomson: I have a final question. What is your attitude and risk appetite for generative AI, or rather the black box nature of it? We have been talking about pretty early-doors usage of AI, but we all know that there will be challenges with generative AI and the basis of statistical probability versus genuine cognition. In your businesses, is the attitude you are taking, "We will deal with that when we start to smell it, but we are not at that point yet", or is it something that you are already actively considering?

Sarah Ronald: We are actively considering that, because we operate in regulated industries.

The lethal trifecta is if you give your AI agent access to information that you know is unverified, access to your personal data such as your emails or your SharePoint, and the ability to externally communicate with other tools like APIs—application programming interfaces—or webhooks. If it has all three of those, you have a massive problem because it cannot differentiate between a malicious action and an instruction. People can put a bit of writing in the prompt that comes in, and the agent will go off to your personal data, find out your bank account details,

and then send them out according to the instruction that was hidden within the prompt. Your identity and your bank account are swiped.

For us, we have a rule of two: the agent can only ever have two of the three. We have nine agents that work in partnership with the human team, and they can only have two of those three. That is the first part. Secondly, we have all the tools that we use with clients on premise, so that all the data processing is within our control. There is no black box in our insight tools, and we can trace every recommendation back to the original insight. We think that that will be important when regulation catches up.

I think that you can be very conscious about the issues today.

Peter Proud: We are really bolted down because we are an IP company and we have to protect our IP. We are not monitoring our staff or anything, but every single keystroke that anyone in our company does is monitored and logged as part of the Azure DevOps environments, through the development tools.

In my career in IT, I have always lived by the concept that, “Only the paranoid survive”.

Michelle Thomson: It is the same in politics. [*Laughter*.]

Peter Proud: Probably more so, but some of you guys do not think that way after a couple of drinks—although that is a separate chat.

We are very careful. I am not that bothered about generative AI because that is not our thing; it is not what we use. We use the tools to make our system more efficient. This will sound a little disparaging—and it is not meant to be—but I see generative AI as a bit of a toy. There are only so many different funny faces you can make of yourself. I do not see generative AI as the proper discussion here. It is more the tooling side of things that we should be discussing, and how we use the proper tools, agents and enterprise tooling to make businesses more efficient. That is what the discussion should be about, not about the generative stuff.

We keep everything locked within our organisation.

Michelle Thomson: I am really talking about the risk around data. Perhaps I should have been clearer.

Peter Proud: We are very bolted down in our company. We monitor absolutely everything, for that very point. We run banks’ websites and, if they go down, people cannot get to their bank accounts, so we absolutely have checks and balances—we have four eyes on everything. We are very stringent within our organisation, and we take things very seriously. We test our staff by sending them emails and fake malicious messages, and they get hauled up if they click on something. We are very, very careful, and everyone needs to be thinking that way. I will say it again: the paranoid survive.

Michelle Thomson: Last word to Seth.

Seth Finegan: Safety, privacy and security have to be at the core of our business. Not only do we work in some of the most secure areas of Government, but we work in police and fire, in the broader public sector, in nuclear and in some very mission-critical areas of the private sector. For us, investing in systems such as ISO 27001 in security systems and having security by design in everything we do has been part of our business for a long time.

As we turned ourselves into an AI business, delivering AI for our clients, we needed to take that same disciplined ethos to how we approached AI, including generative AI. We have to take that from both ends: we have very strict conditions around what we use AI for and how we use it, and we have to have working practices and policies to audit the results of having used AI and respond to that. That is what we have built.

We have invested an awful lot into our AI charter and policy. The particular ISO standard I have mentioned a couple of times is a very new standard: ISO 42000 for designing and using AI. That has taken a significant investment on our part of both time and money, but it is crucial. Working in industries and mission-critical environments as we are, we have to be absolutely watertight both about data and about the results and the downstream impacts of the models that we are building.

Michelle Thomson: Thank you.

The Convener: Thank you very much. I thank the panel for their very interesting and wide-ranging contributions. We have discussed everything from the possibilities for business through to the public sector, requirements for skills, and ethics.

I will just share one closing anecdote. As we have been talking, I have been using AI to follow up on some of the topics, including the point around ISO. I used Gemini to give me an explainer on what ISO 4200 was and was profoundly confused to get a summary about steel tube manufacturing, because it is 42000 that I should have asked about. That just goes to show that the old adage is true: if you put garbage in, you get garbage out. That is a perennial truth when using technology.

I thank the panel for their contribution. It has been incredibly useful, and not just for this work.

We have the Tertiary Education and Training (Funding and Governance) (Scotland) Bill going through Parliament, and some of the contributions on skills have been very informative for that.

With that, I bring the public part of the meeting to a close.

11:54

Meeting continued in private until 12:12.

Published in Edinburgh by the Scottish Parliamentary Corporate Body, the Scottish Parliament, Edinburgh, EH99 1SP

All documents are available on
the Scottish Parliament website at:

www.parliament.scot

Information on non-endorsed print suppliers
is available here:

www.parliament.scot/documents

For information on the Scottish Parliament contact
Public Information on:

Telephone: 0131 348 5000
Textphone: 0800 092 7100
Email: sp.info@parliament.scot

The Scottish Parliament
Pàrlamaid na h-Alba