OFFICIAL REPORT
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Economy and Fair Work Committee

Wednesday 10 November 2021

Session 6

The Scottish Parliament
Pàrlamaid na h-Alba

Wednesday 10 November 2021

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ECONOMY AND FAIR WORK COMMITTEE
10th Meeting 2021, Session 6

CONVENER

Claire Baker (Mid Scotland and Fife) (Lab)

DEPUTY CONVENER

*Colin Beattie (Midlothian North and Musselburgh) (SNP)

COMMITTEE MEMBERS

Alexander Burnett (Aberdeenshire West) (Con)
*Maggie Chapman (North East Scotland) (Green)
*Jamie Halcro Johnston (Highlands and Islands) (Con)
Fiona Hyslop (Linlithgow) (SNP)
*Gordon MacDonald (Edinburgh Pentlands) (SNP)
*Colin Smyth (South Scotland) (Lab)
*Michelle Thomson (Falkirk East) (SNP)

*attended

THE FOLLOWING ALSO PARTICIPATED:

Katy Heidenreich (Oil & Gas UK)
Paul Hunter (University of Glasgow)
Professor Mark Logan
John Mason (Glasgow Shettleston) (SNP) (Committee Substitute)
Professor Melanie Simms (University of Glasgow)
Paul Sweeney (Glasgow) (Lab) (Committee Substitute)

CLERK TO THE COMMITTEE

Anne Peat

LOCATION

The James Clerk Maxwell Room (CR4)

Scottish Parliament

Economy and Fair Work Committee

Wednesday 10 November 2021

[The Deputy Convener opened the meeting at 10:00]

Interests

The Deputy Convener (Colin Beattie): Good morning and welcome to the 10th meeting in 2021 of the Economy and Fair Work Committee. Agenda item 1 is declaration of interests. Paul Sweeney and John Mason are attending as committee substitutes in place of Claire Baker and Fiona Hyslop, who are both attending the 26th United Nations climate change conference of the parties—COP26—in Glasgow. Alexander Burnett has sent his apologies due to illness.

I call Paul Sweeney to declare any relevant interests.

Paul Sweeney (Glasgow) (Lab): Thank you, convener. I have no relevant interests to declare.

The Deputy Convener: Thank you. I call John Mason.

John Mason (Glasgow Shettleston) (SNP): Thank you, convener. I have nothing to declare either.

The Deputy Convener: Thank you.

Decision on Taking Business in Private

10:00

The Deputy Convener: Under agenda item 2, does the committee agree to take item 4, which is a discussion about evidence heard and next steps, in private?

Members *indicated agreement.*

Scotland's Supply Chain

10:01

The Deputy Convener: We move on to agenda item 3. Our main item of business this morning is our first evidence session in our inquiry into Scotland's supply chain, which is the committee's first inquiry.

We decided that we wanted to consider the short-term and medium-term structural challenges that face Scotland's supply chains. We are interested in how the challenges and shifts in supply chains are impacting Scotland's economy. We want to look at how to build future resilience and at whether there are opportunities to develop domestic supply chains. We are structuring the inquiry around the three themes of people, places and product. Today's session will focus on the first of those themes—people—and look at the demand for skills.

I thank our panel for joining us today. I welcome Katy Heidenreich, who is supply chain and operations director at Oil & Gas UK; Paul Hunter, who is a lecturer in human resource management and organisational behaviour and specialist professional at the University of Glasgow's Adam Smith business school; Mark Logan, who is a start-up and scale-up adviser to the Scottish Government; and Melanie Simms, who is professor of work and employment at the University of Glasgow's Adam Smith business school.

There is no need to touch any buttons, such as the "speak" button. That will all be done for you.

We will move straight to questions and I will ask the first question. How significant are the skills and labour shortages that are affecting Scotland's economy? Are there sectors or regions that are facing particularly acute challenges? I ask Katy Heidenreich to comment first.

Katy Heidenreich (Oil & Gas UK): From the oil and gas industry's perspective, the skills gap is not as acute as it was a decade ago. Since that time, we have seen production reduce, there has been an impact on commodity prices, and Covid has hit the industry really hard. We are working hard on the recovery but, as I am sure you understand, the subsequent contraction in the industry and the reduction in demand have meant that the skills gap is much smaller than it was.

The Deputy Convener: Thank you. I ask Mark Logan to comment.

Professor Mark Logan: I am in this discussion to represent the digital and technology sectors. We definitely have a significant, not to say growing, skills gap in Scotland in those areas, in my view. The sectors' importance to the economy is growing rapidly in almost every country, and we have acute shortages in both start-ups and larger organisations that are concerned with native digital product developments. Undoubtedly, that is constraining our ability to create new start-ups, to scale them and, for that matter, to attract large corporates to set up shop in Scotland. We can talk more about that as the meeting goes on, but, in my view, there is a severe skills shortage in that area.

Professor Melanie Simms (University of Glasgow): The two previous speakers have hit on particular sectoral issues relevant to their sectors. Individual sectors are facing quite different challenges and have different dynamics—something that some of these conversations do not capture enough. You can see that by looking at any sector and by looking across Scotland at regions. For example, the hospitality sector is suffering less in some regions. Complexity and dynamics play out differently across different sectors and areas of the country.

However, we also need to remember that there are skills mismatches—not necessarily skills gaps. The skills that we have as a workforce as a whole, whether in a sector, an occupation, a local labour market or whatever, do not necessarily match what employers want and need. One of my areas of expertise is understanding how employers engage with the process of planning and policy making in that area of skills gaps and skills mismatches. Employers' organisations and employers consistently tell me that there are gaps, but those are often mismatches—at the aggregate level, we have the wrong people in the wrong places, rather than the wrong skills.

The Deputy Convener: I think that Katy Heidenreich wants to come back in.

Katy Heidenreich: Thank you. I recognise the comments that some of my fellow witnesses have made. Certainly, we are starting to see a digital skills gap emerging. The industry is investing heavily in innovation and digitalisation, and Covid has accelerated some of that, such as through the use of remote operations. We are seeing gaps emerging, from basic digital literacy through to data analytics. We anticipate that that will only continue to grow as the industry advances.

Paul Hunter (University of Glasgow): Hello there. The other witnesses have probably highlighted the key issues about skills gaps in particular areas and the misalignment of skills. That raises questions about the nature of education and the nature of collaboration between educators and industry. I am very engaged with what is occurring in the Netherlands, where they have economic boards on which employers, universities and municipalities work closely

together to identify what skills gaps exist and to ensure that those skills are aligned to industry in the best way.

That is a possible avenue of exploration, but the key issue is more collaboration between the key stakeholders and ensuring that students—or participants in education at any level—are being taught the particular skills and attributes that employers are looking for. We need to know precisely what employers are looking for, so there needs to be that stronger connection between those stakeholders.

The Deputy Convener: I think that Mark Logan wants to come back in.

Professor Logan: Thank you. I will build on what Katy Heidenreich said a few moments ago. In Scotland, it is important that we understand that, when we use the term "digital skills", it can mean very different things in different contexts. We can think of it as a spectrum. At one end, there is digital literacy among our citizens, and we all recognise that there is work to do to get an adequate level of digital literacy across the population. Along that spectrum, you come to the digital literacy of businesses. As a result of Covid, there has been an acceleration in digital literacy among many businesses, which was necessary so that they could continue to operate. However, that is its own challenge and problem.

At the far end of the spectrum are the digitally native businesses, which make products or services that are inherently digital in nature—software, or software and hardware—including companies such as Skyscanner, FanDuel and Current Health. Fulfilling that need has its own peculiarities and we have significant work to do to cover that area adequately in Scotland. We understand what skills employers in that sector require, because they are pretty easy to state, but we are not supplying them. We have a small population, which means that there will be an upper supply limit, but despite that context we are doing a bad job of supplying the numbers that we could. That is throttling our ability to grow the industry in the modern economy, which, from my perspective, is an area of particular concern.

The Deputy Convener: The discussion so far has brought out my next question, which is about the key skills for which demand is likely to increase in the future. Information technology is an obvious one, but there are other skills that perhaps need to be matched to the labour market. Demographic changes in the labour market and reduced access to the European labour market are having an impact on our chain of skills and labour. Outside the broad sweep of technology, where will the pressures come in the future? Does Paul Hunter have a view on that?

Paul Hunter: I actually put R in the chat function to address the previous point, but for me the key skill is leadership. There needs to be a focus on soft skills, so that students and participants in education can adapt quickly to a changing market. That is very important. I am heavily involved in leadership education at the executive level, and critical thinking is also important. It is not just about the hard digital skills that we have just discussed, but about ensuring that we look at inner development goals, which is what the Nordic countries focus on. There is a danger that we equip students with only a narrow set of hard technical skills, which may or may not be relevant when they leave education. Of course students need a focus on those skills, but they need agility as well. That mindset needs to be created and developed in those entrants to the labour market.

There are other hard areas, such as manufacturing skills, but manufacturing is a huge area, so what manufacturing skills should we focus on? Should they be linked with manufacturing for the sustainability industry? For example, at COP26 yesterday, the First Minister announced a new manufacturing facility. What specific areas of manufacturing do we need to focus on, and what is the Scottish Government's strategy for attracting particular types of industry? That needs to be communicated to universities, vocational colleges and technical colleges so that they can plan ahead. That takes me back to my previous point about the need for constant collaboration and communication.

Professor Simms: I agree with much of what Paul Logan said about how the debate is often framed. What does our economy and labour market look like now, and how do we anticipate that it will change and develop? However, we need to throw another dynamic into the mix, which is to recognise that what jobs look like is a function of choices made in individual workplaces and organisations. A huge bulk of our employment in Scotland and across the United Kingdom is in what we call low-skilled jobs, which are actually mainly low-paid jobs, in sectors such as care, retail and hospitality.

At the moment, there are relatively few opportunities for progression and skills development in those jobs, but I do not think that there is an inevitability about that. As people who research and engage in policy making in this area, we have a responsibility to push a discussion that asks where the responsibility of employers is in that space and what levers we can use to ensure that those jobs are as good as they can be. Those jobs might be relatively low paid, even if there are opportunities for skills development and training, but given that there are relatively few opportunities for training and progression at the moment, I think

that we need to ask those questions. That represents a slightly different take on the question, which involves shaping it to ask what we can do to ensure that those jobs are the best jobs that they can be.

10:15

Professor Logan: The original question was about what skill sets we anticipate will be needed and how that situation will develop. It is important to note that the rate of change in society and in industry is increasing almost exponentially, so guessing what skills will be relevant in 20 years' time is an extremely difficult task. To pick up on comments that Paul Hunter made, I think that it is more important to develop people's capability to be entrepreneurial, flexible and adaptable. At the moment, we have an education system that assumes that we will do one job for life. People exit the education system with a degree, a college certificate or some highers, and the idea is that, at that point, they are formally qualified, albeit that they will go on to get life experience. That is utterly out of touch with the reality that all of us have experienced in our lifetimes, and it is certainly out of touch with the reality that our children will experience.

We must think about how our young people can develop a flexible, entrepreneurial mindset that allows them to adapt to the many opportunities and challenges that will come up and to regularly reskill. We must start recognising that the qualification that someone gets through on-going reskilling is as valid as the qualification that we got 40 years ago when we graduated. We are not doing that today.

With regard to further challenges, after Brexit, we have lost about 50 per cent of the European graduates from our universities. Previously, many of those people stayed once they graduated and populated our businesses. They did so because they could. I think of Skyscanner, where I was chief operating officer for five years. This is not a technical point that I am making. Many of the people in our marketing and sales teams were from Europe and sold into Europe on our behalf. Notwithstanding the shooting-ourselves-in-the-head exercise that Brexit was, we must ensure that we think about how we attract key skills into the country. At the rate of change that I have described, we will not be able to fully skill ourselves; we will have to bring in expertise to help us to form industries that can compete.

Katy Heidenreich: In responding to the original question about what skills we anticipate that we will need, I want to pick up on Mark Logan's comments about flexibility, adaptability and the notion of a job for life.

The work that we are doing as part of the North Sea transition deal will enable us to articulate, through the energy skills alliance, how we see the skills demand for the future. It will take time for the carbon capture and storage and hydrogen industries to develop. It is vital that we have a managed transition to net zero so that people who are in the workforce today and the young people who are looking at what opportunities are there for them in the future can see how roles will change over the course of their career and that they have a long and secure future in the industry. The industry is changing, and that will be vital to helping the country to reach its net zero ambitions.

Professor Simms: I want to emphasise and support what Katy Heidenreich said. The sector has a strong idea about collective skills planning, and it really engages stakeholders, which is certainly not evident in all sectors. There are important lessons to learn there.

Part of the discussion is about who bears the risk of such rapid change. We are in a context in which, too often, the risk falls on the individual worker to upskill and invest in their upskilling, sometimes in actual hard cash. We need to have a system that shares the risk more among the state, employers and individuals. The risks here do not lie in the direction of the individual as much as they do in England, but we still have some sectors in which the risks of upskilling across an individual's career lie with them.

Paul Hunter: With regard to Mark Logan's point about entrepreneurial skills, the Peter Jones Foundation does a lot of work in collaboration with colleges and universities to try to improve young people's entrepreneurial abilities from as young an age as eight. That needs to be looked at.

As a higher educator, I see a lot of students coming through with a complete lack of—[*Inaudible*.]—skills. They have skills in social media, but many of them cannot operate a spreadsheet. I wonder why they come into level 1 or level 2 at university lacking those basic skills.

Jamie Halcro Johnston (Highlands and Islands) (Con): Some interesting points have been made. I have a few questions, on the back of them. I will go first to Professor Simms, then to Paul Hunter.

The vote to leave the European Union was in 2016, and although I understand the argument that there was uncertainty about what the exact deal would be, there has been time to prepare. Looking at the Scottish context, do you think that the Scottish Government, the agencies and the industries and sectors have done enough, or been proactive enough, in considering what the impact of leaving the EU might be, and what we needed

to do to ensure that the people and the supply chain were in place?

We also know that there is, for small businesses, an issue with recruitment and reliance on EU workers. The importance of stakeholder engagement has come up repeatedly. Is that harder for the small business sector, even with representatives such as the Federation of Small Businesses and others, which do great work? Is that a particular issue, and how do we get over it in order to hear the voice of small businesses?

Professor Simms: On the point about uncertainty, there are a number of problems for us, as researchers, and for businesses, from a practical perspective. One problem is that because so much has been changing at the same time, it is difficult to unpick the specific effects of Brexit from the effects of lockdowns, Covid and so on. I cannot give you a simple snappy answer; when lots of things are moving at the same time, it is difficult to isolate single effects in, for example, labour market data, supply chain data or sales data.

In practical terms, businesses have faced the changes—for many they have been catastrophes, although for some they have provided opportunities—at the same time. Therefore, even going forward, when we have more rounded and longer-term data, it will be difficult to properly identify the effects of Brexit separately from the effects of other big changes that happened at the same time.

Did people do enough planning? Many sectors did not have enough information to plan. We did not know—we still do not know for the longer term—how some of the details that have affected particular sectors, trading arrangements, products and labour market dynamics would change. Many businesses did a lot of planning, but dealing with the situation becomes almost a day-by-day scenario when details that we did not know prior to hitting Brexit, and then coronavirus, are thrown in. I feel for organisations that have had to work through that.

In relation to small and medium-sized enterprises and engagement, I published a report last week with the Scottish Parliament information centre about employer engagement with skills planning. I know that SPICe made it available last week, so I am happy to circulate the link.

One of the issues that I identify is about engaging SMEs and the specific challenges around that. Representative organisations exist, as you rightly pointed out. However, the challenge with those organisations is their representative capacity and legitimacy—in other words, whether they have structures that engage large numbers of employer SMEs in particular sectors. Many representative organisations acknowledge that engaging SMEs is hard in relation to skills and capacity: the people who run SMEs might not know about ways of, and forums for, engaging, and are less likely to have the capacity and expertise to be able to do that.

We need to think specifically about how to engage SMEs. A strong message from the research that I have done over the past two years is that engagement will almost certainly need to happen at sector level. I challenged many organisations to consider whether sector level was appropriate; many expressed a strong sense that it is.

A job exists for the state, in its various forms, to support that process and to work with the organisations that collectively represent SMEs, and employers in general, to ensure that they do not represent only the same old voices. An immensely complex terrain exists of often overlapping employer representative organisations, which sometimes say similar things and sometimes say contradictory things.

There is space for us to consider how to strengthen representative structures so that we are confident that we are engaging employers and are then able to cascade information to explain why the apprenticeships policy or whatever policy on skills looks the way it does. That remains a huge challenge for all of us. I lay out a few ideas in the report about where to go with it.

The Deputy Convener: That was helpful. Thank you.

Paul Hunter: I would echo a lot of what Professor Simms said about Brexit. There was so much uncertainty in the period up to the agreement at the tail end of last year. We could have predicted that there would be a labour shortage because of the exit of many EU citizen workers who went back to their home countries, and the consequent difficulties in getting European workers back into the UK. We have heard about those issues in the media in the past few months. Better planning could have been done on understanding the gaps that would exist in certain skills in the market. That comes down to my previous points about collaboration and close conversations to deal with such things. I know how difficult that is, however.

On SMEs, I have held many conversations with small business owners in the west of Scotland who have told me that it is difficult to attract employees because of the war for talent. The owner of a data analytics firm in Glasgow, for example, has trouble attracting young staff because he has to compete with larger organisations that work in the area, but cannot pay as much as they can.

Professor Simms's point about the role that the state might play is a tricky one. Obviously, it might not be a good idea for the state to intervene too much. It comes down to the owners of small and medium-sized businesses having a stronger say and having involvement with universities, where they can plug into a pipeline.

10:30

SMEs also need to understand that it is not necessarily about the money. Many applicants are interested in salary, but they also want a career pathway. We need to educate owner-managers of small and medium-sized businesses to explain to applicants that there is a potential career pathway for them in their organisation and to say, "We can offer you this salary, but we also offer you opportunities to grow in our business." That could be a means through which to attract and retain applicants who are at the end of their higher education and are graduating. Perhaps the state could advise SME owner-managers on improving how they explain the attractiveness of working in their organisations.

Another problem with SMEs is that, instead of thriving, many are focusing on surviving, particularly during the Covid pandemic. There has been a lot of stress and panic involved in trying to keep businesses going. The state needs to help SME owner-managers to articulate a clearer and more attractive career pathway for people who might come in. It could also provide subsidies for training and development in order to address the skills gap. Linking to vocational training could also be an option.

Jamie Halcro Johnston: Thank you.

The Deputy Convener: I ask everyone to keep questions and answers tight. I want to ensure that all members have a full opportunity to ask their questions. We need to be a bit mindful of timing.

Katy Heidenreich wants to come in, briefly.

Katy Heidenreich: With regard to the uncertainty that Brexit has created, we are about to conduct a survey of OGUK members on the impact of Brexit. I would be happy to write to the committee once we have conducted the survey to share anything that comes out of it.

We have special forums that are focused on SMEs, because we recognise the particular challenges that they face.

I also want to highlight to the committee the commitments that our industry has made in the transition deal with regard to local content and ensuring that opportunities are realised throughout the supply chain. We will consider what Government support could help us to achieve local-content targets. Some of our larger member companies have chosen to centralise centres of excellence in places other than Scotland and the UK in order to overcome the barriers with which Brexit and Covid presented them. There is an opportunity for us to examine how we can encourage companies to set up their centres of excellence in Scotland.

The Deputy Convener: Thank you for your offer to share information. We will be grateful for it.

Gordon MacDonald (Edinburgh Pentlands) (SNP): I am glad that we have started to talk about labour shortages. I will address this question to Melanie Simms, to start with. The Office for National Statistics produced figures last month that showed that vacancies across the UK had passed 1.1 million for the first time in history. The number of payroll employees was a record 29 million, which surpassed pre-pandemic levels. Do we have a problem with a labour shortages or a skills gap? What can the Scottish Government—or the UK Government, for that matter—do to address those issues?

Professor Simms: Exactly—there is a mismatch. As I said in my answer to a previous question, there is a mismatch between the skills of the workers who are looking for jobs and where the vacancies are.

At the moment, vacancies are predominantly in sectors that were particularly affected by the lockdowns—hospitality, in particular and, to some extent, retail. That work does not suit everyone, for a number of reasons. Work in bars, cafes and hotels is generally low paid, with highly flexible hours and often short-term contracts that are flexed to suit changes in demand. That sort of work does not suit everyone. The people who are struggling most to find work at the moment are older workers who left the labour market for what they hoped would be a short period. That is a good example of the mismatch between the workers who are available and the jobs that are available.

There is complexity in hospitality that is caused by what has happened to the student workers who staff that sector. People work in the sector at the start of their working lives in jobs that they do not intend to stay in for long while they are doing something else—getting an education. I could go into the dynamics of that, although I am aware of the requirement to keep my answer short. That is another good example of a mismatch.

There is also a mismatch in logistics, in which there are long-term problems with recruitment. That comes, in part, from the cost of training and relates to what I said about risk. In logistics, workers take on the risk of subsidising their own training in order to access jobs. The hours are not particularly attractive and workers spend a lot of

time away from home. It takes time to train workers for those roles; you cannot just switch on a supply of labour. Those are the key reasons for mismatches.

I have forgotten the second part of your question, which was also very interesting.

Gordon MacDonald: What can the Scottish and UK Governments do to address labour shortages?

Professor Simms: Planning is key; a number of people have spoken about it. We do not have many mechanisms in the UK or Scotland to plan for skills development. The combination of Brexit and the coronavirus has brought a shock that even the best planning system would not have been able to predict.

There are countries where planning systems exist. Paul Hunter spoke about the Netherlands; Sweden, Denmark and Germany are among the others. Many countries at least have a structure in which stakeholders including employers, the state and workers—who are usually represented by trade unions—come together to make plans. Those structures allow people to sit down together to respond even in a crisis. We saw during the financial crisis in 2008 and 2009 that countries that had those structures were quicker to respond to the changes that hit their labour markets and economies.

That is missing in the UK. It exists in some forms in Scotland, although it is not as structured as I suggest it should be. We should provide forums to plan for skills, labour market changes and so on at sector level. The European Union calls that social dialogue. It is a particular term that we could use as suits us. I use it because it describes the process of stakeholders sitting down to work out what the future might look like and how to respond to any future shocks.

Gordon MacDonald: I want to put the same question to Paul Hunter. We can look at vacancies by sector. Vacancies have increased by 50 per cent since 2016.

We are looking at sectors that have been hit hardest by inefficient supply chains. We have already heard that in transportation and storage the number of vacancies is between 76,000 and 100,000. In manufacturing, vacancies have increased by 63 per cent, and in construction they have increased by 79 per cent since 2016. In written evidence to the committee, the Construction Industry Training Board said that 26,000 more people will be required by 2025. Can Paul Hunter give some indication of how we can address that problem as it hits us in the next couple of years?

Paul Hunter: First, I would promote the pathways to becoming qualified in those roles. Then, I would make the roles attractive, so that people who are leaving education or who wish to upskill and move into those professions will want to work in them. It is a difficult question to answer. The roles need to be promoted through a billboard campaign or whatever, so that people can see that the jobs are available and accessible. They need clear information about what training is required and what the costs are. The state could assist with the costs of training. We talked about transportation: heavy goods vehicle driving instruction can cost up to £2,500, which is a lot of money, for many people. Assistance towards paying that cost could be offered to people who wish to become lorry drivers.

We know that the shortfalls and vacancies exist, but many other people do not, so we need a stronger campaign to promote the vacancies to the general public, which would inspire more interest.

I will keep my answer tight. I go back to my previous answer about the Netherlands, where the close association between employers, the state and technical campuses helps with that kind of training. Such close collaboration is needed in order to address the labour shortages in construction and manufacturing. I hope that that was helpful.

Gordon MacDonald: Do other witnesses want to come in on that question?

Katy Heidenreich: My reflection links to the work that we will be doing on skills requirements for the future, and to another of our areas of focus, which is ensuring transferability of skills across sectors. It will be vital to give visible reassurance to people who are considering roles in manufacturing and construction that skills are transferable across sectors, so that they can see a long-term career in two industries that are vital to some of the key technologies that will help us on our road to net zero.

Professor Logan: On the vacancies issue in the software sector, we should bear it in mind that software is everywhere now, in industrial terms. Scotland needs to be an active global player in software industries, as we once were in steel. Software is what steel was 100 years ago.

The first thing to say is that vacancy numbers underplay the issue in any sector. Some vacancies are advertised, but some are not because there is no point. People know that they cannot find the staff, so they do not try and instead moderate their ambitions. That is absolutely the case in Scotland's tech sector. There are start-ups in Glasgow and Edinburgh that know that they cannot compete with larger companies on

salaries, so they change their timescales and ambitions. There is an iceberg, and we are below the water line. A huge amount of industrial opportunity and high-paying jobs for our people are lost and are not visible in the statistics.

10:45

There are three ways we can address the issue for the software or tech sector. First, we need to improve the process by which we educate our children in computing science and related subjects. We do not do a good job of that right now, although the subject is growing massively worldwide and in industrial terms. Pre-pandemic, the number of software engineers in Scotland was growing by 150 per cent per annum. It is a very high growth sector, so we want to be there. Despite that, the number of children taking computing science, which is the gateway to the industry, has been dropping every year since about 2008, and the number of teachers of the subject has dropped by about 23 per cent over the past 15 years. Scotland is, therefore, going in the wrong direction on that, so we have to arrest that in concrete ways.

The second thing that we can do is create a parallel access path for people who want to retrain into the sector. We have small-scale and larger-scale, but ineffective, initiatives running. Our college system does not do well in this respect. Organisations such as CodeClan are able to take people from other industries and make them software engineers. CodeClan does very well, but it is not operating at scale. There is a lot that we can do, in that respect.

Thirdly—this applies not only to tech but to pretty much every area—we have to find a way to get people to come to Scotland from other countries, regardless of the Brexit effect. We all know that we are not going to meet from within Scotland the numbers that were quoted earlier. Whatever else we do, we will have to import talent. I do not know how we will do that; that has to be one of the questions that we ask.

Maggie Chapman (North East Scotland) (Green): Good morning. Thank you for joining us.

I have a couple of questions. One is about automation and the links to labour and logistics; the other is about skills, collaboration and planning around collaboration.

There has been a lot of chat about the risks and opportunities of automation for not only labour markets but supply chains. Could you say a little about how ready you think we are and what we need to do? We have heard some discussion about planning and our need to plan, but what does that planning look like? There is a lot of talk about planning, but we do not know what that means.

Professor Simms: The important thing about automation is that it is tasks rather than jobs that are usually automated. Jobs are a function of employers' decisions about how to package together particular sets of tasks into a job that an individual could do. That job is advertised and matched to the skills that are available in the labour market.

Relatively few jobs are being completely automated. A few are, but that is not the predominant story across most labour markets in Europe in general. The automation of tasks is much more common, and that is changing the profile of jobs that are available.

However, there are choices in that. I am always keen to emphasise the extent to which employers, workers, the state and the various arms of the state have choices that can shape the decisions that are made. For example, the cost of labour is a key part of employers' decisions about whether to implement a particular piece of software, machinery or whatever that will automate various tasks. There is a classic example that I use. Little tags that can be put on supermarket shelves and which automatically change the prices of individual products are available. We do not see those much in the UK because labour is relatively cheap, but they are routinely used in countries that have higher labour costs because it does not make sense to pay a person to do that kind of task. That does not necessarily mean that there is a lower demand for labour in supermarkets; it means that the workers in those supermarkets are doing different things from what workers in UK supermarkets are doing. Those choices are important.

It is also important not to see automation as a one-way process. We could think about car washes, which have become de-automated in my lifetime. We used not to have hand car washes: they were not a feature of my childhood. Now hand car washes are ubiquitous and it is difficult to find an automated car wash. There are various reasons for that. Low labour standards and the exploitation of particular forms of labour in that sector are part of the story, but the example proves that choices are not linear. Employers and workers in those sectors make decisions based on the incentives and disincentives of what is happening.

We must get down to sector and occupational level to talk to people who know what is happening in their workplaces and must engage them to find out how that affects them and what their decisions are.

That takes me to the second part of the question, about what that would look like. When that works well, there are forums, usually at sectoral level, where employers can collectively say what they need and what is changing. They can talk about how automation or Brexit is playing out, and can do that in conjunction with the voice of labour, typically expressed by trade unions. Those voices are important because unions put pressure on organisations, companies and managers to question their decision making. It is not only the employers who get to decide the effects of automation. There is a countervailing voice that asks why it looks like that and what the consequences are. That voice asks who wins or loses and what the rewards are, or what reskilling means for someone's pay.

Those forums usually involve the state in some way, because the state pays for training in the form of education and through skills training. The state may be involved through colleges or through an organisation such as Skills Development Scotland. That varies, depending on how a country structures its training system. The state usually has a voice because it usually sets the standards and because it has a financial interest in the process.

There is usually a planning cycle that is typically, but not always, yearly. There can be five or 10-year plans for what a sector will look like, what the upcoming technological or automation innovations might be and what the sector might do about them. The forums can consider what that might mean for attracting new people at entry level, reskilling people, bringing in new people from overseas and for developing the people that we have. That process is routine in many countries.

Katy Heidenreich: That is a great question. You asked particularly about logistics. Automation presents a huge opportunity for the oil and gas industry, both in how our operations run now and how we take that learning forward. Automation will unlock huge efficiencies in how we run our operations and will bring opportunities to improve safety.

We published a report this year that was prepared in collaboration across the industry and looked at the impact of data utilisation, including automation. That shines a light on where we see opportunity to ensure that the workforce is getting the training and has the skills that it needs to embrace the opportunity that automation creates, and on solutions to overcome the challenges that the workforce might face in future. Also, through our industry working groups, we will be looking to bring together companies to consider how we might deliver those solutions. It is a case of less planning and more doing.

Maggie Chapman: My next question is on collaboration. We have heard a little bit about the importance of collaboration and that we are not doing that effectively. With regard to the city region deals, have we missed a trick around the interaction between industry, academia, local government and the Scottish Government? What can you, as industry and academia, do, and what can we as the Parliament do, to ensure that we get effective collaboration? I go to Mark Logan first.

Professor Logan: If I might, I will make one comment on your previous question. My view is that automation takes away jobs and creates new jobs—the problem is that they are not in the same place. If it were not for automation, we would all still be working on farms. About a hundred years ago, most people worked on farms; now, most of us do not.

In the modern age, the same thing happens—even in my industry, which is seen as heavily automated, high tech and a safe haven that will not suffer from the effects of automation. In Skyscanner, we automated all our testing, so there was no need for testers any more. Some of them had to find other jobs; some of them reskilled.

Automation is inevitable. If we are not automating, someone somewhere else will be, which would mean that we would not be competitive anymore. In my view, automation will destroy jobs, but it will also create new jobs. If we are to bridge that, we must have a far more flexible education system. I think that we must consider the concept of a lifelong learning passport, and build an infrastructure around that—I suspect that that would be largely online—that allows people to make those transitions. We must be honest about that point—that is the brutality of it.

On your question about whether we are being collaborative enough, I think that we are being too slow on everything in Scotland. I am working on implementing my report for Government, which was published last year. I am finding that, when things move across agency or Government sub-department boundaries, everything slows down by a factor of about 100. In Scotland, we are very good at slowly talking about stuff and not doing very much. We need to learn how to iterate at higher frequency. We seek out views and get together the right people, but the world is starting to change faster than it used to.

I am sure that we have all seen the movie "Back to the Future", which is set in 1985. Marty McFly goes back in time 30 years. What is different? They do not have Diet Pepsi. That is the difference. If that movie were to be set in 2015, and Marty went back 30 years from then, there would be no mobile phones, internet or artificial

intelligence and so on. The rate of change is increasing.

The Government and its agencies need to iterate more quickly in our discussions and get more action orientated at a faster rate. That should almost be a metric for how quickly we get to decisions on what we are going to do. If we make the wrong decisions, provided that we are iterating quickly enough, it does not matter, because we can fix things. However, I think that we have an awful lot of discussion and not a lot of doing in Scotland. That is how I would approach your question.

Maggie Chapman: Paul Hunter, do you want to come in on either of my questions?

Paul Hunter: I will give you three examples of where opportunities can be developed. I have been communicating with robotics firms in the Boston, Massachusetts area. One firm in particular—Vecna Robotics—works closely within—[*Inaudible*.]—what the challenges are with regards to what kind of equipment they need, the staff that they need and what training they need. That perhaps links to Mark Logan's point about attracting organisations such as Vecna Robotics into Scotland.

11:00

My second example is also from the United States. BMW in Spartanburg, North Carolina works closely with our technical colleagues to train people who can work in the organisation alongside the automated equipment, so there is that socio-technical interface. The employees are trained specifically to work with automated facilities, which they do very well.

The third example is Aldi in the UK. It has been using a lot of automation recently, which has created smaller, more capable teams in its supermarkets. That has enabled what we call a high-performance work system. There is a lot of stress on the system, but it has created multiskilled workers, who can do various tasks at various times. They can also work more seamlessly with the equipment and automated facilities.

We need to work more closely with organisations overseas to learn from what they do and speak to organisations in the UK to understand the challenges and opportunities. In that way, we can plan more effectively for the skills that are required for particular jobs.

Maggie Chapman: Thanks, Paul. I do not think that I have time to give anybody else the opportunity to come in, so I will hand back to the deputy convener.

The Deputy Convener: Thank you, Maggie. As always, my plea is for people to be concise.

Colin Smyth (South Scotland) (Lab): Thank you, convener. Good morning. I will address an issue that has been touched on already. Katy Heidenreich talked about a managed transition and others referred to a just transition, not just in obvious sectors such as oil and gas, but across all sectors in the journey to net zero. Therefore, what key skills does Scotland need to equip people to deliver a genuinely just transition? How does the pipeline for those skills look? I want to hear from all the witnesses on that, but I will start with you, Katy, as you represent the obvious sector in that regard.

Katy Heidenreich: We are working to understand what skills are required in order for us to help the country to meet its net zero ambitions. It is clear that the skills that we have in the oil and gas industry today will be vital to delivering our ambition and to ensuring that we stay on track in meeting our emissions reduction targets and achieve our target of reducing emissions by 50 per cent by 2030. A managed transition is vital. We must correct the perception that it can be done at the flick of a switch, because that would lead to job losses, jobs moving overseas and offshoring of our emissions. There must be continued reinforcement of the Government's support for the vital skills of the people of the oil and gas industry, both with regard to delivering energy security now and in meeting our industry's ambitions and the country's net zero ambitions, which involves reducing emissions from other industries.

Colin Smyth: I will go around the witnesses in the order that I can see them. Paul Hunter, do you have any comments?

Paul Hunter: Could you clarify the question, please?

Colin Smyth: Yes. There has been a great deal of discussion about a just transition as part of the journey to net zero, so what key skills does Scotland need to equip people with in order to deliver a genuinely just transition? How does the pipeline for these skills look?

Paul Hunter: What do you mean by a "just transition"?

Colin Smyth: There has been a great deal of debate about it. The oil and gas sector is the obvious sector to talk about, because, inevitably, there will be job losses in that sector. If we are to ensure that our workforce is skilled to take on alternative employment—we call that a just transition; there are lots of phrases used for that—what skills are needed to ensure that people are equipped for those alternative green jobs?

Paul Hunter: I will answer this quickly by making two points. The first point is about technical skills and one example is maintenance of electric vehicles. There is a large body of mechanics working in Scotland who know how to service a vehicle that has an internal combustion engine but do not know how to maintain a vehicle that has a battery that can kill you if you try to interfere with it. That is the example of the skills that people need in a particular area so that they can transition. We want to ensure that they do not lose their jobs servicing internal combustion vehicles in the next five to 10 years and that they can then gain the skills to service an electric vehicle. We have to pinpoint the particular skills that are required in industries that are associated with sustainability, and ensure that those requirements are met and that there is communication and collaboration with those organisations and industries.

My second point is about soft skills. In Sweden, they link what are called inner development goals with the United Nations sustainability development goals. It is quite similar to our metaskills, but the focus is on resilience, critical thinking, and collaboration. Those are soft skills that need to be developed in people from a young age so that, when someone leaves higher or further education, they have a mindset that enables them to solve problems and come up with new ideas about how to create and undertake work in sustainable practice.

Colin Smyth: Thank you. I put the same point to Professor Simms.

Professor Simms: As we make this transition, we need to make sure that we do not make the same mistakes as we made when we moved away from the industrialisation of mass manufacturing in the 1980s. The jobs that replace those in oil and gas and logistics and so on need to be good jobs.

Paul Hunter's point about the UN sustainable development goals is important. We need to see the SDGs as fundamentally interrelated, so we cannot have a just transition if the trade-off is bad jobs. We cannot have the transition if the trade-off is greater gender inequality in the labour market, and so on. We need to see the SDGs as fundamentally interrelated and work to make sure that the jobs that replace those good jobs—the majority of them are good jobs—are equally good jobs. That is the moon on the stick. That is what we should be aiming for.

Colin Smyth: The clock is obviously ticking and we know that there will be job losses in many sectors as part of the journey to net zero. You are saying that we still do not know what those good jobs will be that will replace those jobs, never mind the skills that will be needed.

Professor Simms: Indeed. We are not clear because of the uncertainties around how the labour market and economy will develop and change in the next 10 years, but we can do a lot of work to shape that, and that speaks to my point about the choices that we have ahead. We can do a lot to set up an environment in which good foreign direct investment will want to locate in Scotland. We can make those choices or we can choose a deregulated labour market that puts downward pressure on wages and terms and conditions, and we can take the consequences of that. As far as I am concerned, that is the least good option.

Colin Smyth: I certainly agree on that point. Mark Logan, could I have your comments?

Professor Logan: First we have to decide what we mean by a just transition. Who is it just to? Is it just to our grandchildren, for example? Every country has a good reason why we should prolong our current fossil fuel business model, and it is usually couched in the terms that we are using here. However, as we have seen from COP, and it is extraordinary that we have to say this, our current commitments will result in catastrophic loss of life on a massive scale on this planet before the end of the century. We therefore have to be careful by what we mean by just transition.

What is missing in all this is an enormous sense of urgency. Scotland can be a green demonstrator economy to the world, and if we look at what Scotland exports in terms of capability in the oil sector today, it is all the operating capability, the expertise, maintenance, troubleshooting, analysis and so on. We have built an industry that exports to the world and that has a huge amount of expertise in operating the fossil fuel industry's artefacts. I do not know why we cannot map those skills to the things that we will need to do in the world that we are moving to when it comes to solar, wind, battery storage, green hydrogen, hydrolysis and fusion, which will come along in our lifetimes.

Melanie Simms talked about the uncertainty that exists with regard to those skills, but I think that that is the point. If we want to be a leader, things will be uncertain. If we want to fill those jobs when everything is clear, we will not end up filling them—we will end up importing that skill set from companies that got there first. Exhibit A is wind power. We buy that technology from the Danes, the Germans and now the Chinese. We should have been one of the first to operate in that area, but we were not, because the situation was not quite certain.

My proposal is that, while the situation is uncertain, we should map out what we think the future in Scotland looks like in a country that goes net zero a lot sooner than the timescales that we

are talking about, and then we should develop concrete plans for how we would support our people to transition into those uncertain areas by helping them to start companies or to retrain, or by expanding massively what Scottish Power is doing, for example. We need to stop talking about a just transition as a dog whistle for continuing a business model that will kill our grandchildren. That is not an extreme statement; it is what the science is telling us. The science is telling us that, with every country's excuses—including Scotland's—we will have an uninhabitable planet by the end of this century. That must be part of the just transition discussion.

Colin Smyth: We understand that there are uncertainties about the jobs of the future, but what is stopping that mapping process taking place now?

Professor Logan: I think that our lack of a sense of urgency is stopping it. I think that we believe that things will continue pretty much as they have done, albeit that they might get a bit worse, with it becoming a bit hotter and our having a few bad days. However, what we are in the middle of is an exponential change in our climate. We are at the flat part of the exponential curve. There were reports as recently as yesterday that the current commitments from COP—assuming that we met them, which no one thinks that we will—would result in catastrophic warming.

I do not understand why, worldwide—including in this country—we do not have a huge sense of urgency about safeguarding our children's children's existence. If we brought in that sense of urgency today, we would be talking a lot more intensively about ending the massive subsidies that we give to the oil and gas industry in the UK. Ten times more money is spent on subsidies for that industry than is spent on stimulating the green industries. That seems extraordinary, but there we are. Worldwide, $5.9 trillion a year is spent on fossil fuel subsidies.

We must bring forward that catastrophic future to now and say, as we did with Covid, "We are in a crisis. How do we respond?" I think that we would find ways to transition in a way that does not destroy the livelihoods of our people. We are all very conscious of the need not to do that. As someone who grew up in Clydebank, I have first-hand experience of what it means to see heavy industry move away. However, at the same time, we must be extremely careful that we do not just stick our heads in the sand and use a just transition as a means of prolonging the fossil fuel industry business model. I fear that, in this country, we are, to a large extent, still doing that.

Colin Smyth: I am conscious of time, so I will put my final question to Katy Heidenreich, given that she is in the sector to which I refer, although I appreciate that there is a wider issue here.

Parliament recently held a debate on the need for an offshore training passport, which highlighted that there were barriers to the recognition of training and qualifications across employers in the offshore oil and gas industry. Are there any other such barriers that might limit workers' ability to access upskilling and reskilling opportunities?

Katy Heidenreich: That is a good question. We support a training passport to ensure that it is as easy as possible for workers to move from one sector to another.

As far as other barriers are concerned—I am sorry; I have had a complete memory blank.

Colin Smyth: That is fine—it was unfair of me to throw in that question at the end, after talking about a subject where there is a solution that involves breaking down some of those barriers. Do the other witnesses want to talk about barriers to accessing upskilling and reskilling opportunities?

11:15

Katy Heidenreich: I would just like to quickly make clear the work that is being done to map those skills requirements. A recent report by the Robert Gordon University showed that 90 per cent of skills in the oil and gas industry are transferable. Our industry is changing, and I would be happy to write to the committee with more detail on that.

Colin Smyth: That would be helpful—thank you.

Am I out of time, deputy convener?

The Deputy Convener: Time is getting a wee bit tight. We will take up Katy Heidenreich's offer to supply us with that information in writing.

Paul Sweeney: This has been an interesting discussion. Digital and leadership skills have been highlighted as a gap in Scotland for several years. What have been the key barriers to reducing skills gaps in those areas? I would like Professor Logan to answer that question first.

Professor Logan: On digital skills, I would start by making computer science a tier 1 subject in our schools instead of the tier 3 subject that it is at the moment. It is that important to our future. There is almost no industry just now that is not rich in software tools and technologies, either building them or buying them. We must start back at the supply chain. If we do not have the software engineers and people with related skill sets who can populate our start-ups and larger businesses, everything else is moot.

I would start there because, at the moment, we are doing a really bad job in that regard. Around

17 per cent of our schools do not teach computing science at all. Imagine if that was the case with mathematics and physics. In many other schools, the subject is taught by non-specialists, such as a business studies teacher or—as is the case in my children's school—a former home economics teacher. Those teachers do their best, but they are not trained in the subject. We are trying to train our children to programme computers but many of the people who are training them do not know how to programme computers. We must address that issue.

The situation is made worse by the fact that, unlike mathematics, physics, chemistry and other sciences, computing science changes regularly. A teacher who graduated in computing science 12 years ago would not have experienced app development, for example. That means that we must regularly upskill our teachers, too.

Further up the education pipeline, at university level, there is an issue with leadership. We need people who can start companies, join companies and lead companies. At that point, the challenge changes from there being a lack of technical skills to there being a lack of entrepreneurial and business skills. Universally, computing science graduates are strong technically but very weak on everything else, including skills such as how to draw a market, manage a team and so on. Our universities do not encourage people to develop those skills. Some universities are good in that regard—the University of Strathclyde, for example—but others are not. We have to raise the entrepreneurial chops of our technical graduates, not just in computing science but in all subjects. Some of the biggest companies on earth, such as Facebook, Microsoft and so on, were started at university. It is important to make improvements there.

Beyond that, we need to educate company founders and founding teams in world-class best practice. When I spent time in silicon valley, which I used to do a lot, virtually every founder who I spoke to had a deep knowledge of how to grow a tech company. When I speak to such people in Scotland, they tend not to have those skills. We can fix that with education at founder level.

Taking a step back, what I am proposing involves looking at the pipeline from school through to university and onwards to starting or joining a company, and strengthening that pipeline in concrete ways. We are trying to do that as part of the implementation of the technology ecosystem review.

We need to do the same on parallel access paths, which are about adults moving into the industry. We have some best practice, but it is not scaled and there is a task to do in scaling it. We also need a talent attraction visa of some sort.

Paul Sweeney: Those are helpful points. Will you give us some reflections on the experience of Skyscanner as a Scottish unicorn tech company but one that is now under foreign ownership. Does that example show that we need to do more to build Scottish companies that remain under Scottish ownership, which could create the ecosystem that we are talking about?

Professor Logan: You should think of the ecosystem as a funnel. At the fat end of the funnel, you have lots of very small start-ups—one and two-person start-ups—and, as you move through the funnel, the rate narrows. Not all of them grow to scale, not all the scaled companies grow to unicorn status and not all the unicorn-status companies grow to be bigger than that.

In Scotland, the funnel narrows too quickly. Not all the companies that should have got to scale get to scale, because of a lack of funding, a lack of management prowess or something like that. The question is quite nuanced. In the implementation of the ecosystem review, we have identified a number of interventions—more than 30—to widen the funnel. Rather than talk through all of them in the time that we have, I will just refer to them and we can supply the paper on them if needed.

However, we should be careful not to discourage founders from selling their companies, because being a founder in a tech company is hell. I have done it a few times. It is extremely challenging and one of the benefits of selling a company is that you get some reward for that. It is healthy and natural for companies to be sold and to do initial public offerings at different stages. What we lack in Scotland is a critical mass of management expertise. Sometimes, companies sell because they do not know how to get to the next stage. If we had more experienced executive talent in the area, we could take those companies a bit further. To be honest, that was one of our considerations—did we know how to keep scaling this thing?

That requires the ability to attract talent to Scotland, which we cannot do just now because the tech ecosystem is too small, so it is too big a risk for people to come. We have to scale the ecosystem and then the talent will come. That is the subject of our interventions. There is a tipping point beyond which the ecosystem grows by itself. Our job is to get us to that tipping point, and that is what we are working to do.

Paul Sweeney: That is helpful. I have a question about the future skills action plan, which aims to increase the flexibility of the skills system. The focus is on a meta skills approach that will better equip individuals to navigate a labour market that is more fluid than ever—that is a lot of jargon. Are there clear examples of countries that are getting that right? Is there a benchmarking

opportunity from which the Scottish Government and Scottish industry could learn?

Professor Simms: The report that I spoke about that SPICe published last week asked exactly that question. We identified two countries as particularly helpful examples. One was Denmark, where—similar to the Netherlands, which Paul Hunter spoke about—there are structured committees and vocational training is integrated into discussions with collective representation from employers, the state and workers through their unions. The Netherlands and Denmark are interesting reference points. Their approaches are slightly different, but the learning points are similar.

The other case that we identified was Singapore, which is interesting. It has much more active state involvement, which is probably not surprising given the politics there. However, the really interesting point was how well developed the structures of social partnership, as they call them, are. They have about nine national-level committees that consider a range of labour market issues, one of which is future skills. There is a real commitment to collective decision making on shaping policy in that area.

Although that is a different economic and political setting, there are some interesting lessons about how structured the approach can be, while still providing the flexibility that employers always emphasise that they want. My background is in comparative employment relations, and I can pick all sorts of examples. However, we picked those two, because they are small countries with serious commitments and engagement in that area.

A point that relates to your question, and to previous questions and points that were made, is that, when we talk about skills planning, it is important that we do not focus only on entry into the labour market. Education-into-work transition is important, but post-employment skills development is also super important. We have emphasised that at different points, but there is a tendency to talk about what skills people need at the point at which they get their first job. Although that is part of the question, it is by no means the only part.

In Scotland and the rest of the UK, we are terrible at investing in training once people are employed. It is a question of engaging employers and removing some of the disincentives for employers to train in the flexible labour market. When we ask about post-employment training and skills development, there is a different set of questions, compared with when we ask about entry into labour markets.

Paul Sweeney: That is helpful. Mr Hunter, would you like to come in?

Paul Hunter: Yes. I echo Mark Logan's excellent points about computing—we are not focusing on that enough. Mark's point about a home economics teacher teaching IT demonstrates that there are skills gaps in education that need to be urgently addressed. The Netherlands is an excellent example of collaboration across various industries and stakeholders.

Paul Sweeney: Thanks very much.

Michelle Thomson (Falkirk East) (SNP): Good morning, everybody. It is nice to join you, albeit remotely. I have a couple of short questions.

The first is for Mark Logan. I am interested in your comments about the pace of change, creativity, entrepreneurs and so on. What can be done to utilise the creatives? I say that as someone who initially did a music degree and who quickly came to understand it, and describe it, as precision engineering, due to the accuracy required to produce certain types of music.

Subsequently, I did a postgraduate qualification in IT. I was told at the time, and then at the company for which I eventually went to work, that I had been recruited because of evidence of creativity. The company wanted that creativity in its IT department. Therefore, it seems to me that, in business and in the Government, at whatever level, there is not necessarily the understanding of how creative the creatives are, and how useful they can be in IT.

Professor Logan: That is a fantastic point, and I completely agree with your sentiment.

If you look at the great renaissance cities of our past, people were incredibly productive, creative and inventive. You could even level that description at Glasgow and Edinburgh back in the day. I will use Leonardo da Vinci as an example, and imagine him stepping out into the market square in Naples or Florence. Such people were not bound by overspecialisation. Leonardo was not a painter, mathematician, anatomist or botanist; he was all those things. In addition, when he stepped into the market square, he was literally meeting and talking with people who were just the same. There was far less focus on specialising in a subset of a subset of a thing, which is what we now do in our education system. It was much more about having depth and breadth, and mixing with people with complementary skills.

11:30

That is how you create renaissance. In our education system, our industrial world, our business world and beyond, we should try to recreate those conditions. I will give an example. At university, we teach science students in the

science school, business students in the business school, and design students in the design school, and we do our best to keep them as far apart as possible. If we taught them to really collide—to do joint projects, across faculties and schools—they would have their eyes opened to the enormous power of combining different talents and disciplines. We need to look at how we as a society operate, from education upwards, in mixing those skill sets. For example, Skyscanner was a supertechnical company, but we were successful only when we had periods of creativity and did something different.

We tend to talk about the creative industry as if it is separate from the IT industry. We need to stop doing that. It is about colliding those skill sets and recreating those market squares. I am completely with you on that sentiment. I know that music is just mathematics put to a tune, and vice versa. We often describe things as "technical", but that is just a tag, because everything is technical, really. We should shed the tags and the sense of overspecialisation, and start mixing people. We will get real creativity and industrial output from doing that.

Michelle Thomson: Thank you. Needless to say, I strongly agree with you. I see that Paul Hunter wants to come in.

Paul Hunter: I disagree slightly with Mark Logan's comment that, in universities, we do not have such collaboration. We have it, and I will give a specific example.

We have a professional pathways programme in the business school through which we collaborate with the Glasgow School of Art, the school of medical, veterinary and life sciences and the school of engineering, to name just three, and we recreate those market squares. For example, students from the Glasgow School of Art come in with great ideas about design, and we then teach them how to start up a business—how to create a human resource management function, and all that kind of thing. It is great to hear their ideas, but also to teach them how they can transfer those ideas to a business.

For example, a student had an idea about how to use sculpting, and wanted to know how she could transfer those skills to create a business. I believe that she has—[*Inaudible*.]—a design business. She is transferring her technical skills and now has the knowledge about how to start up a business.

To go back to Mark Logan's point that a lot of founders in Scotland do not necessarily know how to build up a business, we hope that, through the professional pathways programme, students now have some knowledge about how they can start up a successful enterprise. We see a lot of market-square style interaction in sessions that can involve 300 students. Engineers talk to doctors, doctors talk to vets and vets talk to musicians. We see all that, and it is absolutely fantastic. We need more of that at universities across Scotland.

Michelle Thomson: I do not disagree with what you say. The point that I was trying to make is that there is nothing preventing somebody who has done a music degree—often, they will be producing their own music—from switching tack and doing something different. I know that, because I did it. That was 30 years ago, when it was arguably even less common than it is now.

I see that Mark Logan wants to pop back in before I go on to my final question. Mark, do you want to pick up on this thread?

Professor Logan: Yes—very briefly. It was great to hear Paul Hunter describe that mechanism. As we have both said, we need to do more of that. I see good practice like that at a lot of universities, but it is not intensive enough—it happens once a term in some cases, albeit not in the case that Paul has described. It needs to happen a lot more.

On your point about retraining after developing one skill set in the creative space and wanting to apply it, say, in the technical world, it is incredibly important that we scale up our ability for people to make the transition that you made. For example, in Scotland we have CodeClan, which takes people of an average age of about 30 who want to retrain into the tech industry. They come out as excellent people for businesses to hire, because they have life experience, knowledge of different domains than are known by young graduates and so on. The problem is that that is not at sufficient scale. We need to establish it as a major talent pathway. I completely agree.

Michelle Thomson: My second and last question is for Paul Hunter and/or Professor Simms. It is a slightly cheeky one. It strikes me that we do not have that many people who understand supply chains. Even so-called supply chain directors might just be logistics specialists or procurement specialists. That is my perception. Does Professor Simms or Paul Hunter have a view on that? Do we fundamentally have too few people who understand what supply chains are, given our background of being in Europe?

Professor Simms: I will use this as an opportunity to flag something that we are doing in my school, which is setting up a specialist degree programme focused on supply chain digitalisation. That is intended to fill exactly that gap. We have just recruited a professor who is an expert in that area, because we recognise that not only does our provision of specialist masters programmes need

development and filling in in that area but, more generally, we need to be producing graduates who really understand those kinds of issues**.** Obviously, that takes a bit of time.

There are similar programmes around the UK and certainly around the world, but not as many as you would imagine. We have done a lot of comparison against competitor institutions and are convinced that there is a gap in the area. To speak to your question, I say yes—there probably is a gap. We think that there is a gap, and we are doing our bit to fill it. We hope that there will be a new stream of graduates who really understand supply chains.

When institutions hire leading professors from around the world, as we have done in this case, that can act as an attraction to other researchers and educators in the field. We hope that that will happen. I cannot speak for other higher education institutions in Scotland.

Michelle Thomson: Thank you.

As a final word, do you have anything to add to that, Paul?

Paul Hunter: I would add that supply chains are complex and, as Mark Logan has said, they will have technology firmly embedded in them. If we are educating people about supply chains, it needs to focus on computing as well. Supply chains are vital. It is a subject that could be taught in primary and secondary schools alongside IT. They are such a vital element and they are linked to the United Nation sustainable development goals. Teaching the SDGs to young children at school is vital, linking with the impact on supply chains in creating decent—[*Inaudible*.]

Michelle Thomson: That is a very good point.

John Mason: We have covered quite a lot of areas already. I want to pick up on the topic of older and younger workers, which we have heard a few comments on. Professor Simms talked about older workers struggling to find work. Paul Hunter talked about soft skills, including critical thinking, which I imagine quite a lot of older people would have, and agility, which maybe we think of younger people as having. We have also had input from organisations. Highlands and Islands Enterprise talked about competition for young people, and UK Hospitality talked about Scotland just not having enough workers.

I wonder whether we—that is, the public sector and the Government—can do more to help older workers. Have we put too much emphasis on younger workers in the past?

Professor Simms: It is important that we do not frame this conversation as generations pitted against each other. I am not suggesting that you have done that, but sometimes that is where this conversation goes.

We know that the challenges that face those two groups are slightly different. If younger workers have extended periods out of the labour market, it has a lifelong scarring effect on them. It has a lifelong negative effect on many measures of life outcomes, including health, housing and all sorts of other things. It is therefore important to focus on the challenges of helping young workers make good and solid transitions into work to ensure that they are not caught in this problematic cycle of low-paid jobs followed by periods of unemployment.

The issues affecting young workers are very challenging, but with older workers the dynamic is slightly different. In their case, it is about their having the ability to communicate the skills that they have as well as their being supported to develop the skills that employers are looking for in the recruitment process. In other words, they have not only to explain what skills they have but to develop new skills if their previous jobs no longer exist or are no longer suitable for them. The two challenges are slightly different, but they are both extremely important and neither is insurmountable. Another major challenge for policy makers is older workers leaving the labour market earlier than they would have wanted to.

We know quite a lot about what works in those kinds of spaces. It comes under the broad heading of active labour market policies, and it is about supporting workers to develop their skills and in not having to bear the burden of costs of upskilling, reskilling and so on.

However, there is also work to do with employers. I am aware that I keep talking about employers, but I do not want that to be interpreted as me beating them up. Lots of employers are doing a lot of really good work and are committed to diversity in the recruitment and development of older and younger workers, but there are some questions about how we ensure that employers and the state share the costs and the risks of dealing with those two very practical sets of challenges and support those different groups of workers in meeting their specific needs.

Sometimes the state forgets about that. I see a lot of policy makers focusing on what can be done to make workers more employable, which is an important part of the process, but they forget about the demand side of the labour market and working with employers to think through who is being targeted, why those workers are being targeted, whether anything can be done differently and how the structures support or discriminate against all sort of groups, not just older and younger workers. It is important that we do not see this as an issue

of making workers more employable but that we tackle the problem in the round.

John Mason: That was helpful.

Perhaps I can stick with you for just a minute. On the point about the state perhaps supporting more training for younger people but less for older workers, I have a small firm in my constituency that takes two apprentices every year. It deliberately takes one younger and one older apprentice, because it sees the advantage in having both, but it gets more support for the younger apprentice.

Going back to the issue of post-employment skills development, I believe that you said that it was terrible and that we should remove disincentives in that respect. What did you mean by that?

Professor Simms: We have data on the number of workers who in any one year receive in-work training, and in most years the figure is less than a quarter. It sometimes goes up to about a third, but it hovers around the quarter mark across the UK, and I think that the data is similar for Scotland, too. That means that, in any one year, most workers do not receive any in-work training, which sets us in stark contrast with many of our competitors. That is, if you like, the evidence that underpins my comment that the situation is terrible.

As for what can be done to remove disincentives, I would say that one of the biggest disincentives for a lot of employers is the risk that, if you train staff, they will be poached by competitor employers and will not stay with your organisation. However, there are all sorts of things that we can do in that respect; indeed, this is where working at sector level or, at the very least, occupation level becomes important. Encouraging training at either of those levels will remove the risk of your competitor employer coming along and stealing your trained workers at whatever stage of their career.

That is where the idea of planning becomes important. That was the original idea behind the apprenticeship levy, but the way in which the levy was introduced means that it has moved away from its original conception and, in practice, it is not doing that—that is another story. The original idea was that getting all the larger employers to invest in apprenticeships and some sort of training would remove the disincentives, because everyone would be paying a levy; they could either take advantage or not, but if they did not, they would still be paying into the system.

11:45

John Mason: Thank you.

Katy Heidenreich, I imagine that your sector keeps training its workers even when they are older. Am I correct? Are businesses afraid of losing their workers as a result of that training, or is that just part of the industry?

Katy Heidenreich: We are a highly regulated industry and, obviously, we pay due attention to the continued training of the workforce to ensure that they have the appropriate skills and competences. What comes to mind is the work that we are doing to improve our diversity and inclusivity. That will ensure that we see improvements in underrepresented parts of our workforce, which will have a positive effect with regard to our age range and ensure that we do not lose the vital experience and expertise that the more mature members of the workforce bring.

John Mason: Mark Logan, the digital side is seen as being for young people. Are there enough older people in that area? Should older people be getting more training in it?

Professor Logan: There is a prejudiced view in the tech sector that, because the technologies are new and recent, only new and recent humans can operate and build them. That has the effect of excluding a lot of people who could be valuable for tech companies. That is an issue that must be overcome in society and in the sector itself.

Having worked with an awful lot of engineers of all sorts of ages, my experience suggests that there is no reason why we cannot develop the digital area as an avenue for older citizens to work in. Ideas that incentivise companies to hire and train older workers would be valuable. The comments that we have heard from witnesses today in that regard have been spot on.

The fact that we do not have a more enlightened view on this issue is a great loss to our tech sector. It is similar to the gender imbalance in tech. We are excluding half of our best people because, for some reason, the tech sector is institutionally sexist—whatever it might think of itself, that is what the numbers show it to be. It is also institutionally ageist. What can Government do about that? Maybe we could change the language that we use in this area to make those behaviours less accepted and normalised.

John Mason: I was concentrating on age, but you have brought in the issue of gender, which I find interesting. Is that an issue that has to be sorted at school? Is that the stage at which intervention would ensure that we get more girls into information technology?

Professor Logan: I think that the issue is deeper than that. We do not teach tech or computing science to primary schoolchildren in the intensive way that we teach other subjects, which means that, by the time young people experience

the subject, the gender stereotypes have already been locked in. Actually, the bigger problem is that there are no role models or exemplars for young women in the tech sector, so it seems like a hostile environment.

We have to make it socially unacceptable to operate an industry where only 15 per cent of the staff—the engineers, in this case—and 5 per cent of the leaders are women. I would use the same tactics that we used for changing attitudes to drink driving. I would change the language that we use around the issue, because businesses say things like, "We have a social inclusion policy and aspirations to improve our gender balance," which is very soft and optional language. However, there is gender ghettoisation in the industry; women can do certain jobs but are made to feel that it is not normal to do other jobs and that they should stay in certain areas.

We should ask companies to develop policies to eradicate gender ghettoisation in their organisations, or policies like that. We have to denormalise that situation. That is incredibly important for this discussion, because we lose roughly half of our best people for the industry because of those norms and attitudes.

The same argument can be applied to ageism. We need a systemic response; frankly, we have to apply pressure not just in schools but at the other end of the chain, in industry.

John Mason: I am interested in the phrase "gender ghettoisation". I will give the final word on age to Paul Hunter, but if you want to mention gender, I would be happy to hear about that as well.

Paul Hunter: More people are living longer and staying longer in the workplace; that is the demographic megatrend, so training older people is an urgent issue.

In relation to the economic green shift, we are focusing on creating more sustainable jobs. There is an excellent opportunity—[*Inaudible*.]—to retrain their workers to move into those new roles, but we need to understand what those new roles will be. That is uncertain.

Professor Logan mentioned that we have not focused as much on developing the renewable energy sector and that we have been importing expertise and goods from countries such as Denmark. In relation to the point about labour shortages, we have an excellent opportunity to retrain older workers, promote jobs to older workers and explain clearly how we can retrain them, and we could subsidise that retraining.

That links to the just transition, which was also mentioned before. If older workers in carbonised industries are threatened with losing their jobs, we can target and retrain those workers so that they do not lose their jobs and they stay in the workplace.

The Deputy Convener: Do members wish to ask any further questions, or would members of the panel like to make any final comments on anything that we have missed? As they do not, we come to the end of our evidence session. I thank our witnesses for joining us and sharing their experience and expertise.

We move into private session for the remaining agenda item.

11:53

Meeting continued in private until 12:30.

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