

Science and Technology Committee

Oral evidence: The Role of Technology, Research and Innovation in the Covid-19 Recovery, HC 98

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Members present: Greg Clark (Chair); Aaron Bell; Tracey Crouch; Rebecca Long-Bailey.

Questions 282 - 350

Witnesses

I: Tim Brundle, Director of Research and Impact, Ulster University; and Professor Nola Hewitt-Dundas, Pro-Vice-Chancellor for Faculty of Arts, Humanities and Social Sciences, Queen's University Belfast.

II: Matthew Malcolm, Creative Industries Development Officer, Arts Council of Northern Ireland; Professor Paul Moore, Director, Future Screens Northern Ireland; and Jack Morrow, Chief Technology Officer, RETiníZE.

III: Keith Forster, Director of Strategic Policy, Department for the Economy; Gordon Lyons MLA, Minister, Department for the Economy; and Eoin McFadden, Head of Innovation Strategy Unit, Department for the Economy.



Examination of witnesses

Witnesses: Tim Brundle and Professor Nola Hewitt-Dundas.

Q282 **Chair:** The Science and Technology Select Committee is now in session. We are very pleased to be meeting here today in Stormont, in Northern Ireland, to consider the role of science and technology in research and development and, in particular, in the recovery from Covid here in Northern Ireland, but also right across the United Kingdom. To help us with our inquiries, I am very pleased to introduce our first pair of witnesses, Professor Nola Hewitt-Dundas, who is the Pro-Vice Chancellor in the Faculty of Arts, Humanities and Social Sciences at Queen's University Belfast. Welcome and thank you for appearing before us today. We are also pleased to welcome Tim Brundle, who is the director of research and impact at Ulster University and is the chief executive of Innovation Ulster Limited, which is the university's venture and investment company. Thank you for appearing. Professor Hewitt-Dundas, perhaps you might convey to your colleagues our thanks for a fascinating roundtable that your colleagues hosted with us at Queen's yesterday, which was very informative and will help us in our inquiry.

To kick off proceedings, and starting with you, Professor Hewitt-Dundas, perhaps you could give us a snapshot of the importance of research and, in particular, innovation and technology here in Northern Ireland.

Professor Hewitt-Dundas: In Northern Ireland, as in every other region, it is critically important. How important it has been over the last period has been a reflection of the investment that has been going into it.

We have historically had a very low base of research and development expenditure and investment, and there has been considerable catching up. Indeed, there has been some significant improvement. If you look at BERD—business enterprise expenditure on R&D—as a proportion of the total, we would have a slightly higher level, 1.5%, of GVA, which is just slightly above the UK average, so there has been some very significant improvement.

The structure of that research and development has changed markedly over the period. If you go back about 10 years, you would have found that the research and development spend was very concentrated. The top 10 investing companies would have been investing about two thirds of all R&D in those 10 companies, which puts you in a very vulnerable position as an economy. Between 2010 and 2015, however, there was significant growth in small and medium enterprises investing in research and development. The outcome is that that concentration has now reduced to about one third. Foreign-owned companies now account for about half of all R&D spend and small and medium enterprises now account for about 47%. In a period when spend has increased, the proportion of the share of small and medium enterprises, their role in that, their investment and the relative investment, has also increased so you are seeing quite a dynamic and changing picture of the composition of research and development spend in Northern Ireland. Unfortunately, the level has



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remained relatively static overall when you add in higher education, R&D and then the public investment in R&D, so there is significant room for improvement. I will stop there because no doubt you will want to explore sectors and so on.

Q283 Chair: Indeed, and my colleagues will go into a bit more detail. Within that headline picture, however, if there have been improvements in business investment, especially in the composition of that, and people are joining it, it suggests a stagnation or worse in the public R&D investment. Is that right? What is behind that, would you say?

Professor Hewitt-Dundas: I don't have the precise figures in front of me for the actual investment from the public sector perspective, but public investment tends to be quite low. I think about 3.2% is Government spend. Higher education accounts for about 24%. If you break it down, business spend would be about 70% to 74%; 24% would be higher education and about 3% would be Government investment. That picture, that share, has remained relatively stable over the period. There has been growth in higher education. There has been a proportion of growth, I think, in the investment even within higher education. If you look at the trend over the last 10 years, you see it going up but the relative share has not changed very much. Public investment tends to be very low outside of the university sector.

Q284 Chair: Thank you. We will go into that in a bit more detail, but perhaps I can ask a similar question to Mr Brundle. Obviously, at the University of Ulster you have campuses and operations right across Northern Ireland so you see the totality. What importance do you see currently and in prospect for science and technology in Northern Ireland?

Tim Brundle: I agree with Nola's opening comments, but what we have seen over the last 10 years has been an increase in the research intensity in industry. Going back 10 to 15 years, we were pretty stagnant at the bottom of UK regional league tables. We have seen absorption of R&D across SMEs and a wider group of larger companies and we have benefitted from strong knowledge-based foreign direct investment into Northern Ireland and the regulatory and financial technologies, which has been a very positive thing. There has been great co-operation and collaboration between the university sector and those companies.

Today, and over the years ahead, we have a Government commitment to increase R&D spend out to £22 billion by 2024 with a proportion of that, some 40%, coming outside of the south-east and London. That is important for Northern Ireland because its share of central Government funding has not always flowed in the proportions that we might have expected. On the back of the 10X strategy in Northern Ireland, we are seeing great focus on sector partnerships in technology and research areas, whether they be in financial and regulatory technologies, in the life and health sciences or advanced manufacturing and so on, and they are being underpinned by investments in the city growth deals.



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A number of the projects being put in place across Northern Ireland are truly collaborative in their design and delivery. We are just getting to the point where these projects are being signed off, but the overall commitment represents the largest investment in the economic infrastructure of Northern Ireland's history. You have some £1.2 million-ish of investment in sectors that provide for industry/university/Government collaboration, which is a very positive thing. We are seeing that clustering effect. Some of it came through during the acute period of Covid when we were seeing companies working together and working closely with universities in different ways from how they had previously. We are seeing opportunities for operational clustering within industry. We have industry coming into the university sector, coming into the city growth deal projects, looking for opportunities to work together in the development of skills, looking for opportunities to develop intellectual property and ensure the industrialisation of research and development.

Chair: Thank you very much. We will go now to some questions from my colleagues. Then we might follow up on some of those things.

Q285 **Rebecca Long-Bailey:** Thank you both for coming today. It is lovely to see you both.

You both mentioned the stagnating nature of public investment in R&D and that the majority of investment in Northern Ireland in R&D comes from private investment. What would be the impact of dramatically increasing public R&D investment?

Professor Hewitt-Dundas: It is well known that public money is used to leverage private money. There is a very interesting case in Austria, where they were lagging in their R&D investment. Then they set a very ambitious target of, I think, 3.7% of investment in GDP, and one of the strategies they used to get there was to use public money to leverage private sector investment. They also focused much more on that industrial, mission-oriented investment. That has been very successful. There is an element of public investment to leverage and where we have not been particularly good in Northern Ireland is in accessing UKRI and other sources of public funding.

Regional investment and support is a very different type of support and works very well, but it is different; it is a negotiated type of support locally by Invest NI versus that which is accessed on a more competitive basis. I have done some recent research in this space that demonstrated that Northern Ireland firms do not apply very well, so when they do apply and they are successful, their productivity and the growth benefits from UKRI-type investments are higher than the average return to the average English company. Maybe that is part of the screening. Not everybody enters into those competitions. Invest NI is working with companies differently, particularly the smaller, low-tech companies, getting those companies up to a level where they can compete more successfully for UK funds.



Tim Brundle: One of the tactics that both universities have employed to ensure their own growth in research activity has been leveraging public money to access other public money. It is something that relies on an interoperability between different types of funds, for example, leveraging funding out of Invest NI to unlock opportunities for UKRI funding or using money out of the Department for the Economy to leverage money out of the levelling-up fund. It is something that we are getting better at, but it does require different schemes to talk to one another and that is something that we certainly need to do.

There has been a benefit for us in doing that because of the way the universities in Northern Ireland are funded. We have caps, of which you will be aware, in numbers of student places and the way our study body is funded, and that restricts our ability to move money easily between different types of academic endeavour, whether that be teaching, learning, research or innovation. As a result, when we go in seeking funding from research councils or levelling up, we can often be in a less competitive position because we are unable to bring match funding to the same degree as, say, English universities to make our projects look attractive. That has taken us down this road of saying what other assets do we have in Northern Ireland that we can present to have a greater impact from that investment in research.

Q286 **Rebecca Long-Bailey:** Professor Hewitt-Dundas, you mentioned a mission-orientated industrial strategy. It was an interesting point. A few years ago, the Government outlined their own industrial strategy, talking about grand challenges. Since then, do you feel that Northern Ireland has been included in the development of those challenges and whether there is a mission-orientated industrial strategy any more?

My second question for you both is about the Government's proposed target for a public and private R&D spend of 2.4%, which from the international example you mentioned is way behind other leading industrial nations. Do you think Northern Ireland is anywhere near that 2.4% and how far away is it from that target?

Professor Hewitt-Dundas: The question about the mission-oriented drive around R&D investment is interesting. It even relates to your previous question. There is something about public investment at certain points in the development of technologies and regions and sectors. For Northern Ireland, more recently we are beginning to see through, for example, the city deal, the BRCD, and also Strength in Places funding for marine technology through Artemis, Smart Nano NI, and Seagate, some of those initiatives beginning to come together, and they are not the only ones. Others are coming along that complement those areas, those sectors, those technologies, and there are projects under way. For example, there is a project around health, which is most definitely a mission that we all have, particularly coming out of Covid. A project was submitted as part of the Strength in Places funding around the Future Medicines Institute. It was screened and approved as a strong project but there was no funding for it—if only funding was released to support them.



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These sectors, particularly around the 10X strategy where five or six sectors have been identified, are being built on in BRCD in terms of the innovation pillars—digital, advanced manufacturing and health—and there are other projects now coming in around those. You now have a situation where you have the foundation as opposed to fragmented projects. The potential to coalesce these different individuals, groups and stakeholders and create a cluster and public funding at this point is, I think, probably critical to continue that impetus.

Those things come from the bottom up in terms of the universities, Belfast City Council, and all the stakeholders sitting together asking, “What are our priorities?” I don't think there is a disjoint in any way; those are the priorities of society and are things we need to be focused on. In Northern Ireland, you get a real strength, in that the stakeholders work together. We are a very small place and everybody knows everybody and that is great because then it is easy to get people round a table to work out what each of the contributions is. That is in response to your first question.

To your second question about the 2.4% spend, we are far off that, and particularly in a peripheral area of the United Kingdom, we are very far off that, but there is some improvement. I think there is potential. I also think there are barriers, even in terms of skills, post-Covid, investment, all of those things. People are committed, they can see the benefit of investing, but there just isn't the investment at the minute. Whether public funding will be enough to leverage it, it will certainly be an important part of it, but it probably also needs a change in mentality, given the share of the economy. About 20% of our economy is micro-businesses, which is slightly higher than the UK average. In that sector, it is about ambition, getting them to be more ambitious, to identify technology and to want to grow. There is a sort of societal/social dimension to this as well. We have to look at it holistically.

Tim Brundle: Following the publication of the industrial strategy, there was a draft industrial strategy put in play in Northern Ireland, which was beneficial in that it provided a layer of localisation around the industrial strategy. It was the sectors and themes that were most meaningful and resonated with researchers, scientists and businesses across Northern Ireland. There are echoes of that industrial strategy in the 10X strategy that I mentioned earlier and, as Nola said, there is a very high degree of co-operation going on between companies and universities in Northern Ireland. There is a higher intensity of business/university collaboration in Northern Ireland than you will see anywhere else in the UK and Ireland. That is a positive thing. It provides fertile ground for fostering activity. The point is that you need the stimulus, you need the investment, to make that sing.

Q287 **Rebecca Long-Bailey:** The last question from me is on the Government's Levelling Up White Paper. What do you make of the parts relating to supporting research, innovation and technology?



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Tim Brundle: I think the White Paper has a number of very positive attributes. Identifying and making the commitment to investment beyond the south-east and London in a particular proportion is a positive thing. Nola and I were talking before the session began. Levelling up is not just about levelling up the regions. It is about the connectivity between the regions and those investments. If we make strides in the financial and regulatory technologies or in personalised medicine or the creative industries, that is of benefit to our neighbours and to other parts of the UK, which can avail themselves of those investments and assets. I think the vision that the White Paper sets out is very positive. We are now at the point, as we are developing those city and growth deals, that right across Northern Ireland, from Derry to Belfast, there are some very exciting projects. The key thing for us is to make sure that the investment goes in, that the activity is there, the skills involved, the R&D that is undertaken, and there is that connectivity with, for example, the Catapult centres, with UKRI, Innovate and other parts of the research funding infrastructure.

Professor Hewitt-Dundas: I concur with some of those things. I think the policy is ambitious, it is admirable, but it is about how it will then be achieved and delivered. That is where it gets quite problematic. There is a tendency to develop things at a central level. It is like a plug-and-play approach, with the expectation that this will work in different regions, and it doesn't. Different regions will have different needs. How will policy or initiatives such as ARIA play out in a devolved Administration and how will they engage in that? Even the accelerators, the investment around Manchester, Glasgow and so on, where has Northern Ireland's voice been within that? We should be involving the regions, in Northern Ireland, all of these players, in these discussions right at the start and trying to craft how these things will be delivered in a way that would be most effective for them.

I was speaking with someone last night who had just come back from an American trade delegation and they were reflecting on how 10 years ago we would have been much more cap in hand with American investors and in pursuit of employment opportunities. Now we are going and saying, "Look, we have something quite embryonic, quite special, here in Northern Ireland—the expertise, the sectors, building off the investment for the regional city deals, the 10X strategy—so this is an opportunity for you to come in". That presents other problems but, coming back to your question, the real challenge is around integrating the local voice into these programmes and schemes right from the off to ensure the maximum benefit that we can bring equally to our counterparts across the UK, ensuring that they benefit from our expertise. We use the term, "It's not just about levelling up for us". It is about linking up the Catapults, and getting into that Catapult network. We are really not represented in the Catapults at all, with just a handful of people in Northern Ireland. It is about integration.

Q288 **Aaron Bell:** Thank you both for your time and your expertise. Drilling down into R&D expenditure in Northern Ireland, we met a lot of



impressive businesses in the Belfast area yesterday at Queen's, but what is the geographical spread across Northern Ireland like?

Tim Brundle: This is more your bag than mine, Nola, but we do have research intensity in the greater Belfast area. There is no doubt about that. We have great clusters outside the greater Belfast area. We have an incredible cluster of companies involved in screening and heavy manufacturing out in the west. The Smart Nano project, the £50 million R&D project, is centred in Derry. That has been a positive thing. Reflecting on the levelling up strategy, there is a requirement in Northern Ireland to look at the regional disparities, the inter-regional disparities, as well as the disparities between different parts of the UK.

Professor Hewitt-Dundas: Now I am really under pressure. I know that approximately 30% of business investment in research and development is in the Belfast area.

Almost irrespective of the indicator that you would look at, whether it is research and development spend or innovation activity or some other performance indicator, local economic indicators, you see the same sort of pattern. To the east of the lough, right through and up to the north coast, down into the south, so into Armagh, Newry, through then to mid-Ulster, then it begins to get a little bit more sparse towards Fermanagh and Omagh, up to Derry, Strabane, again a slightly different profile, but it changes by the indicator. I think we have to be careful in how we interpret this because often it reflects the sectors and the size of the company, so building on what we were talking about earlier as to where the R&D investment is going. If it is going to the large companies, where you are seeing investment in Derry in particular, it is largely Seagate that is driving it. Equally, you have a lot of small businesses, micro-businesses, that are not accessing those funds.

Q289 **Aaron Bell:** Can I press you on that because we also heard that yesterday? Obviously, you will get clustering in cities, in any region, in any country, but we also heard that there is a bit of a cultural—aversion is the wrong word, but a lot of SMEs, 20% micro-businesses as you said, that simply do not know how to access some of the public sector support and the funds that might be available and have never thought about doing R&D. One of the people we spoke to yesterday said that research is almost a dirty word for some people because they want delivery, they want profits right now. Is there a cultural issue with R&D among some of the SMEs?

Professor Hewitt-Dundas: If you are talking about accessing Invest NI support, Invest NI has a client base of about 1,700 companies and is specifically focused on businesses with growth potential that will export. Historically, there has been an argument about supporting local businesses that then displace other businesses—"If a company down the road got a grant then I deserve to get a grant"—that supporting one business will displace the potential for another business to do well. There has been a bit of a legacy of that and hence the focus and the strategy of Invest NI to drive the economy and focus on the potential of businesses



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to deliver that. We have 77,000 businesses in the Northern Ireland economy so, of course, there will be a lot of businesses that fall out of that net and then you get into different levels of support being delivered at a more local level. Often that is less about grant support and more about going in and working with those companies to upgrade them in terms of skills or whatever. There are subtleties in what it is and who it is who is looking for grant support. A lot of those micros, though, will never be, in the short term, at a point where they would be competing for UKRI or Innovate UK-type grants.

Q290 Aaron Bell: This inquiry is an opportunity for us to see around the country. It is also about recovery from Covid. Did Covid affect R&D expenditure? Did you see any particular changes in the landscape because of either the changes that Covid made to working patterns or the need to live with Covid? Does the current situation lead to any particular opportunities for local companies and local assets to draw on?

Professor Hewitt-Dundas: I am happy to kick off and Tim Brundle can carry on with the more detailed stuff.

The economy did take a significant hit. We lost about £100 million per week. Our output is about £950 million per week in Northern Ireland and £100 million of that was lost, so there was a significant impact. There is probably a short answer to this. In terms of the impact on research and development, we don't know yet because there is always a lag in the data. It will probably not be until at least next year that we are beginning to see what that pattern is. Equally, however, ONS and lots of other data sources show a 35% impact initially and probably in the longer term a 25% impact in terms of the investment that companies are putting into research and development. Undoubtedly, there was an impact initially but as companies are going forward, as you know, with debt, with uncertainty, with problems around cash flow, as you said earlier the micro-businesses, the smaller businesses will not look for the short-term return for their business so investment in R&D is pushed further down their priority list. Psychologically, business priorities as well as the actual impact on revenue will have an impact on R&D investment but it will be a little while before we know for sure.

Q291 Aaron Bell: Mr Brundle, what are your thoughts on Covid and how it might have changed the shape of R&D expenditure and, indeed, the shape of the local economy?

Tim Brundle: As Nola was saying, we do not have good data yet, but from the university perspective, from the beginning of Covid to pretty much today we saw a 12% increase in the amount of collaborative research with businesses in Northern Ireland. Many of those businesses were being attracted to the themes of the city and growth deal, so even though the city and growth deals were not necessarily open for business just yet, we were out there talking to companies about them during that period so companies were aggregating around those themes, which I think is a massively positive thing. Given that the resources available within the city deals are not yet accessible, it provided for opportunities



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for knowledge exchange between businesses, R&D activity within the university that those businesses could access. There is certainly work to be done around the younger businesses and the earlier-career researchers who have not had the networks and access through the Covid period of those people who would have been established prior to Covid.

We were seeing a growth in knowledge-based businesses across Northern Ireland, which was a positive thing and has been commented on already. We went from having about 2% of the economy being knowledge based some 15 years ago to about 10%. Just before Covid, we were seeing great growth in set-up activity, in companies being supported through venture capital with links to the universities. All of that activity was beginning to come through, but innovation in particular is very much a team endeavour and those teams that were locked into the sites at the beginning of Covid did not tend to grow. I certainly think a concerted effort is needed to get out and network with people and ensure connectivity between the individuals and businesses operating in the knowledge economy more than ever before. We are a connected area. We mostly all know one another and that is a positive thing, but we need to get out and put some structure behind that.

Q292 Aaron Bell: You mentioned the city deals. I think there are four in Northern Ireland, not in place yet but in development, and I want to ask about the Belfast deal. You can correct me on what I have said—it looks as if you want to—but I want to ask you specifically about the Belfast deal because both of your universities are part of it. What stage is it at? Is there some concern that the present situation with Stormont and the Executive will affect delivery?

Tim Brundle: I think there were 11 city deals. There are four within the Belfast area. The city deal programme of investment is divided up into different pillars. The innovation pillars within that have a number of large projects in the BRCD on those, led by Queen's. We are taking evidence, I believe, this morning around Studio Ulster, which was one of the first of those projects.

It has been an incredible experience. Belfast's international reputation in the area of virtual production and film and television has grown quite dramatically over the last 15 years. To be able to put an R&D and innovation hub at the centre of that has been a very positive thing. As you may be aware, we have had great success in medical devices over the past 35 years. We were involved in the development of the portable cardiac defibrillator here in Northern Ireland. It was a project linked to our university that has spun out dozens of companies in different component parts and generations of researchers have come with those developments. We have a centre for digital healthcare technologies that will support that growth in Belfast. We have a partnership between the two universities in the area of advanced manufacturing, which is one of the largest of the Belfast region city deal projects and is something that will extend not just throughout Northern Ireland but internationally.

Aaron Bell: Professor Hewitt-Dundas, did you want to come in on this?



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Professor Hewitt-Dundas: To the point about the progression of the city deals, I think people are very ambitious about what the city deals will deliver and they are very committed to it. It has been a very slow process getting to where we are now, and I think it is probably a couple of years out yet from—

Q293 **Aaron Bell:** Why has it been slow?

Professor Hewitt-Dundas: I am not closely involved in it, but I think the bureaucracy around it has been very difficult. While equally understanding these are incredibly large projects, they are new, they are innovative and we want to get the governance around these things right, so sometimes slowing them down can be a good thing, which also creates frustrations and challenges. There is a balance there and probably speaking to somebody at the core of the city deals would be very helpful to better inform you as to what those blockages have been. We do want to move them forward.

The other element of your question—

Q294 **Aaron Bell:** It was about the political deadlock here in Stormont. Is that affecting business confidence? Is it affecting the city deals? Is it affecting R&D activity?

Professor Hewitt-Dundas: I think it affects everything in terms of life in Northern Ireland, from the smallest programmes that are not being funded and are not clear about their funding streams to the big issues such as probably Belfast region city deal. It is the whole gamut, even in terms of students. We lose about 17,500 Northern Ireland students who go to other GB universities and part of that is that we do not have the numbers here, but the other part is political instability. A recent survey by Pivotal demonstrated that political instability and community relations are key drivers for students choosing often to go elsewhere. Political instability is most definitely an issue.

Tim Brundle: I was going to come back on the city deal. It has been extremely slow. These are not projects that are funded by Northern Ireland but there is a governance responsibility in Northern Ireland between the Northern Ireland Departments and the councils in the areas in which the projects will be situated. There are some softer things. Having political instability takes some of the confidence out of the system. When people are taking on new roles and responsibilities for very large projects, some confidence goes and some of the speed goes without ministerial oversight. That has certainly been a problem.

Q295 **Aaron Bell:** Finally from me, because we are running out of time, a two-part question. Looking at Northern Ireland within the UK, what particular resource strengths support the national policies that the UK Government set out in their innovation strategy? If each of you had one ask of the UK Government to aid in expanding R&D investment here in Northern Ireland, what would you ask the UK Government for?



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Tim Brundle: One ask? We have had experience in recent years of not appearing on maps. The R&D infrastructure roadmap for the UK did not include Northern Ireland. We do not have a Catapult in Northern Ireland. As we move towards forging greater levels of connectivity between R&D investments in Northern Ireland and our R&D investments across the UK and Ireland, that becomes more and more difficult without the UK Government making substantial investments in Northern Ireland such as we would see in other parts of the UK.

Q296 **Aaron Bell:** Yes, sure, and the first part of the question? What particular strengths can feed into the UK's overall innovation strategy?

Tim Brundle: We have strong clusters. We have very strong business-university collaboration in Northern Ireland. I think those are positive things. We have identified individual areas within the city and growth deals and effectively we were triaging potential projects. We were checking those projects against whether we have substantive research excellence at sufficient scale to bring through a national or international centre. Do we have an alignment between those capabilities and the long-term policy and strategy commitments of the UK Government? Do we have businesses that are going to invest alongside us to make these things happen? We have taken these projects through that triage. We have the backing for a number of projects that have distinct advantages across the UK. We just need to connect them all.

Q297 **Aaron Bell:** Understood. Professor Hewitt-Dundas? What are the resource strengths and what is your one ask?

Chair: Mr Brundle squeezed a few in there.

Professor Hewitt-Dundas: The strengths? An easy one is I think the city deal and the themes coming out of that are strengths, but I think one that probably we could most definitely look to be confident around is what is coming out and identified in the Kalifa report around the centre for financial innovation. It identified the cybersecurity sector, that IT sector within Northern Ireland. Why I picked that one is that I think there is the genesis there of all the stakeholders coming together, with FDI, with local spinouts coming through, and also then the proposal that is on the table at the minute for a global centre for secure regulatory technology, which has been very well thought out and is something that Northern Ireland could be a leader in. Again, that links back to the Kalifa report. That would be my choice if I had to pick one.

If I had to pick one ask, it would be reflecting my earlier comment about the importance of public sector investment at this point, this critical juncture I believe, in the economic development of Northern Ireland, when we are beginning to get real momentum. Almost 25 years after the Good Friday Agreement, we are seeing the start of something very exciting economically. My ask would be for the proposals that are already on the table, that have already been developed and gone through scrutiny, such as the Future Medicines Institute that will significantly further enhance the work in the city deal, those sorts of things—the



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global centre for secure regulatory technology, digital twins, the hydrogen innovation initiative—really exciting things happening in all of those spaces, which can not only benefit us but can benefit UK plc.

Q298 Tracey Crouch: Good morning. Thank you for your interesting contributions to this evidence session this morning. I wanted to briefly focus on some of the challenges around the recovery from the pandemic. Professor Hewitt-Dundas, you mentioned post-Covid barriers. Could you expand a little bit on what impact you think that the pandemic has had on research settings and institutions specifically and then industry more generally?

Professor Hewitt-Dundas: In terms of research settings, I am assuming universities?

Tracey Crouch: Yes, absolutely.

Professor Hewitt-Dundas: That is the easier one for me. We were not unique in the sense that we had to pivot very quickly to do something, very much focused on teaching and supporting our staff and our students. That was a challenging period. Many of the individuals were facing very challenging personal circumstances, academic members of staff too, supporting international students who found themselves stuck and could not go anywhere, could not get flights home. There have been a lot of pressures in the HE sector, which meant that we moved more towards teaching and the student experience and, therefore, there was a cost in terms of the amount of time and effort and resource that could go into research.

In saying that, public funding was very good in extending PhD periods of grant support. Some of the UKRI grants were extended to take into account those disruptions, but it has not come without cost. No doubt, there is a bit of scarring, but I think that we probably have come out of it richer because of the resilience that we built, the collaborations we have built, particularly now as we are coming back to hopefully some sort of normality. People are thinking and talking and collaborating in a slightly different way and thinking about our missions, as we were talking about earlier, and thinking about sustainability. That is critically important: health outcomes and social inclusion, including everybody within economic development. I am not sure those issues would have been as much at the forefront of people's thinking pre-pandemic, so there are benefits. Certainly, there has been a hit to the academic system in terms of building that research capability and moving forward.

Tim Brundle: I agree, and I think the Department for the Economy, which is a principal funder of higher education in Northern Ireland, was extremely supportive. The Minister and the staff not only wished to retain the skillset, retain the research base within the universities, but they wanted to make sure as far as possible during Covid that that research was being put to work on behalf of society and the economy. The Department for the Economy did great things in Northern Ireland and we are all very grateful to it.



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I do think Covid has had an effect, particularly on EDI groups of researchers and early career researchers, who experienced a disproportionate negative effect of pressures that came on to the higher education system during the Covid period. The university sector is alive to this and we are working together to put programmes and measures to provide support to individuals. It was simple things. An early career researcher, a postdoctoral researcher, is going to spend a lot of time at conferences, with papers, getting out, forging their international networks, identifying the other people they are going to write papers with, with whom they are going to undertake research or collaborate with. You find that those relationships that are forged at an early stage tend to be the ones that grow out into large collaborations in later careers. The early career period is one that universities need to be very careful to protect and support, and it was not possible to get people on the road to conferences to build those networks during that period.

There have been a number of other effects. I think that we as a sector need to do more for those people and for those people at that stage. It is something that will be critically important when we look out to the research infrastructure in the UK in five or 10 years' time.

Q299 Tracey Crouch: It sounds from both of your answers that the pandemic was challenging, but it enabled you to adapt many of your practices in a way that potentially you would not have done without the challenge of the pandemic, that you do not necessarily see that as a significant barrier or a negative, and that as a result you are taking a lot of positives from the alterations that you have made and you are turning those into opportunities. Would that be a fair reflection of how you see things going forward?

Professor Hewitt-Dundas: Absolutely. We are an organisation. If we want to survive, we have to adapt and change and be creative as to how we move forward. Now we are talking about how we can incorporate immersive technology in our learning, when two years ago we would not have delivered a programme online. Colleagues are very enthused about those opportunities.

It is not to say there are not challenges and there are not pressures on the system. Staff are absolutely exhausted. There are concerns around strike action within the sector. It is a challenging environment to be in, but as leaders within an organisation we have to craft a way forward that is responsive to the needs of society. Even around research questions that are emerging, new research areas are beginning to evolve that we have identified from Covid.

For us, it is about helping to understand what this new environment is that we are now progressing into and the ability then to be responsive and robust, more even than resilient, robust, as further shocks come into the system, whether that is war in Ukraine and how we respond to that or something else that is going to come up, no doubt, in the future.

Q300 Tracey Crouch: Not quite the level of war in Ukraine, but one of those



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shock factors will always be a shortage of skills. I just wondered if you could explain to the Committee and those who are listening what types of skills are in short supply in Northern Ireland and specifically what is being done by you and others to address these skills shortages.

Professor Hewitt-Dundas: It seems to be the thing that is at the top of every business's agenda at the minute. You had a roundtable yesterday. I am sure that you heard this repeatedly, no matter what company you speak to. Even last night I was hearing about some companies with 200 vacancies. We are now getting people being brought in by major consultancy houses from other parts of England coming into Northern Ireland. Why are they doing that? If there was not profitable and good business and good margins to be made in Northern Ireland, they would not be bringing people in and diverting staff at significant cost from other parts of their business into Northern Ireland.

Staff shortages are a real problem, whether that is the manufacturing sector, financial services consultancy, right across the board, even academia. We are seeing it in academia, the growth of demand for computer science. For students to study those programmes we need the staff to be able to deliver it. We are struggling to recruit the staff. Equally, when we recruit them it is about retaining them because then they are going on to Pricewaterhouse or wherever, and quite rightly so; that is their right. There are real challenges right across the sector.

In terms of the ability of Queen's and Ulster to deliver and fill that skills gap, Tim mentioned a few minutes ago the Department for the Economy. One of the initiatives that it put in place was postgraduate certificates and diplomas when Covid hit. The universities very quickly pivoted to offer those online programmes in software development, supply chain management and a whole raft of other areas. People, many of whom were on furlough, many individuals equally in senior positions in organisations, were then taking those courses as funded by the Department for the Economy. There was an upskilling and it showed the way in which Government, working hand in glove with the universities, could very quickly respond and meet that need.

Q301 **Tracey Crouch:** It is good to hear about people being upskilled, but then how do you keep them here in Northern Ireland?

Tim Brundle: I think the opportunities and global opportunities from companies in Northern Ireland are there to a degree that we have never seen before. That has been a very positive thing. We have great ambition within both the indigenous businesses here and the foreign direct investing businesses here that have provided a level of global connectivity that Northern Ireland has not seen for quite some time.

Those are positive things, but what we know from that tech workforce is that they want to be where the action is. City deals will give part of it, but it is providing opportunities beyond that. The clustering effect is important for people. People want to excel at a role and jump on to another role, perhaps in another business. The more businesses that are



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here doing that kind of activity the more positive it is for the individual. Not necessarily for the company but more for the individual. I think that has a bit of an effect.

Professor Hewitt-Dundas: I will very briefly add that employment opportunities are really important, but when people come to live in a place, particularly if they are from outside and they come to Northern Ireland, they want to live in a nice place. They want to live in a place where there is good education for their children, where there are good shops and they can go shopping, where there are good cultural and leisure activities. We have to be careful in terms of our investments that we are also building that social and cultural fabric of the economy in addition to the economic fabric.

Q302 **Chair:** Thank you. That takes us on to the creative cluster that we are about to discuss. I have a couple of final questions. On the university funding side, you have a particular situation in Northern Ireland in that your students, students from Northern Ireland, do not pay the £9,000-odd fees that are paid in England. How much is the level at your universities?

Professor Hewitt-Dundas: There is a difference. There is the student fee and then there is the top-up from the Department for the Economy.

Q303 **Chair:** Exactly, yes, so how is it split?

Professor Hewitt-Dundas: It is around £4,000-something. It is unfortunate that this is being recorded. It is just over £4,000, I think, for the student fee element, and then there is about £2,000 to £2,500 that comes from the Department for the Economy as an addition to each student, but it will vary then, if it is laboratory based versus classroom based. There is a difference there. There is a different tiering of grants. Then you have postgraduate fees as well. There is a loan for postgraduates. It is around £5,000 to a student. Most postgraduate programmes are above £5,000 so students need to find that money themselves from somewhere.

Q304 **Chair:** That disadvantages you financially relative to universities in England, does it not, because the combination of the fee that the students pay plus what you get from the Department for the Economy is significantly less than your English counterparts? That is right, I think.

Professor Hewitt-Dundas: That is right, but probably the biggest problem is what we call the MaSN cap, the maximum number of students that we can take in from Northern Ireland, although southern students, Republic of Ireland students, count in that MaSN as well. If you have a larger number of students, which we do see this year in terms of applications from the Republic of Ireland, and they then displace Northern Ireland's students, we cannot continue, there has to be that displacement with the maximum number that we can absorb.

The only way that we can grow our revenue really is through international students or postgraduate programmes. Even within a



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Northern Ireland context, the demand for postgraduate programmes is only going to be so high and in a very buoyant labour market, particularly at present, that means they are not going to go into our postgraduate. Applications from home students is likely to drop this year. There are real challenges.

Q305 **Chair:** Is that a paradoxical situation? In answer to questions from my colleague Tracey Crouch, you were talking about the skills shortages, including in software engineering and other high-demand occupations, people having to transfer people from England to Northern Ireland. Your two universities together have very strong standing in these areas, but you have this cap on student numbers that prevents you educating people according to the demand for the courses. Have I described that fairly?

Tim Brundle: Yes, but it is worse than that. It is worse than that, as not only are you capped on the number of students, you are also capped in that fee. We have an inability to cross-invest, as I mentioned earlier, across the academic disciplines. It means you are not only restricting the supply of skills into the economy but you are restricting the ability to invest in research and innovation.

Q306 **Chair:** Absolutely. Does that link, at least in part, to the lack of an Executive and completely functioning Administration in the sense that presumably changes either the finance that comes from the Department for the Economy or the cap numbers need to be determined by the Executive?

Tim Brundle: Yes.

Q307 **Chair:** Again, am I right in thinking that cannot change until an Executive is formed?

Tim Brundle: That is correct.

Professor Hewitt-Dundas: Yes.

Q308 **Chair:** We ought to address the elephant in the room. Here we are taking evidence in Northern Ireland. We have seen for ourselves the prospects for science and technology and the demand that there is for skills. We have a critical situation in which just at the time you should be advancing you are going backwards because you do not have a functioning Executive administration.

Professor Hewitt-Dundas: Yes.

Tim Brundle: Yes.

Professor Hewitt-Dundas: That is true, but it is worth caveating that even if Queen's University and the University of Ulster could take in those students, that still would probably be insufficient to meet the demand that is now beginning to emerge within industry. We need flexibility around visas, permits and work permits, and encouraging others from other parts of the UK without disadvantaging them. We need that



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component of it as well. The home grown is important but it is not all of the story.

Q309 **Chair:** I understand that. Finally from me, in terms of the impact on your staff members at your two universities, presumably if people do not have the certainty of funding, you have talented people you employ who educate others or are involved in important research projects who are going to be accepting contracts in other universities, other research institutions or other companies. Are you finding that as a problem?

Professor Hewitt-Dundas: Oddly enough, it is not so bad. You do see it in the pressure areas, particularly around computer science and software development. Business is another area, law to a lesser extent, where you do get this retention issue. That reflects student demand in other disciplines in other parts of the UK and elsewhere that are attracting people. It does vary. Sorry, Tim, you were going to come in.

Tim Brundle: I would agree. Those people who come to work in the university and build a career in university do not have same degree of mobility as they would in another job in individual companies. They have great advocacy for higher education. They are in higher education for a bunch of reasons. We do see healthy movement between the universities. We do see examples of researchers, particularly the early career researchers, who are moving in the industry at a higher degree than they would have previously. Recently, one person remarked, "I am going off to earn twice as much money for doing half as much work" and that has been partly due to the pressures that we have been under through the acute period of Covid.

Professor Hewitt-Dundas: I was just going to add that I think it is a slightly different issue. It is less about staff retention and more about the pressures on staff. If you look at our staff-student ratio, what it means is we do not have the funding to enable us then to recruit enough academic staff at the same level. We would have maybe 20 students to one member of academic staff, whereas, for example, our Russell Group peers would maybe have 15 to one or lower than that. It is less in terms of the staff and their mobility and more in terms of the student learning experience. In turn, that puts pressure on staff with delivery and feeds through to the time they are spending with students—the opportunity cost of that is the amount of time you are putting into research.

Q310 **Chair:** Absolutely, and city deals—I declare a proprietorial interest because I was the Minister who introduced it and I was thrilled to see them rolled out, but now very frustrated that they cannot be implemented. Presumably, you have interested parties and investors who are not going to wait for ever, the money is there on the table but they have other plans for their capital. Is there an urgency in getting this restarted?

Tim Brundle: Yes, we are beginning to see projects get signed off. I do not want to steal Professor Moore's thunder as he comes before the Committee. They are beginning to be signed off but it has been slow.



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There has been a concerted effort from the universities to ensure that we keep businesses close to the action.

What we are seeing is a number of collaborative research projects coming through in advance of those projects. People were coming into the university and having those conversations around the themes that we had identified within the city deals. They have applied for projects, they have been successful with Innovate UK or UKRI for individual projects. That has all been positive. The clusters are building, but we need the infrastructure and it needs to come quicker than it is at the moment.

Chair: Okay, we hear that loud and clear. Thank you, Mr Brundle and Professor Hewitt-Dundas, for your evidence this morning. We have run over a bit, which shows the interest in what you have had to say.

Examination of witnesses

Witnesses: Matthew Malcolm, Professor Paul Moore and Jack Morrow.

Q311 **Chair:** I welcome our next panel of witnesses to join us. We are going to be talking about the creative industries. I am very pleased to mention, given the curtain raiser there, Professor Paul Moore, who is a professor of the creative industries at Ulster University and is the director of Future Screens, which is the creative industries cluster for Northern Ireland funded through the creative industries cluster programme by the Arts and Humanities Research Council. Thank you very much for joining us, Professor Moore.

We are also joined by Jack Morrow, who is the chief technology officer and co-founder of RETİNÍZE, about which we are going to hear some more in response to questions from colleagues. Matthew Malcolm is the creative industries development officer for the Arts Council here in Northern Island. Thank you very much indeed for coming today.

I will start with an introductory question. Professor Moore, tell us about the creative industries role in Northern Ireland and in particular what is going on in the work that you are leading and are responsible for.

Professor Moore: Thank you for having me here, it is a privilege. Going back to the discussion about city deals, I am absolutely delighted to say that the first city deal has now been delivered. Just yesterday Studio Ulster was signed off on. It is a matter of good pleasure and pride that it is in the creative industry sector. It is a public and private partnership between the harbour, the university, the Department for the Economy and Belfast City Council. It is unique. Not only will it be the largest virtual production studio anywhere in the world but, more importantly, it will have at its heart a research and development laboratory. This is such a new sector that we do not know what the problems are going to be. As those problems arise when the productions are being done, then they will be addressed in the research lab as it is there.

Q312 **Chair:** Why is it in Northern Ireland? Why were you best placed to do this



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work here?

Professor Moore: Northern Ireland's creative industries are very strong. I would say that it is equal with fintech and cybersecurity as a dominant force within the region. That is illustrated in the 10X document, which does list it as one of the key growth areas, one of the sixth growth areas.

When we started with the cluster programme we had some meetings to see whether or not there would be interest in it from businesses. We were staggered by the number of people who came to the very first meeting. We had 110 businesses in the room on our very first meeting and we knew that the cluster was there already, but what it needed was some kind of ability to access funding, particularly around experimental work, which is very interesting. Most companies do not have either the capacity or the psychological reach to go for an experimental piece of work that is going to put them into a risky position. That public funding allows them to do so.

We could name 92 companies and 218 projects that would not have happened had it not been for that public funding. Those projects created a sector that allowed us then to illustrate what was possible in the creative industries. That led to some programmes around virtual production project management. We could see that this was going to be a thing so we put a project team around that at the university and listed businesses. Then the city deal came along and we took the opportunity. I will be honest and say that most people thought perhaps that would not be a runner. Hence how delighted I am that it is the first one out of the gate, so to speak.

Q313 **Chair:** Sir Peter Bazalgette was one of the inspirations for the creative clusters programme nationally and he gave a very important and interesting speech in Belfast a few weeks ago, in which I think I am right in recalling he said the level of commercial match funding into this cluster exceeded expectations. There was more private investment coming in than was budgeted for. Is that right?

Professor Moore: That is absolutely correct, yes. We are measured on three types of investment: partnership investment, aligned investment and follow-on. Follow-on is where the private funding comes, if you like. We have been staggered by the numbers on that. We have had investment at this point of about £5.5 million, and by our own estimation there is at least £200 million that has come back on that—private—including Studio Ulster, we would have to say.

That has been staggering. That is also true across all the clusters. I have to try to represent my colleagues here. That would be true across all the clusters and that is the figure that is the most staggering. We have had meetings with DCMS where it was very taken with what has happened across there. That allows us to do things like skills, going back to your colleague's question about skills. There have been 53 new degree programmes across all the clusters, six of them here in Northern Ireland



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built around a screen academy that emerged absolutely from the work of Future Screens.

I am not saying we did it but we created the visibility and we created the platform and the foundation on which these things were possible. If we are talking about private funding, if I may be so bold, I would like to bring in Jack, because he is an example of a company we worked with for some public funding and has now turned that into very important private funding.

Chair: Jack, we have questions to you that will hopefully go into a bit more detail but perhaps responding to Professor Moore's invitation in general.

Jack Morrow: We have recently closed a £2 million seed round from a mix of private and public capital. The real challenges for businesses are when you are getting to the end of your cash flow, and even at the point where you can see the private money coming in there is a gap there. Particularly for our business, Future Screens was able to help fill that four or five-month gap with relevant R&D work to what our business was doing and helped us then move on to this next part of funding. Now we are thriving, scaling to at least that.

Q314 **Chair:** Excellent. We will go into a bit more detail. Just before I turn to my colleagues, starting with Rebecca Long Bailey, returning to Professor Moore, as you said, the creative industries clusters programme was a UK-wide programme and the origins of it came out of a report that Peter Bazalgette wrote for the Government, which became the creative industries sector deal. The particular programme was a Government priority. It was explicit that it was part of the industrial strategy that has been implemented. Now the system has changed, the industrial strategy has been abolished and ring fences such as that have been removed. It is now in the hands of UKRI, at its discretion, and there are some concerns as to whether this programme is going to continue. Are you part of these discussions? Are you being consulted? What are you saying? What advice do you have?

Professor Moore: Very much so. All the cluster directors were invited to a full afternoon with DCMS, which is involved in running the sector vision. We do know that a sector vision probably means there is no immediate money forthcoming, because it is a vision rather than a deal. We feel that we need to do two things: try to create some follow-on funding for ourselves within our regions and, I would have to say, coming back to the Covid piece—and we will obviously investigate this—our reaction to Covid brought us into a very close relationship with Government. That has allowed us to develop some very interesting schemes around that.

After Christmas, we were able to deliver with the Department for Communities a programme called Artwork, which has created 72 three-year jobs in art organisations. We are then going to an evaluation over the three years as to whether or not that kind of intervention works, where it does not work and what we need to think about going forward.



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We are also in negotiation with Government around keeping Future Screens extant. I have to say I am here because I am the person who fronts it, but there is a huge team that delivers all of this. Future Screens would appear to have brought a sector together, actually created a sector as such. We did that by having weekly events by doing roundtables, by going out to companies and bringing them in, working with partners. We have a very collaborative and partnership-grounded sector, I think, in this region. Hopefully my colleagues would agree.

We have done a bit with the Arts Council. Between us, we put out £3.7 million Covid support during that period. We ourselves put £1 million into immediate Covid support. Part of the reason we could do that was because of the autonomy the clusters were given to make decisions. That is very important. We could go out of scope if necessary for a little while to provide support during Covid.

I think that Future Screens is now at the point where even though we have had five years' funding we are ready to go the second time. We have established these confines, we know what the problems are in the region and we are ready to go a second time. It is invaluable, and I would say crucial because the one thing that creative industries bring as an economic source that I think is unique is that in the process of delivering the economic part of the creative industries you automatically deliver social and cultural dividend. There are very few industrial sectors that do that.

It is intrinsic in what the creative industry does that there is a social and cultural impact. Therefore, you are creating something that is unique within the economic space. It is vital that those discussions do get to the highest level in UKRI and notice is taken of what the clusters have achieved. It might be new clusters, but I think there needs to be follow-on from those who have done the work and established—we had a maxim when we started in the process. We said we would make the creative industries the new heavy industries in Northern Ireland and we were right readily laughed at.

Peter Bazalgette was here at the Beyond conference in October and he stood up and said that he was one of those who were sceptical but actually we have done it. We have established the creative industries as the new heavy industries in the sector. That might be a bit overblown but we have certainly moved us in the right direction during that period.

Chair: Thank you very much. I will turn to my colleagues, starting with Rebecca.

Q315 **Rebecca Long Bailey:** Thank you all for coming today. It is lovely to hear from you.

What role have international partnerships and international recognition played in securing the success of the Northern Ireland creative industries? I will start with Matthew.



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Matthew Malcolm: International will be slightly outside the scope of what I would usually work with because, generally speaking, in our partnership with Future Screens we are trying to nurture local talent. I can start off by describing the relationship that we have had and then maybe Paul will take that further.

With the research and development element of the funding that we have delivered, when we went out for consultation on our last strategy in 2018-19 there was a sense that there needed to be more digital innovation within the arts sector and that the skills were not there. In 2019 we started working to try to develop the seed fund that would try essentially to meet those needs and give the sector the opportunity either to develop the skills themselves or make the connections to get those skills in.

In partnership with Future Screen, in late 2019 and into early 2020, we were able to bring the academic expertise from university partners in the University of Ulster and Queen's University that are linked with the Future Screens cluster. Crucially they had the contacts in the industry—they are already working nationally and internationally—who will be able to work with the arts sector effectively. That seed fund, which was a £360,000 investment, was able to take ideas, and nurture them, from the local arts sector, and put them in collaboration with the creative industry sector and also academics at the two universities to try to see where those ideas could go. Where there is export potential of the creative industries, ultimately when we are talking about the likes of screen or we are talking about immersive technology that RETiníZE works in, the arts are the story behind what they will deliver and they are the emotional connection with the audience and the people who are going to be engaging with those.

Starting at that seed level was where we wanted to take the art sector from what they said they needed into what we could do. If we look at one of the case studies from that initial seed funding round, we have taken a new start opera company, and we had an idea to work with immersive technology—volumetric capture of an opera performer. It is an idea. They do not know how to take the idea forward. However, by working with Future Screens we are able to create that network to allow access to the sector, the expertise and the academic knowledge to take that idea into something that can actually be used.

That is great to get a proof of concept and from that point people know that is something they can do, but how do they take that further? That initial investment that we are able to make can lead into further development funding to try to take the proof of concept into something that could perhaps be taken to market. In that case, there still technical challenges with trying to take that to market but they are at the point now where inward investment is possible. They have been out to conferences in South by Southwest and making connections internationally with people who are interested in that.



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Where I feel our role is, is giving the art sector's idea a platform, and developing that so that it can be used within technology and creative industries. That is the pathway that the creative industries cluster has to be propelled to the point where they can reach out internationally. I hope that is a bit of an introduction. Paul, I do not know whether you want to come in.

Professor Moore: There are a couple of ways in which we work internationally. The model we have, if you like, is that we try to be multidisciplinary, in the sense that the science will do the experimentation for us, the technology will give us the potential of that experimentation and the art will bring us the meaning and the narrative into that space. It is in that technology space that we can do the internationalisation.

We do that in a number of different ways. Obviously, there are formal ways through, for example, Northern Ireland Screen, which has formal arrangements with a Canadian media company and we do international work there. We have a company like Cinemagic, which is a young people's film festival. Again, they work directly with a number of the major companies in America, particularly HBO. We have companies that we create international links for. One of our most successful companies is a company called Humane, which works very much on an international level around building digital humans.

We act as facilitation towards those. We did fund a number of companies every year to go out to South by Southwest to allow them to get international contracts, and I could probably name 30 companies that have international contacts and contracts through introductions within the network that we have constructed. That might be true of Jack's situation as well.

Jack Morrow: One hundred per cent. I would say one of the best examples of this is what is happening with me today through the VP Future Scheme, which is a collaboration between Future Screens NI and StoryFutures. Today, after this meeting, I am going to pitch to Epic Games and ILM about a project we are working on. We have been given exclusive access to mentors at every level within ILM and Epic Games to ask whatever questions we have and those relationships are going to last well beyond the programme.

Q316 **Rebecca Long Bailey:** That is good. One question I have is from a personal perspective. I am the MP for Salford and Eccles and we have a growing creative sector, particularly in gaming and the sorts of technologies that you are dealing with, Jack. How good have the frameworks that have been set up within the UK been—looking at the Salford end or the Greater Manchester end—at connecting you to those opportunities? Is it all primarily done from Northern Ireland and the connections, for example, that Professor Moore can set up for you?

Jack Morrow: I have certainly spoken to a bunch of companies in Manchester. I have spoken to quite a lot of the BBC teams out there, but



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I would not say it has been as strong as it could have been. Typically, at events like the Belfast Media Festival you would get a lot of the BBC R&D team coming over, but during the pandemic that was not happening.

Professor Moore: I think I would have to be honest and say that our priority was to build the sector in Northern Ireland. Obviously, we have BBC and ITV hubs for this region so we work very closely with them. That is why I am saying we need to build from here because that is our next step. We have had very close collaboration between the clusters so we work very closely with the York, Dundee—the games clusters there—and Royal Holloway. We are perhaps at a point now where we can do more of that liaison in that particular way.

Q317 **Rebecca Long Bailey:** This is the final question from me to Professor Moore. The news that you have highlighted this morning is fantastic; well done on that. Certainly, as far as the Committee is aware, the funding that Future Screens has received was the largest single investment in the creative industries in Northern Ireland. Can you talk us through some of the ways that you invested that to achieve the success that you have outlined today?

Professor Moore: Before I do that I should mention my two great colleagues, Professor Frank Land and Dr Declan Keeney, because they delivered Studio Ulster and I would like to put that on record. We were the foundation and part of the project team but they were the delivery team.

I would say our work has been in two strands: the direct strand in response to the cluster programme and the Covid strand, which obviously developed during that period. In the direct response, we have funded 218 research and development projects, which have developed into 1,200 different spots of work around the region. We have worked right across the region, except one blind spot, which is County Fermanagh. We are trying to do some research as to why that is. We do not have a large number of projects in Tyrone but we have some. The other regions were covered very well I would argue, particularly in Derry, north-west down into Armagh, but for some reason Fermanagh has been a blank space for us. We are now creating some projects, which will be targeted directly into that space.

We have created early career researcher schemes and funded those. Many of those have turned into international projects. We funded a film with a young researcher that has done all the rounds at the international short film festivals. We have created Future Screens fellowships. We have worked with schools a great deal, right through to primary schools, because you cannot have Studio Ulster and not have a pipeline of skills coming through. If I have a big worry, that is it. We have this thing now and we have about three years to get ourselves up to speed with that. That is why we are doing VP Futures. Jack's company and the companies that are involved in this will be at the vanguard of that, pushing that forward.



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We have worked very closely to create the sector. As I say, we created a thing called Future Tuesdays. It met initially once a month; when Covid came we went weekly, online. We were generally getting between 60 and 80 participants every week. To create a sector, to let people see what was happening, we brought in masterclasses from venture capitalists so that companies like Jack's could see how to get access to funding. Your colleague's question earlier about companies not seeming to be able to get access to funding, or wishing to, I think is a logistical problem, not a psychological problem. They are so small they cannot afford to take staff off the work they are doing to let them go and find out about everything. We tried to intervene in that space.

All of that was, in inverted commas, "good" and doing very well, and then we had Covid. We immediately switched and did specified Covid calls, which we called rewriting the narrative. We asked people to apply for very small sums of money just to keep them functioning, and to come up with models of how we were going to work during Covid and post-Covid. Some of those have been major breakthroughs and have become a model for us. I do not want to mention specifics but, for example, giving £5,000 to a small company meant that they were eventually able to take on two members of staff to get their product visible, and they have now become a benchmark for what is possible.

That brought us into visibility with Government. They intervened and said, "You need to explain to us how this is happening. You are giving somebody £5,000 and they end up running a company with two members of staff". As my colleague Tim Brundle said earlier, I could not speak highly enough of the support we have had from that governmental strand, as it understood exactly what the creative industries could do. That ended up in Art Work, which was a scheme that put 72 jobs into arts organisations.

Covid allowed us to get to a wider audience and to get into communities. That business I am talking about, which really blossomed, is in Armagh but the young woman who runs it created her own micro-cluster. She was using traditional boat builders from Lough Neagh to make wooden frames for work she was doing. She was using a local major carpet company to get the yarn; she is an embroiderer. She created this micro-cluster. She would say herself that she was not necessarily aware she was doing it, but that is what it is.

We have fed that into the Policy & Evidence Centre, where we can really see how this kind of work can affect policy, because rurality is the next big thing and the creative industries are one of those economic sectors that can work very well in a rural context. Then you build community and you are into the levelling up programme, levelling up from the bottom up, not the top down.

Rebecca Long Bailey: Thank you very much.

Q318 **Tracey Crouch:** Jack, I cannot tell you how thrilled I am, as somebody who spends almost every wet weekend making Star Wars Lego



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animations with my six year-old son. So many times has Lego Princess Leia been saved by Lego Luke Skywalker, it is unbelievable. I just want to know if you could give us a bit of background, just for the record, as to what RETİNİZE is and what an Animotive is, please.

Jack Morrow: Sure. RETİNİZE has acted as an immersive technology studio. It started about seven years ago. We came out of the film and TV industry, so we are very early. My brother was working at the large tech companies in San Francisco. He saw this as the next big creative medium to launch in our lifetimes and he really wanted to get involved. Through years and years of R&D, experimenting, knowledge transfer partnerships and every different public source, we eventually discovered that we could use VR for doing real-time character animation and then networking that so that actors can perform together from anywhere in the world, remotely, in the virtual world. We then spawn virtual cameras, film the whole experience, and the output is 2D animated video.

Q319 **Tracey Crouch:** That is incredible. Do you consider yourself a tech company?

Jack Morrow: Yes, now. It has been a journey because it started out much more at the creative end, but particularly venture capital wants everything to be very scalable and funding for creative projects was not there in that space. It did pivot into becoming a much more traditional technology company.

Q320 **Tracey Crouch:** When do you expect to complete the rollout of Animotive and what impact do you think this will have, both on RETİNİZE and more widely?

Jack Morrow: We are hoping to start rolling out at the end of this year, with a proper launch around February. I think it is a really democratising tool because 3D animation, particularly with characters, is a very difficult thing to get started in. As a very technical person myself, the traditional 3D modelling tools I find very off-putting because they are so hard, and when you are working on a project it can be six months from initial concepts to actually seeing anything move in colour. That is something we have heard from a lot of the businesses we are talking to. From the gaming world have come real-time game engines that have completely transformed this space because the quality gap between visual effects houses and animation studios working traditionally, and real-time game engines, is closing. The output is looking very similar.

Q321 **Tracey Crouch:** Yes, with all the shenanigans going on in Westminster at the moment it does feel like we are in some sort of real-time political Minecraft or something.

Professor Moore mentioned skills and the pipeline. How are you inspiring the next generation? How are you getting the six year-old Lego Star Wars animators and turning them into technicians, if you like, or what you are?

Jack Morrow: The reassuring thing for us is that kids are a lot better at using this software than adults because they are familiar with the digital languages, even simple things like "this is highlighted, this is clicked". We



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are trying to reach out in lots of ways but mostly through the accessibility of our tools and their ease of use. We have been doing lots of work placements with the University of Ulster and with Queen's, often helped by Northern Ireland Screen. There has been a real effort to bring people from the universities, get them into companies and get them the training they need.

Q322 Tracey Crouch: We have just completed an inquiry on diversity. As someone who is successfully building a business here and promoting a business here, how are you increasing diversity within the workplace?

Jack Morrow: Diversity in race and international background has been easy because we have had to look abroad for international talent. We currently have staff joining us from Pakistan, Turkey and Russia, and we have existing staff from Chile and Texas. It is a real mix. The diversity challenge that has been much more difficult is that we need a lot of software developers—they are the majority of our staff—and the ratio of male to female applicants has been 10 to one. Currently, I am very sad to say that we have an all-male developer team, which I would love to change.

Q323 Tracey Crouch: Do you have any views on why that might be? Is it that women are not necessarily seeing the industry as accessible? Are they not studying those degrees or qualifications?

Jack Morrow: We work with the Unity game engine. A lot of people who were inspired to work with that were inspired by computer games and the game industry as a whole has been quite male-dominated. That is changing. There are a lot more fun, accessible games and things like Minecraft and Roblox are appealing to a much broader audience, so hopefully that will change in the future, but traditionally it has been quite a male-dominated space.

Professor Moore: May I just come in on that? I am sad that my colleague is not here from the Pixel Mill, which is the games development unit within NI Screen. The games industry in Northern Ireland did have large numbers of young women in it, which was very interesting. On diversity, yes, we follow along, believe in and push for those diversity changes.

The real diversity problem in Northern Ireland, I think, is around class, which is not something you hear of very often. There is a whole subsector of people who, because of the structures we have had, are locked out of these areas. We ran a project with the World Building Institute in Los Angeles called Story Engine to try to get to those disadvantaged young people, particularly disadvantaged young males. Many of them tend to be in one community, the Protestant community.

We worked with someone like Jackie Redpath on Shankill Road and I remember him saying to me, "You really need to think about your language here. You cannot talk about ambition because my young people have no ambition. Their ambition ends at the end of this street because they have never had any support". There is a real class problem there.



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How do you bring those young people—who are very talented, I have no doubt, and who have the capacity to work in here—through to the pipeline for those jobs? I think that is a job, not being naive, that the creative industries can do and that the creative economy can do. You can say to these young people, “You do not need to go through the traditional university route. We will give you the skills that will let you leapfrog that and get you into a company that will give you a real job with a real living wage”, and go into that space.

That is really important to us because the other thing I wanted to emphasise is that the creative industries will only be successful if their practices can embed themselves in other industries. I have heard it called “spillage”, which is not a term I like, but we need to embed those practices. We are doing that—we are doing it in medicine, we are doing it in heavy industry; I could name firms we are doing that with—but we need to continue to do that to make sure that the creative industries are sustainable, both as a sector itself and as an underpinning of the rest of the economy.

Q324 Tracey Crouch: That is really powerful, thank you. I just have one final question for Matthew and it is really simple. How does the Arts Council prioritise and allocate its funding?

Matthew Malcolm: The majority of what it does is arts development and predominantly it is a grant-giving organisation. There are two strategic programmes that it has, to try to make sure that we can sustain the arts sector in Northern Ireland, including key venues and touring organisations as well as resource organisations that support other arts organisations. It has an annual funding programme that puts £13 million per annum towards the NI economy and arts organisations, and then £2 million towards lottery programme funding. It also invests in artists. Individual artists are the ones who generate the content. I see that as being very much like research and development because they are developing their own art and their own content through these grants. Although this was replaced with a much larger amount of emergency funding through Covid, annually it would give out about £750,000 to individual artists to develop their own creative practice.

The Arts Council also has instrumental funding—for example, an Arts and Older People programme with about £200,000 investment per year, which looks at trying to reduce age-related loneliness among older people. We recorded pre and post surveys of everybody who went into that programme on a seven-point Warwick mental health and wellbeing scale, and Queen’s has done analysis on that to show that there was an improvement in people’s wellbeing through that programme.

The Arts Council also has a creative skills programme that looks at trying to ensure that schools in urban renewal areas and areas of high deprivation have access to the arts and creativity. We have funding that we give to NI Screen on an annual basis through a delegation agreement for the development of screenwriting and short movies, again looking at the early development of artists and creatives.



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Then there is the development funding that I am here as part of Future Screens to talk about. It makes approximately a £200,000 investment per year in the creative industries, looking at research and development opportunities with digital technology and the arts. The prioritisation of that funding for research and development would come out of the consultation for our last strategy but also the evaluation of the first round of the seed fund, which showed that it was positive in creating collaboration and allowing risk-taking and opportunities to create work with the technology sector, such as RETiníZE.

We also surveyed our arts organisations to see what their digital ambitions were. What do they think that digital and technology can do for them in the future? One of the findings was that they think that upscaling is less important than getting the right expertise in, which supports the collaborative approach and working with the creative cluster. Also, 58% of them wanted to upskill in new, emerging and immersive technology. The audiences are changing. What is the audience of the future? Without research and development and then evaluation of how we engage with younger audiences, audiences who are using a lot of screen technology, we do not know how they are going to consume the arts. The arts sector very much wants to pursue that.

In terms of prioritising our creative industries funding, things are pointing toward working with the creative cluster, with Future Screens and the network that they bring: the sector and the creative businesses but also the academics, who are crucial to allow the arts to take their vision, go in the direction that they want and hopefully progress on to something that could be marketable or that they could use subsequently.

Tracey Crouch: Thank you.

Chair: Thank you very much indeed, Tracey. I would like to thank all three of our witnesses and, through Professor Moore, congratulate you and your whole team on the achievement that you have shared with us today and wish you well for the future. Thank you very much.

Professor Moore: Thank you for the opportunity.

Examination of witnesses

Witnesses: Keith Forster, Gordon Lyons MLA and Eoin McFadden.

Q325 **Chair:** I would now like to invite the Minister to come and join us at the front. We are sorry to have kept you waiting, but it is a reflection of the interest that there is in the area for which you are responsible. Come and join us and I will introduce you as you are sitting down.

We have Gordon Lyons, who is the Minister for the Economy in the Department for the Economy here in Northern Ireland. It is nice to be in your patch, and thank you and your colleagues here for making the Committee so welcome. The Minister is joined by two of his officials,



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Keith Forster, who is the director of the economy strategy group here, and Eoin McFadden, who is the principal of the economy strategy group. Thank you very much indeed, both, for joining us.

Perhaps I could start with a question to the Minister. Obviously, the Science and Technology Committee is very interested in the prospects for furthering innovation in science technology across the UK. Would you share with us your vision for the sector here in Northern Ireland?

Gordon Lyons: Absolutely. First of all, you are very welcome in Northern Ireland. I always think it is beneficial whenever we see representatives of the UK Government or the UK Parliament outside Westminster. I think there are one or two inside Westminster who would probably wish to be.

Chair: We are very pleased to be.

Gordon Lyons: Absolutely. I do think it is important that you get beyond the Westminster bubble and listen to what is going on in other parts of the UK, so you are very welcome. As Tourism Minister, I also hope you get the opportunity to enjoy some of our hospitality and some of the sights while you are here.

I suppose it would be worthwhile outlining a little bit of where we have come from over the last number of years. Devolution was restored here in January 2020 and within a couple of months we faced the pandemic and everything that came with that. It was an exceptionally difficult time for us. As a Department we provided immediate financial assistance, a lot of which came from the UK Government, and we are very grateful for that.

We were able to put schemes in place that saved jobs, saved livelihoods and saved businesses, but as a Department we were not content to leave it there at that immediate support. We immediately began looking to the future. We put in place an economic recovery action plan for the short to medium term, but in the long term we put together our 10X economic vision for Northern Ireland. That is labelled "an economic vision for a decade of innovation" because we recognise that that is the key and needs to be at the heart of what it is that we are trying to do here in Northern Ireland.

We are in an uncertain period of time, budgetary pressures combined with continued uncertainty over EU exit alone, and recovery from Covid has meant that we continue to be in a difficult economic environment. One of the ways in which we can make sure that we can sustain the shocks that may be coming down the line is to make sure that we are as innovative as possible, because that makes our businesses more resilient.

We put a very strong focus within our vision on making sure that innovation is at the heart of everything that we do. When it comes to our economic development agency, Invest NI, changes are in place to make sure that as an organisation it is set to help those that are most innovative.



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We do not want to take a scattergun approach. We are not just about creating as many jobs as possible. We want to make sure that we create high-value, well-paid jobs and that we encourage innovation, research and development and increased productivity in everything that we do. We are not taking a scattergun approach but focusing on those priority clusters that we have the potential to do well in or that we already have done well in, indeed have been world-class in. Fintech, agritech, life and health sciences, advanced manufacturing, those are the sectors and the areas that we are seeking to focus on, because we have done well and we can do better. That is where we want our focus to be. That is really at the heart of our vision.

Q326 Chair: Thank you very much indeed. That is very helpful to hear. Just help us with the context here in Northern Ireland. You are obviously the Minister responsible, but how constrained are you in your ability to do what you would like to do—there is no doubting your volition—given the stalemate and the constraints that come from the lack of agreement on formation of the Executive?

Gordon Lyons: The Bill passed last year by the UK Parliament allowed Ministers to stay in place beyond elections. We stay in place until 24 weeks after the elections. We carry on in post. However, there is no Executive in place. Therefore, there is no ability for us to make those decisions. That is something I would like to see changed—we would like to make sure there is an Executive in place, but that can only be done on a sustainable basis. I do not want to be in the position where an Executive is up and down, up and down. We need to make sure that we have those solid foundations to build on.

That being said, we are still in place and there are still decisions that we can take, those that do not require Executive approval. Many of the strategies that we have put in place prior to the election—our skills strategy, trade and investment strategy, and energy strategy—we are continuing now to implement because they have already received Executive agreement. We are making progress.

Q327 Chair: You can implement things that have been agreed before but you cannot initiate new—

Gordon Lyons: Initiatives, that is right.

Chair: We will pick up on a few aspects of that as we go on, but I am going to turn to my colleagues, starting with Rebecca Long Bailey.

Q328 Rebecca Long Bailey: Thank you for coming to speak to us today. It is very much appreciated.

Going specifically to research and development expenditure, we have heard the views of a few of our witnesses this morning about where R&D expenditure has made its way towards. Certainly, within Northern Ireland the proportions of public and private R&D investment are much lower than other parts of the United Kingdom, but what in your view is the geographical spread of R&D expenditure within Northern Ireland? Are



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there specific regions of Northern Ireland that it seems to make its way towards? Are there specific industries that seem to be more successful than others?

Gordon Lyons: As you would expect, R&D spend is centralised in the Belfast area. Of course, you would expect that as the economic hub of the region. For example, 30% of business R&D investment is in Belfast city alone, a further 34% in three other council areas. It is certainly the case—probably as expected and as you would see in other regions of the UK—that the capital city or major cities or towns in the area are the anchor for that spend.

Q329 **Rebecca Long Bailey:** How close is Northern Ireland to meeting the UK Government's target of 2.4% R&D investment? Even that is way below other leading industrial nations and the UK Government are nowhere near meeting that target, but how far off is the Northern Ireland Government?

Gordon Lyons: That target of 2.4% is ambitious for the UK as a whole, even more so in Northern Ireland where the current spend is 1.66%. We have some way to go.

Q330 **Rebecca Long Bailey:** How did you engage with academia, industry and other relevant bodies to develop Northern Ireland's economic strategy? Was there a more formal structure put in place? How did you collaborate and interact with UK Government institutions?

Gordon Lyons: In the development of the economic vision more generally?

Rebecca Long Bailey: Yes.

Gordon Lyons: It is a fairly easy thing to do in Northern Ireland. You may have heard this already, but we are a fairly small place. We all tend to know each other quite well. In many ways, that makes collaboration easy. In the Department, we did not want to put together what we thought was the right thing to do and then put it out there; we wanted to make sure that we consulted with, liaised with and got buy-in from all of the different sectors in Northern Ireland who have a say in this and something to contribute.

We can certainly provide that to you—here is one I prepared earlier—and in the opening pages you can see the endorsements that we received for this from business, industry and academia. They have all bought into it and I think that has been absolutely key. It is important that the Government do not go out by themselves and put something together that they think we need, but rather that we have very close collaboration.

Those linkages are already very well established in Northern Ireland and there is a very close working relationship. It is actually one of our major selling points to those that are seeking to invest in Northern Ireland, that we are small and because we are small we can also be very agile. We have this great working relationship between universities and further education colleges, industry, and Government themselves.



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I will give you the example of our Assured Skills academies programme. I am not sure if it is something that you are aware of, but it was set up in 2011. Essentially, those companies that have invested in Northern Ireland that need a particular skill set were able to work very closely with the universities to create that bespoke training that they need, so that when businesses come and say, "Look, we have a shortage of skilled people with X qualifications or experience", in whatever sector, we can quickly work with the universities to provide that training. It has been a fantastic benefit for Northern Ireland to have that. I would like to think that we are an example in that way, in how we can work closely together.

Keith Forster: Might I add a couple of points to that, if you do not mind? We have what is called an ethics panel in Northern Ireland, which is an advisory panel that comprises industrialists, academia and Government. It has acted as a key advisory body in terms of the development of our economic policy thinking going forward.

In terms of relationships with the UK Government, we do have very good relationships with the likes of Innovate UK and UKRI. From my perspective, a very important decision that was made a few years ago was to appoint a rep specifically to work with the devolved Administrations to develop opportunities for applying national initiatives to local economies. That has worked tremendously well for us, I must say, to the extent that we have forged a number of great programmes that we have applied to Northern Ireland. The appointment of that rep to understand local knowledge and interests has been fundamental to make inroads, I think, into some of the strategic thinking in UK Government institutions.

Eoin McFadden: Just to supplement that, the initial person was an Innovate UK representative, in post for about five years, who has made a fundamental difference in the relationship we have with Innovate UK. We have worked with them in the past but the ability to have somebody embedded in the ecosystem and also embedded in Innovate has made, we think, a fundamental difference in our relationship with them. Part of what we did in the Covid response was to form formal collaborations with Innovate in ways that have, for example, allowed 63 more Northern Ireland applicants to be funded through Innovate than would have happened otherwise. That is £5 million of additional funding. We have seen companies, as a result, survive Covid that would not have without it.

We currently have Digital Catapult in Northern Ireland. It is the only Catapult presence in Northern Ireland out of the whole network. Across the research councils—I would say our relationship with Innovate has been better than with the research councils—there is only one research council that has a person embedded in Northern Ireland. That is the EPSRC. None of the other councils are present around here.

Rebecca Long Bailey: That is helpful, thank you.



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Gordon Lyons: I think it is also worth highlighting the example of the new skills strategy that we have put in place. As part of that we have a Skills Council where, again, we are bringing together all of those key players. We have a good example of that working well in Northern Ireland.

In terms of engagement with the UK Government, I feel we have very good and frequent engagement with the UK Government—this is an issue you might come on to later—but funding is an area of concern, especially post-EU exit. A number of commitments were made in regards to a lot of the sources of funding that we would have had for R&D in particular, which are now causing difficulties. I think the Government need to listen a little bit more to the devolved Administrations. The devolved Administrations may know where to spend some of this funding best.

Chair: Thank you very much.

Q331 **Tracey Crouch:** I start by saying, as a former UK Government tourism Minister, I congratulate you and your team on the growth of the tourism economy here because there has been a phenomenal increase in the number of visitors. Turning to the strategy, some might say it is more of a vision document than a detailed strategy and it lacks quantitative aims. How will you measure the success of the strategy?

Gordon Lyons: It is very fair to point that out because it is our vision. It sets out where we have done well and where we want to be. That is supported by a number of more detailed strategies to get us to where we want to go.

As a Department as a whole, there is a lot that happens in this Department. We cover further and higher education and skills, energy, tourism, economic development, job creation and minerals, among other things. We have quite a wide remit. 10X is there to drive and to bind the whole Department together. We do have those more detailed plans and strategies that flow from that. For example, we have our trade and investment strategy, and energy, which focuses heavily on skills in these areas of the Department as well.

We have the programme board set up, which will measure success. There are implementation groups as well to make sure we are making progress and we are doing what we have set out to do. I do not want it to be a document that just sits on the shelf. I want us to deliver it and have that against measurable objectives.

Q332 **Tracey Crouch:** Does the political situation challenge some of that delivery?

Gordon Lyons: Of course, it is always our preference to make sure we have stable government in Northern Ireland. I think on most of the issues outlined within 10X we are making progress, we are moving forward.

One issue where there are difficulties would be in relation to our budget. The programmes and initiatives we want to fund—these will be new



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initiatives—will require additional financial support signed off. That is another reason why it is important the Government do what they promised to do in relation to sorting out the issues around the protocol.

Q333 Tracey Crouch: Turning to UK funding streams that support R&D and innovation in Northern Ireland, which of these schemes has been the most successful would you say? Would you like to see funding for R&D provided through these schemes ring-fenced in the future?

Gordon Lyons: There is always difficulty when it comes to ring-fenced funding in the set-up we have and the Barnett consequential that come from that. That being said, I said at the start that I think it is absolutely critical to our economic recovery and our economic stability in the future that we are more innovative and that we have that investment in R&D. Therefore, it is absolutely the case that we would like to see that further certainty be in place. Maybe Eoin or Keith could talk about the funding streams in particular.

Keith Forster: We have had our figures about success rates and so on, so we can begin to interrogate what those figures mean and why some are low and some are high.

The first thing to know is that we are an SME economy. We do not necessarily have BAE Systems and the Rolls-Royces to have that huge capacity to quickly access what is quite significant, the amount of funding that might be available at a UK level. Therefore, the main thing is we have to have constant funds that work to meet the characteristics of this economy. To that extent, we find the place-based approach from some of the funding initiatives that have come forward recently have been good for us. Strength in Places has worked well. In the first round, we had great success with the Belfast-based company Artemis, which is around low-carbon emissions from maritime. More recently we have had a consortium, Seagate, for nanotechnology that had very significant drawdowns of funding. We had other proposals that were in the running if there had been budget, so we are there.

We find when our businesses bid internationally in foreign competitions we generally have the highest success rate in the UK's 12 jurisdictions. We have the lowest rate for bidding into those competitions. Therefore, there is something going on there that we are trying to resolve from a policy perspective of why that is and what is going on.

As the Minister alluded to, certainly going forward on the Horizon issue, affiliation with Horizon, it is something from the research side that we are worried about. We are conscious that if affiliation does not take place there may be a short-term and a medium-term plan. What we are very mindful of is that if the short-term plan is a scaling-up of existing programmes, we need to be cognisant of the successes and the barriers we have had recently because we will be keen that those work for us.

Likewise, we have good success over here with our other big programmes for R&D, which have facilitated a lot of investment in R&D at a company



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level. Historically, that has been funded from European structural funds. On replacement funding, our view at the minute is that that, at the least, takes some of the control we have available to allocate to that and it is run more centrally. Again, those are issues that we are alive to, but they all form part of the package of the Minister to support R&D in its totality.

Eoin McFadden: To supplement on that, there are a couple of key facts to be aware of. We receive 0.7% or 0.8% of Research Council funding, of the total funding allocated in the UK. We get 1.25% of Innovate's funding.

As Keith said, it is very important we bid in, but the design of programmes is very important. Where a very large match is required or where there is a limited lead-in period the initial barrier to entry can be very large. One of the things that worked very well in Strength in Places is that it was a two-phase funding approach. There was initial funding, effectively proof of concept project definition, which allowed consortia to build and then bid for £35-million and £42-million budgets. That is doable from here, but there is a need for that initial step to help build capacity.

Two of the things we would note at a UK level that have been highly successful are Innovate's Fast Start grants that it awarded as part of the initial Covid response. We found the win rate was best in the UK for applications. Fifty thousand-pound grants requiring a match were easier to bid in for microbusinesses. We supplemented that by partnering with Innovate, so a further 40 projects were funded in Northern Ireland under that. One of the things we are keen to do is to collaborate on those.

One programme I would highlight as being a very powerful tool in an SME-dominated economy is the Small Business Research Initiative using pre-commercial procurement. We have been involved in SBRI projects here since 2010. We have had a central fund in the Northern Ireland Government since 2016, which has been highly successful in driving up the uptake of the programme. What we have also seen when we look at Fast Start is that 50% of Northern Ireland winners had come through SBRI projects before. They had learned how to bid for competitive funding and some of this is about building capacity.

One very quick point in terms of the funding split in Northern Ireland is when we look at our research and development expenditure in Northern Ireland or investment, 75% is by businesses. Our number of R&D active companies doubled from 2008 and the bulk of that was by SMEs. Therefore, we are finding many more SMEs engaging in R&D than we did historically. The balance has moved away from 10 large companies to a much broader business base investment in R&D.

Chair: We heard that story at Queen's yesterday as well. It is an encouraging development.

Gordon Lyons: To put that in context in terms of the Research Council funding figures from Eoin, that equates per capita to £90 for London, £66



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for Scotland, £29 for Wales and only £14 for Northern Ireland. That is stark, it really is.

Q334 Aaron Bell: Thank you for the warm welcome to Northern Ireland. I want to talk about productivity and skills. As you know, Mr Lyons, Northern Ireland has the lowest productivity levels in the UK. That has been a feature for nearly 100 years. What are you doing to address that in your Department?

Gordon Lyons: I think you set that against the worldwide context, where the UK is behind where it should be as well and then we are even further behind that.

This is an issue we are aware of. It is one of the key parts of our economic vision as well that we are looking to increase productivity. We are able to say we have been having some discussions among political parties on what we can do about productivity more generally in Northern Ireland. It is one of the areas where we have specific working groups in relation to the Programme for Government and getting ready for a new Executive. We see it as absolutely critical when we lag so far behind the rest of the UK, which is not exactly a world leader either.

Skills, as you said, play a huge role in this. I have said for some time this is going to be one of the most important issues facing the new Executive, making sure we have people with the right skills who are able to contribute and who are able to compete. That is exactly why we have put that front and centre of what we are trying to do within the strategy. As well as that, it is making sure businesses are able to compete. In order to increase that activity we need to do what we have set out in this vision, which is to make sure we are doing what we can on innovation in particular.

Q335 Aaron Bell: You are losing too many of your bright teenagers, aren't you? We were at Queen's yesterday and we had evidence from Queen's and Ulster University in the first session today. Seventeen thousand young people from Northern Ireland study in the rest of Great Britain every year. Two-thirds of those do not return after graduation. I am afraid to say—not afraid—I am employing one of them myself so I am contributing to your problem. There is a cap the Executive has put on student numbers in university. Why will you not lift that cap? Why will you not keep more of your bright young things here in Ulster?

Gordon Lyons: First, I certainly want to make sure we do keep as many of our young people here as possible. I was a leaver at that stage, I think we call them determined leavers, who regardless were going to study elsewhere. I studied in the north-east of England at Newcastle. I always intended to come back and here I am.

Yes, there is a number who will leave regardless. There are others who may leave and come back and certainly we want to make sure that is the case. However, ultimately, we are within a five-party Executive or we were in a five-party Executive. If we were to lose that cap we would need to significantly increase funding in order to pay for it and that will have to



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come from one of two areas. We will either have to increase tuition fees or take money from somewhere else within an already stretched budget. That is the political reality we face right now.

Q336 Aaron Bell: The 17,000 who go to Great Britain, they are paying £9,000 already, aren't they? They are making a decision to pay a higher fee. Obviously, the ones who are studying here are paying £3,800 or whatever it is.

Gordon Lyons: That point has been well made by universities and others as well. If we are keeping tuition fees at this level it does not mean we will not have some people in Northern Ireland being forced to go away and then having to pay that higher increase in fees. It is something that will require, of course, cross-party deliberation. Some people around this table will be aware of how difficult things were during the Conservative-Liberal Democrat coalition. What we have in Northern Ireland is that on steroids with all the difficulties.

Q337 Aaron Bell: You said there is a skills shortage. For what particular types of skills is that shortage most acute?

Gordon Lyons: In terms of qualifications in particular, you see it at Level 4 and 5. That is where we have most of the difficulty right now.

I also launched an independent review of careers provision. This is hugely important. You need to make sure young people know about the opportunities that exist. I have spent time with careers advisers in the Department and careers advisers in schools around this. Of course, people want to go to university and that is great, but there are alternative pathways. Out there in society today things are very different from when I was at school, never mind when Eoin and Keith were at school. Things have changed. We need to make sure young people, parents and teachers are all aware of those opportunities that exist. Sometimes it is right we see the opportunities and show people the opportunities that exist within our further education sector. As well, some of our further education colleges here are first class and provide fantastic opportunities.

Q338 Aaron Bell: Is there a sectoral issue, whether it is engineering and so on?

Gordon Lyons: You will not be surprised to hear there is huge demand in STEM. Of course, we have done so well in areas such as fintech that there growing demand for others coming here and investing here because of the skill set we have. However, we need to make sure that pipeline has that talent that continues to go through. It is all part of what we are trying to do within the skills strategy.

I am also very keen on—and within the skills strategy we made this clear—enhancing digital skills, which is a key objective we need to meet. I would like to see our young people in school get those digital skills far earlier. I fielded the idea of making ICT compulsory at GCSE because it is



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so critical. The pandemic has shown us in particular how important those skills can be.

Q339 **Chair:** On that, if the Executive were restored have you the power to do that?

Gordon Lyons: That would largely be an issue for another Department—for the Department for Education.

Chair: It would be within the competence of the Department?

Gordon Lyons: It would, yes, absolutely. I think it is worth exploring. It would need to be done well and done right. The last thing we want to do is to expose people at an early age to ICT who then get a bad experience that puts them off later at a critical stage. If not that particular route, we need to find a way of getting people interested and understanding the critical nature of digital and ICT skills.

Q340 **Aaron Bell:** Your skill strategy is mostly, as you have been outlining, focused on qualifications, school and university. What measures is the Department taking to upskill and reskill people who are already in the workforce?

Gordon Lyons: That is another key component part of our skills strategy, in particular creating a culture of lifelong learning. Again, it is where we lag behind the rest of the UK. Twenty-five per cent of adults in the UK are involved in adult learning. That figure is only 18% in Northern Ireland and that is something we want to change.

I am honestly pleased with some of the initiatives we have been able to bring forward to tackle that. The Skill Up programme is one such example, with collaboration between the Northern Ireland Office and my Department. This is the first year of it. Funding was made available and we were able to target people who needed additional skills essentially to progress. We put that in place so they can improve the contributions they can make in their workplace, which of course contributes to the productivity discussion we had earlier on as well.

The other thing we want to do is remove barriers to those getting involved in further or higher education later on in life. Again, there is a number of initiatives we would like to see in place there such as around childcare. It is breaking down those barriers and creating that culture where people feel, "This is not an unusual or strange thing for me to do" and so much of that is culture.

Q341 **Aaron Bell:** You have already alluded to the power and political difficulties here in terms of the university question I asked you. What challenges does the overall situation, whether it is implementation of the protocol or whether it is the suspension of the Executive, present for the success of R&D more generally in Northern Ireland?

Gordon Lyons: As so often happens, these things go on in the background. Government can often be more of a hindrance than a help anyway. However, everything has been put in motion. We have our plans



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and our strategies in place. Most of those things are continuing in this sector. Of course, we want to see that devolved and—

Q342 Aaron Bell: To interrupt, we heard yesterday that, yes, that is the case and that a lot of things can keep happening. However, eventually, depending on how long this impasse lasts, the flow of new schemes will dry up. Is that a real concern for you?

Gordon Lyons: First of all, one of the pressing challenges for us is getting a budget sorted out. Getting our own budget in Northern Ireland will clearly impact on some of those issues. That is why my party did not support the previous draft budget that was brought forward by the Finance Minister. It was not strategic enough. The Fiscal Council had steered that.

Since devolution came back here in 2007 we have always had a budget that recognised the importance of the economy and put the economy front and centre. This was a budget that did not achieve that objective. All the other things we want to do—a strong and healthy workforce, a healthy population—much of that affects every Department. It affects the Justice Department as well. Therefore, we need to make sure that funding is in place and that will require a devolved Government here.

Q343 Aaron Bell: Taking it back specifically to R&D, are there particular challenges in the R&D sector in terms of whether it is matched funding from the Executive and things like that that are not being unlocked?

Gordon Lyons: Probably the greatest challenge comes from the uncertainty around EU funding and replacement funding streams. That is where the greatest challenge comes from at this point in time.

Q344 Chair: Thank you very much indeed. Some final questions from me, Minister.

As you rightly said, student finance is always and everywhere a very contentious matter, as certain Westminster parties know to their cost. You have particular problems in agreeing new policy where you do not have an Executive.

Would you accept the ambition that the universities here in Northern Ireland should be no worse funded than universities in England, for example? In other words, whatever the combination of the student fee plus the top-up is, it should keep pace with what equivalent universities in England get?

Gordon Lyons: Funding is critical to our competitiveness and to the quality of our teaching offer as well so, of course, I want to see that matched. We have to look at this with the realities we face. If we want to keep that same level of funding per student, then we either have to keep our student numbers lower or find alternative means of financing that. They are difficult questions. There are some in Northern Ireland who want student fees kept the same level but want more student faces. That is not a credible position to hold.



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Q345 **Chair:** They are the policies that need to be decided, but the aim is to at least have parity with the rest of the UK?

Gordon Lyons: Different courses or different areas might be different but, yes, ultimately we do not want to find ourselves falling behind.

Q346 **Chair:** Thank you, that is very clear. The city deals have come up quite a bit and are generally greeted with great enthusiasm. What we have heard is that some aspects of them can be implemented but others have expressed frustration that some parts cannot. Can you give us a guide as to what you can or cannot do in city deals, given the lack of a functioning Executive?

Gordon Lyons: I do not think that is a barrier right now. I know there have been frustrations—frustrations I would share—with the pace of development of some of these. I do not believe that is necessarily as a result, and in many cases it is not as a result.

Chair: What is the cause if it is not because of—

Gordon Lyons: Some of it is the due diligence that needs to be carried out. Some of it is changes that have needed to be made. I know some extra work has had to be carried out in some sectors because of increasing costs and the impact that will have as well. I know some good progress has been made in recent weeks. Some projects have been signed off in the last week, others are taking longer.

Q347 **Chair:** Is that something you can drive as the functioning Minister?

Gordon Lyons: Certainly, where we can and where it is appropriate for us to do so, yes, we will push things along where we think it is in everybody's interests it gets done as soon as possible. Like I say, I am glad there has been progress made in the last number of weeks, but a lot of it is due to the due diligence work that needs to be done. I certainly share the frustration of some of the partners in industry and local government especially around this.

Q348 **Chair:** Building on that, one of the reflections we have had from multiple people who we have spoken to is a sense of frustration in terms of agility, which is the word that has often been used. This is a paradoxical situation because you say, and other witnesses before us this morning have said, everyone knows everyone in Northern Ireland, and I am sure that is only a slight exaggeration. It is a smaller place. The connections between the Administration, between universities, between councils, between businesses, should be able to function in a way that is easier than at a UK level, for example. However, the experience, often from people who operate across the UK, is that wheels grind more slowly here, turning a potential advantage into a disadvantage. That cannot be right. You should be able to do better than that. Do you have ideas that lead to an improvement in that?

Gordon Lyons: When things are moving as slowly as they are, and when people are as frustrated as they are, it is always the case things can be improved. In this instance it is probably down to the nature of these



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projects. The size and scale of these are, in many cases, unlike anything we have done before and there are many partners as well. You have mentioned the universities, businesses and others in industry, local government, and Government here at Stormont. There are so many people who are feeding into it. Yes, they do know each other well and have a history of collaboration, but sometimes these things happen to move slowly because of their complex nature. Of course, if there are individual projects that any of your witnesses have mentioned you think it will be useful for me to look into directly as Minister I am more than happy to.

Q349 Chair: It was more a reflection of the culture and practice and that if things were more “pacey” there would be advantages. This ought to be something Northern Ireland can do better than others. In other parts of the UK, the West Midlands for example, a lot is being done to have a very active response to economic development. In your role as a Minister, and perhaps with your colleagues, you clearly recognise the concern. Do you think you can do something about it? Do you think you can effect a change?

Gordon Lyons: I hope so. Again, I am happy to look at some of the specific issues that have been raised. I look at our performance more generally. We do work very closely with our partner agencies, with local government and with business. If you look at some of the successes we have had and how the economy in Northern Ireland has progressed over the last 10 years—we have mentioned the success of tourism already—we have many successes to our name and that is because of collaboration that has worked well. It is probably due to the sheer size of the city deal projects, UK Government involvement and all the different moving parts. Certainly, our overall record is one I am very proud of.

Q350 Chair: We have certainly heard some of those successes from people as well.

As a final point—and this may be a symptom of success—labour shortages and skill shortages were a common observation from people we have spoken to yesterday and today. That has implications for how one approaches foreign investment.

If there are not many people with skills who are looking for work, then is there a change needed in the character of Invest NI and its associated agencies in terms of pulling new investors in? Does it need to be accompanied by a strategy to upskill the workforce in areas that perhaps can increase their level of skill, rather than saying, “Come to Northern Ireland, we have lots of people with lots of skills who are available to work”? Happily, in some ways, the level of unemployment is now so low that there are not lots of people just waiting for a new opportunity.

Gordon Lyons: That is one of the reasons why I initiated an independent review of Invest NI earlier on this year. Yes, we have been successful in the past. We have had great success in the past but that does not mean we do not need to continuously look at the environment around us to see how we can best respond to that. Again, Invest NI is looking at the 10X



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vision that we have, seeing how it can align itself with that. It is looking at the skills strategy and our other supporting strategies to see how they tie into that.

As I said earlier on, we are certainly focusing on those areas of strength, those clusters and technologies we have done well in. We are wanting to align ourselves very clearly with that and then make sure we have that continual pipeline of talent coming along. That is where the focus of Invest NI is going to be.

Chair: Excellent. We are very grateful for your evidence to us today. It will help us, and has helped us, understand some of the challenges you are facing. I think all of us in Westminster recognise the challenges and demands of trying to make a difference and do good policy in the context of some political turbulence, so you are not alone in that.

Thank you very much indeed to you and your officials for joining us today and for making us welcome here in Stormont. That concludes this meeting of the Committee.