HOUSE OF LORDS

Revised transcript of evidence taken before

The Select Committee on Science and Technology

Inquiry on

THE RELATIONSHIP BETWEEN EU MEMBERSHIP AND THE EFFECTIVENESS OF SCIENCE, RESEARCH AND INNOVATION IN THE UK

Evidence Session No. 8 *Heard in Public* *Questions 77 - 89*

TUESDAY 26 JANUARY 2016

11.40 am

Witnesses: Professor John Latham and Ms Felicity Burch

USE OF THE TRANSCRIPT

This is a corrected transcript of evidence taken in public and webcast on www.parliamentlive.tv.

Members present

Earl of Selborne (Chairman)
Lord Cameron of Dillington
Lord Fox
Lord Hennessy of Nympsfield
Lord Hunt of Chesterton
Baroness Manningham-Buller
Lord Maxton
Baroness Morgan of Huyton
Baroness Neville-Jones
Lord Peston
Viscount Ridley

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Examination of Witnesses

Professor John Latham, Board Member, Innovate UK and Vice Chancellor, Coventry University, **Ms Felicity Burch,** Senior Economist, EEF – The Manufacturers' Organisation

Q77 The Chairman: Welcome to our witnesses, Professor John Latham and Felicity Burch. We are being broadcast, as you will have gathered from the earlier session, so I am going to ask if you would like to introduce yourselves formally for the record. If you would like to make any introductory statement, please do so. Professor Latham first perhaps.

Professor John Latham: My name is John Latham. I am on the board of Innovate UK. I am also Vice-Chancellor of Coventry University. I think it is fair to say I have spent probably most of my career operating within the space of supporting science, technology and innovation, mainly from a UK base, operating in several European countries. I have operated and lived in Spain, Portugal, Germany and France, and I have expertise and knowledge of their systems, but I have also had spinout activity in places like Singapore, I have worked in the US, and I was a research fellow for BT for a period of time, so I have quite a wide breadth of experience within the area of the discussion today.

Ms Felicity Burch: Good morning. I am Felicity Burch. I am a senior economist at EEF, the manufacturers' organisation. EEF represents a very broad spectrum of manufacturers, from some of the industries you have already heard from this morning such as pharmaceuticals, food and drink, all the way through to things like aerospace, metals, et cetera. Manufacturing accounts for the broad brush of business expenditure on R&D in the UK; it is about two-thirds of total business expenditure, so this inquiry is very relevant to our sector, particularly because, as we have heard from people already this morning, and I know other people who have spoken to this Committee, collaboration is increasingly important for manufacturing and innovation as it is for science, and really Europe and the European Union facilitates collaboration for manufacturers in a number of ways: through funding, through co-ordination of collaborative partnerships and through the free movement of people and access to a single market.

Q78 The Chairman: Thank you very much. That is most helpful. I am going to start with a very general question, which might get our discussion going: does the United Kingdom's membership of the European Union have a significant effect on science and research in the private sector? If so, could you spell out what the main influences are? Could you also refer to the effects and whether there is any difference between large and small companies? Do SMEs do better than the larger companies, for example? Would Professor Latham like to start?

Professor John Latham: Yes, I would be very pleased to do that. There are a number of things that Europe brings. I think it is important to put Europe in context. There is a national agenda, there is a European agenda, and there is a global agenda, and most companies, particularly large companies, are operating within a global agenda. There are certainly some benefits for organisations based in the UK in terms of the opportunities that those different platforms offer, whether it be UK national funding, European-related programmes or global programmes.

I think one of the advantages that we do have being part of the EU at the moment, certainly around the Horizon 2020 offering, is that it does give companies, organisations and universities access to knowledge, markets, customers, suppliers and expertise relatively easily within the constructs that the EU operates. There are some elements of collaboration that potentially are easier because of the way in which the science base is set out and the way in which people operate and collaborate. Slightly differently to some of the comments that were made earlier, I think there are some real benefits around collaboration that currently takes place, certainly around some of the approaches to regulation and to IP—intellectual property—and the way in which perhaps companies can work together, particularly, for me, where you have some large companies wishing to work with some small SMEs. There is certainly some benefit to the way in which some of the constructs have been put together at the European level to help that collaboration take place where, if that was not in place, it might be quite difficult to do.

The other thing that is quite interesting is that there is certainly a difference between the way in which large companies tend to engage within EU funding, but that is also true perhaps for some of the national funding and global funding that exists, and the ways in which SMEs engage. That also depends partly on the sector they are in and on the speed at which that sector evolves its life cycle and therefore whether the bureaucracy which is operating at national, European or international level allows a company in a certain sector to engage with a programme of science and funding. For example, I recently had a meeting around a collaboration to put a funding proposal to the EU where we had individuals from the mobile telecoms industry, the automotive industry and the energy industry, and although they were all talking around and using the same language, the mobile phone industry was talking about a life cycle of six months and therefore applying for any funding was almost irrelevant, depending on where it was; the automobile company was talking about a 10-year life cycle; and the energy company was talking about a 25-year life cycle. Some of them could see that it was much easier to go through the structures of the EU and maybe some of the other global structures than it was for somebody from a different sector. So I think it is quite a complex three-dimensional matrix around whether it is good or bad for a company, large or small, depending on the structure that exists.

The Chairman: Ms Burch, would you like to comment?

Ms Felicity Burch: Yes, I would. First, I very much agree with Professor Latham on the comments about Horizon 2020 facilitating collaboration and providing companies with access to funding for innovation. For EEF members that is particularly important. About 16% of our members in total have used EU funding at some point for their innovation. To put that into context, that is actually the third most used innovation scheme behind the R&D tax credit and KTPs. Our data does not show particularly that large companies are struggling more than small companies to access support, though I know the broader data looking at the whole economy does. In fact, about 20% of our larger members have used EU support compared with about 12% of our smaller members and, looking at the smaller company side, there have been a lot of improvements to Horizon 2020 to help them to access that.

The benefits of the EU are not just about access to collaborative funding mechanisms, or indeed more simple funding mechanisms. The free movement of people is particularly important in enabling collaboration. We have heard already from the previous committee session that companies like to be able to talk to people when they are innovating, and it is not just over the phone or on Skype. Although our members are certainly increasingly making use of those mechanisms, they want to visit their customers overseas, and indeed they want their customers to come over and visit them.

We have heard stories from members about complications with relationships outside of Europe. For example, one of our members highlighted the fact that he wanted a one-hour business meeting in Beijing in order to sell the innovative product that he wanted to explain, and then he needed a visa in order to do that. It is not a surprise that he needed that to go to Beijing but you do not need that in order to go to Europe. In terms of just getting an individual to come over and work for a few weeks, it is very simple if they are EEA, much less so if they are from outside of that area. So that facilitation of relationships through the free movement of people is very important.

Finally, the single market more generally making selling your goods simpler is important for manufacturers. The key reason that businesses are innovating is because they want to satisfy their customers, existing ones and new ones, and European customers are easier to access. Very often the first export relationship that a manufacturer will have is with a European company, because it is easier to sell to them, and that will help them as a launch pad to the rest of the world. So the EU has a broad range of benefits for innovative companies and for supporting innovation, including but not limited to funding schemes.

The Chairman: Professor Latham, you drew a comparison between the motor industry and the mobile telephone sector, where clearly their time spans are very different. Would you like to tell us which business sectors you think find most significant advantages from the European Union funding arrangements?

Professor John Latham: I think the answer to the million-dollar question is that we do not always have a million dollars to spend on everything. I think part of the process that we have within the Commission and the way in which it has structured its approach to developing its view of the grand challenges that Europe could make a mark in could create what is sometimes called its niche dominance, and the UK is part of the European playing field at the moment. Certainly a lot of our research council funding—we put funding together outside of the research council but developing certain sectors is quite key—is where you have fundamentally base science that takes a long time to develop, maybe a long time in the lab or a long time either going through a testing process of getting to market. Certainly we see a

lot of benefit coming out for those sectors where longevity is going to be a key part of the development and the basic science still needs to be developed.

If you look at the mobile phone industry as an example, in terms of new product to market, it is very quick; the cycle is probably about six months. Some of the underlying physics that is required to develop the new products of the future takes years. I think what you have to understand is that part of the development cycle, part of the overall product development cycle and some of the science cycle, where maybe you are taking an invention from one sector and moving it into another, can happen quite quickly. So it is very difficult to say for a particular sector that all of its science would be good in terms of going through a Horizon 2020 or a European scheme or a global scheme, and some of it will be very much near market driven.

A lot of the activity we have heard about, a lot of the EU funding as well as a lot of the UK funding, is about pre-competitive research; it is about collaboration that moves forward the whole science agenda, enabling a number of products to be developed and eventually taken to market. Some of those developments actually might be focused on a particular sector when the initial idea is put forward, but actually the exploitation takes place in another sector or in another market.

I think what we have within the EU is a series of programmes that complements the programmes that we have decided are the priority areas for the UK, and also complements some of the other priority areas that take place in the rest of the world. The EU and its funding programmes, for me, is part of a patchwork of overall global issues that needs to be addressed. Within my own university, if I use that as an example, we have 13 centres of excellence. Probably six of them use EU funding as their driver. Three or four of them use global funding because they are about things like water security and food security and developing post-conflict. One or two of them focus primarily on UK-type funding streams, and I think that is true whichever market you are in. The question is whether you are in Europe or you are not in Europe. What you have there is a structure that facilitates the delivery of certain levels of science in certain sectors at this point in time. There is not the money to do everything for everyone; it is about making sure that we use that as appropriately as we can and, if I am being honest, from a UK plc point of view, to make sure that our support infrastructure, whether it be Innovate UK or research councils, in some ways hides the wiring behind, but enables organisations to engage in research in the most effective way they can through the most effective forms of funding available to them.

Q79 Lord Hennessy of Nympsfield: I have a question for Ms Burch. I was very struck in your evidence with that statistic you quoted at the beginning, that manufacturing accounts for 69% of business expenditure on R&D, and I think manufacturing now as a proportion of our national output is about 15-16%, something like that?[1]

Ms Felicity Burch: Yes.

Lord Hennessy of Nympsfield: Going back to the great debate just over 40 years ago, before we went into the EEC, one of the great arguments for joining the dynamic six, as they then were, was the cold douche theory—we were already worried about our manufacturing prowess being seriously on the wane and, if I remember, the level of R&D was falling behind

[1] The correct figure is 10%.

where we wanted it to be already then. The cold douche theory was meant to shock us into a new, invigorated competitive activity, including R&D. You are a professional economist. Do you think it turned out that way? The proportion of manufacturers within our economy is much shrivelled. I know there are many, many factors at play here, but the cold douche theory, some would argue, almost gave us a fatal chill when it came to manufacturing.

Ms Felicity Burch: It sounds like we need another boost like that, in fact. I do not think manufacturing is to blame for that. You are right; the sector has shrunk as a proportion of the economy, but when it comes to research and development, it is still very much punching above its weight, and the same comes to exports.

I think there is a more general systemic problem for the UK: we do underinvest in R&D compared with competitor nations. Our manufacturing sector is much more comparable in R&D intensity with competitor nations, so I do not think the problem is there per se. That said, there are some real challenges for innovators, not necessarily unique to us, for other European countries as well. I doubt if I have to tell the Committee this but innovation is not easy and it does require access to resources, be they collaborative resources, expertise, skills, et cetera. These are challenges for anyone who is innovating, and access to innovation support makes a big difference, be it support from the UK or support from Europe, and what we need is more of that in both forums if we are going to boost the level of innovation that the whole economy does.

Q80 Lord Peston: My question is also to Felicity Burch. When I was an economist, I used to teach the students that it does not matter what you produce as long as it is where you have a comparative advantage and so on. My main question is: if you were to consult—or perhaps you know already—the members of the EEF, and your criterion was science research and development, would we be better off out of the EU? If that were your only criterion, would the majority say yes, no or don't know?

Ms Felicity Burch: Certainly our research with members more generally has been broadly supportive of staying in the EU anyway. I think when it comes to science and innovation, actually, the response would probably be more emphatic. The availability of support for funding, as I have already mentioned, from the EU is very valuable to our members, as is the access to the single market and the skills base from the European Union.

Lord Peston: So the answer was yes, it is beneficial.

Ms Felicity Burch: Yes.

Viscount Ridley: I just wanted clarification of vocabulary, if possible. We keep talking about Europe, but talking about the lack of need for visas and collaboration and so on, Ms Burch mentioned the EEA. Is there really any difference between Switzerland and Norway and the rest of the EU in this respect—the ability to collaborate?

Ms Felicity Burch: I am afraid I do not have masses of detail on this one but I do know that Switzerland has had difficulties engaging with Horizon 2020.

Viscount Ridley: I meant from a British perspective, if you want to collaborate or visit Switzerland and Norway, does it really feel any different from collaborating with or visiting the rest of the EU?

Ms Felicity Burch: I am afraid it is not something I have had any feedback on from members either way.

The Chairman: Would Professor Latham like to have a go at that one?

Professor John Latham: Yes. Looking at a personal view from there, we operate in many parts of the world. There are certainly some advantages in collaborating within the EU within the Horizon 2020 programmes, going back to pre-agreed, pre-arranged—

Viscount Ridley: Is Horizon 2020 open to non-EU members as well?

Professor John Latham: It is. I will come to that in a moment. You are pre-empting part of my answer. One of the advantages, if you like, of looking at Horizon 2020—I will start from its entirety in terms of where you are—is that it gives you a framework within which to operate. For people who come to the ball, whether they be within Europe, in the EEA or in one of the countries that are allowed to play within the environment, it gives you a structure that enables you to take things forward much more quickly than if you were not part of that construct.

I will give you a very live example that I have at the moment. I have two programmes going on at the moment, one between an SME which I am a director of as a spinoff from the university, working with a very large British telecoms company that covers the whole of the UK—you might work out who it is. We have currently been in negotiations for about nine months and, as a small SME, we have next to no power and no control over where we are going; we are in a very difficult position. We are doing the same thing in a slightly different area within an EU context, and actually it has taken us three months. Most of the parties know what the constructs of having funding from the EU is about, and we have made very, very fast progress. The SME has almost had the same amount of influence within the collaborative research as the large players in the field.

So I think there are some definite benefits around having a good, well-orchestrated and well-put-together support infrastructure for science and enabling science to happen. That can happen at a national level, and does happen very well within the UK in terms of our agreement, and I think we heard some of that from the previous speaker; it happens at a European level extremely well, and it happens in certain parts of the world, but not every part of the world.

Viscount Ridley: When you say European, do you mean EEA or EU?

Professor John Latham: I think the answer to all of that is, if you wish to do collaborative research, and if the individuals are part of the programme within which you can apply—and I think it is very important to remember that what we are talking about here is that the EU-funded science is an envelope within which people can either play or they can not play —as a scientist, as somebody who is about engaging in science, I fundamentally believe science is without borders. What you are then working on is the structures within that allow you to collaborate with certain organisations.

If you wish to look at people, we have previously as an organisation, as a university, collaborated with individuals, for example, from Switzerland or Norway or wherever it is, and quite successfully been involved in European programmes with them. We also still have programmes with organisations from those countries, and they operate in a slightly different way depending on the funding stream that we have decided to go for. One of the things for me is that the European Union and its funding streams to support research is one of the platforms that is available to an organisation to engage. There are definitely some benefits to be gained in certain areas at certain times from the constructs that the EU has put

together. We have already heard that there are some programmes that operate within the UK that are also very, very popular. We have a lot of KTPs, we get a lot of funding from the research councils and Innovate UK, and in many ways what we are fortunate to have at the moment is a platform of opportunity for UK organisations to engage in the delivery of science. When I talk to people who are well outside—so I go well beyond EEA, into the States or Singapore, where we do a lot of work—they are quite envious of the range of opportunity that exists for organisations within the UK.

Viscount Ridley: Yes, but those opportunities exist for EEA countries that are not in the EU, do they not? I am sorry to press this point.

Professor John Latham: They do, but part of the issue that you have around the construct of where we are is that you have Europe, you have membership of the EEA, and you have global partners who are also part of the European science agenda. It is important to go beyond who can and who cannot be in there to the constructs of what the programme is about, and the fundamental science it is trying to support. It is all about bringing collaborative research together, it is bringing the main parties together, because fundamentally what you do not want to be forced into is a situation where you have to work with certain parties because they happen to be in a geographical location. If you want to actually take advantage of science into the best agenda, you want to be able to have the easiest access to the best partners that you can possibly have.

Viscount Ridley: Wherever they are.

Professor John Latham: Wherever they are.

The Chairman: Can we move on to Lord Hunt?

Lord Hunt of Chesterton: May I say that I once was evening-lecturing at what was then called Lanchester College of Technology and is now the University of Coventry. I was going to say, partly to answer the question of Lord Ridley, the French have this expression “suivre le dossier”. The point is it is much easier to “suivre le dossier” if you are in the EU, and our Norwegian and Swiss friends are not very good at “suivre le dossier” at all.

The important question to ask both of you is: do you think that British industry or industrial applications understand as much as they should do about the advantages and the notions? I just give you an example: in the last two days in the BBC there has been a lot of discussion about Iran buying Airbuses, which of course in the French newspapers is a French aeroplane. There has been no mention at all that this is hugely British, and most of our science is in the UK, so is the story about us in Europe being well explained? That is a question that may well affect the conversations about membership.

Ms Felicity Burch: I think for business, certainly from a science and innovation perspective, the story about Europe is reasonably well understood. Actually, it is quite a testament to the framework programmes that European support is one of the areas of innovation support that manufacturers are most aware of, and awareness increases year on year in our surveys of the support that is available there. I am talking about quite an innovative bunch of manufacturers who respond to our survey, so obviously there is a little bit of selection bias there, but for the kind of companies that this support is there for, yes, I think they are aware of it and they do see the benefits of it as well.

Q81 Baroness Morgan of Huyton: You have covered some of what I was going to ask about the EU framework and now Horizon 2020. Our evidence broadly suggests that the amount of funds awarded to UK businesses has been relatively low in comparison to some of the other big countries. Why has that been the case? Do you see signs of improvement and, if so, why? Is Horizon 2020 better than the framework and, if so, why? Are there remaining problems about the programme and what are they? Could I ask also, following on from the previous conversation, who determines what Horizon 2020 is funding? Is it everybody? Bluntly, are Norway and Switzerland part of the decision-making process about what programmes are funded or is that just EU?

Professor John Latham: I will kick off. You have to be within the EU to have a really strong place at the table to make some of the big decisions in terms of where you are. It is very important to understand, I suppose, what is driving the agenda and the overall definition. The UK plays quite a large influencing position because of its science base already in terms of what formulates, so in some ways we play above our weight in formulating some of the programmes. I have been a formulator myself in a couple of programmes and I would say the influence that the UK has had historically has been quite important in that area.

If you look then at our taking part in the process and I look at my experience of working in a number of countries, I think the UK is still on a journey around the way in which the national support infrastructure brings organisations together to enable them to apply for funding. If you look at the improvements through the organisation I represent today, Innovate UK, we have now for the very first time—and it started in 1992—a nationally co-ordinated EEN network supporting companies in the UK to help them. Every other member state that I know of has had that since the mid-90s. We had a distributed model for a long time.

What you are starting to see, with the development of the catapults, which is a gap that probably existed within the UK infrastructure, with the bringing together of a national provision of EEN giving us oversight and more co-ordinated control, and you look at the work of the KTNs, we actually have a way to go. Some of it has been a little bit about us shooting ourselves in the foot by not being as good as we could have been at enabling people to fully understand the opportunities that exist within Europe and how you access them.

I can relate to a very interesting conversation that I had around an SME that we were working with from the UK to set up in Singapore, where we had an operation. We went to Singapore talking about the opportunity for that UK company to go into Singapore, and after about an hour's conversation there were two things that came forward which they fundamentally started to understand. First, they were shown a map of the world in Singapore, which has the UK in the top left-hand corner as a little dot, not in the middle, next to Europe—which you could make out, by the way, whatever it is—so they realised that other people's view of the world is slightly different. What they did understand within the conversations is that the Singaporean partners could understand what working with Europe was about, and they could understand what being part of that was about. They had had experience of working with other companies from Europe which had that sort of benefit, if you like, so that aided the conversation. That was an eye-opener to the UK SME, that actually there are some other real benefits here. They did get a science contract and are now operating in Singapore.

So there is an issue, which we are addressing: once you have engaged in the game, if you want to call it a game, and once you actually have some experience of being involved in

Europe, the take-up and the success of UK companies that has certainly come through from Europe is pretty high and people engage very well. The question is getting them to the trough.

The Chairman: Ms Burch, do you want to come in on that at all?

Ms Felicity Burch: Yes. I do not have much to add. I would like to support in general what Professor Latham said. You are right; our performance with the framework programmes has been better from a science perspective but that is not actually bad news for industry either. A strong science base in the UK, in Europe, is attractive for investors, and the evidence we have from Horizon 2020 is that industry is starting to perform a bit better. Across Europe the proportion of funding to industry has gone up from 24% to 28%. I do not know specifically about the UK but we are receiving 15% of the SME-dedicated instrument funds, which is about in line with the rest of our framework programme funding, and there really have been some improvements to what Innovate UK is doing that our members are noticing.

What is quite interesting as well is that I went to talk to our members about this. I asked them, "Has it got easier to apply for European support? What are your experiences?" and it was very much, "Yes, it has got easier." They were not sure if it was that the process had got better—some thought perhaps it had—or that the more they are engaged with it, the more they are aware of it, the more they understand the processes, and also who they can go to to talk to if they do not understand what the next steps are.

Q82 Viscount Ridley: I think my question follows on very well from Lady Morgan's and from the answer that Professor Latham has just given. It is about whether businesses in the UK, particularly SMEs, are adequately supported by the Government, effectively, in applying for EU funds, and in particular whether or not the abolition of RDAs has had an impact here. We have had written evidence from the Royal Academy of Engineering suggesting that it has. The burden of supporting companies that apply to Europe for funding therefore now falls on Innovate UK, effectively, which perhaps is a bit more like what Professor Latham was suggesting in terms of centralising, but there is a worry here that it could become too London-centric. We have heard that criticism made. As a northerner, I am always cross about that one. What are your thoughts?

Professor John Latham: I think there are two or three approaches here. The companies themselves are driven by many aspects. I am always fascinated about where most of the old English regions came from and, of course, a lot of them came out of Bomber Command regions during World War II, which is not necessarily a good reason for setting them up in the first place. Fundamentally, we have regional boundaries that—

Viscount Ridley: What about the Kingdom of Northumberland?

Professor John Latham: Part of what we have to recognise is that most companies do not recognise the borders that we put in place within the nation and whether they move, whether they come or whether they go. What they are really focused on is how much support, particularly if they are a small company, they can get locally for what they have, as well as access to expertise and the sector support they get for whichever sector they happen to be in or not be in. That is quite interesting in itself and I might come back to that point.

I think the RDAs varied across the UK. We operated in four regions; my own organisation supported companies applying for EU funding in the Midlands but also for a period of time in

the south-west, and it was very variable. Some RDAs actually supported what was then the EEN network very well and allowed people to apply for funding; some RDAs did not.

The issue for me is around the relativity of being in a certain postcode, about being in a different postcode. What you can do is set a level of expectation of support that you would get wherever you are within the country, and that should be met as a minimum. There is a lot of work currently going on particularly in Innovate, which has put together its catapult network, which is around the sector specialism and the EEN network, which is completely regional within the UK, to support activities to try to raise the bar—to go up that level of support to be a minimum level of support, depending on which organisation you are and where you want to go. If I compare that to the experience I have in other countries, where they have been much better at it for many years, it is a question of having that local person, whether it be supporting a large company or not a large company, and access to that local person. In most places it might be through, for example, a science park or a university or a regional RTO or whatever it happens to be. It is to enable a client relationship to be developed with companies that allows them the support to enable them to engage within a new programme.

One of the things that I found very pleasing was that there was a small company—I was working for them, developing a product—and there was no interest in the UK for this product at all. It was not a UK product so the UK Government did not see it as a priority. It was a sector that nobody else was in, but Europe was interested because it was an interesting area of development, particularly for some of the Scandinavian countries, as it was about enabling people to survive in extremely cold climates. What we had was the ability from the UK to access support mechanisms across Europe, which gave them an advantage, and was not particularly strong for us.

Viscount Ridley: As a board member of Innovate UK, can you just reassure me that the issue of London-centrism is on the agenda?

Professor John Latham: It is very high on the agenda. Being able to support people where they are, wherever they are within the UK, and certainly that sort of view of regional support mechanisms and potentially regional hubs and the real advantage of having EEN taken on board, is a big, big opportunity.

The Chairman: Whether we like it or not, the RDAs are no longer with us and we have LEPs in place and, again, some of the written evidence suggests that their performance is uneven and that they are sometimes too small to be effective. Would you like to comment?

Professor John Latham: I will declare that I am a board member of Coventry and Warwickshire LEP, which is outstanding in its support, but, fundamentally, I think you have two issues around the LEP agenda. You have areas that have LEPs and areas that do not, so we have a disparity in terms of what that means. Then you have support programmes coming out of the LEPs, which are still relatively in their early stages. I think some are performing quite well and, all joking aside, I think my own LEP has some good experience. Early on they funded some business support mechanisms through its growth hub to enable companies to apply to Europe, and I know that is not true everywhere in terms of what they are able to provide. In some ways I think what you have is enhanced support in some areas and lack of support in others. There is a requirement for us to get that even-handed approach, which, again, goes back to my view on Innovate UK working with growth hubs, working with EEN network across the whole of the UK, to raise it so that you have at least a

minimum level of support to all organisations wherever they happen to be in the UK. That is a priority for us.

Q83 Lord Maxton: Can I just say we are talking here about RDAs being abolished but in Scotland, of course, we still have Scottish Enterprise, which you presumably know, and you talk about Innovate UK. What is the relationship between Scottish Enterprise, which of course puts money into investment, and your own organisation?

Professor John Latham: Number one, they work together. There is a lot of collaboration. If you look at EEN and the EEN network, it is housed within Scottish Enterprise, based out of Glasgow but, again, with a regional structure across most of Scotland. You have similar areas in the other devolved Administrations—I am Welsh by birth so I recognise what is going on there. You have a requirement, which is in the process of being met, of enabling across the whole of the UK, in terms of thinking about UK membership of the EU, a level of understanding where the support to businesses—and I will separate the support to businesses in terms of their understanding and ability to know about what is available to them—is becoming more even. There is of course—and this is something to debate—the disparity between the levels of funding in terms of match and programmes of support, which differs across each of the different devolved Administrations, because they have slightly different priorities perhaps in terms of how they might go about it.

Of course, one of the issues is that you cannot unpick the science agenda from the whole company support agenda. How much venture capital support have we got, for example? Where do people get the funding from to enable them to undertake innovative processes? It differs wherever you happen to be in the country or in whichever part of the Administrations you happen to be. It is quite a complex model that you are trying to unpick, and certainly the science agenda, whether it be UK national programmes or European programmes, is just part of that model.

Lord Peston: On this question of support, one thing that has troubled me for a very long time is, if you look, on the one hand, at the Government and the principal Opposition, virtually none of them has any science or engineering qualifications. If you look at our top civil servants, I think none of them is qualified in science or engineering, let alone my favourite subject, which is pure mathematics. Is this not a major problem in terms of pressing the support agenda, that the people who ought to be giving the support are themselves not really the right people? I am sorry; that is a general question.

Professor John Latham: I think that accident of educational background should not be held against an individual in terms of their ability to understand the problem that might be solved.

Lord Peston: Oh yes it should.

Professor John Latham: To understand the real issue around what support mechanisms are needed to enable something to happen, you need to go back to first principles—what do you need to put in place to enable you to support an organisation to move forward, of which science innovation is part of that overall agenda? Part of what we have within the UK is a reasonably holistic approach. There are some other countries around the world, and there are certainly some countries within Europe, which are extremely envious of our understanding of the complexity of supporting a business to develop, and also therefore to support its science and innovation agenda, So it is about the ability to draw upon expertise

where it is required, but also to understand the bare necessity, for example, IP regulations, legal regulations—quite often companies are stopped from doing what they are doing because the lawyers say so, not because anybody else tells them it is a bad idea to do it. There is a real need to understand this, and I think this is true within the infrastructure we have. We have some very highly qualified individuals within Innovate UK actually heading up the lead technologists with background within the specific sectors that the organisation wishes to support. What you also have, which is the matrix approach, is specialists in business support and looking at how the infrastructure support comes in.

There is within the UK hierarchy, I believe, compared to other parts of the world, a pretty good base of advice and support, which enables things to happen. What we have to do, though, is put that into a framework of how much money is available to support the infrastructure and make it happen, and how we focus and make sure we prioritise in the right areas against everything that we are trying to do.

Q84 Lord Cameron of Dillington: I am afraid I am back to the regulatory regime that we made such a big thing of in the last session. We heard then, and also from written evidence we have received, that the commercial R&D—and I stress commercial R&D—in Europe has declined as a consequence of the EU regulatory environment. I just throw this to you and ask for comments, discussion.

Ms Felicity Burch: Our members do have views on this, certainly. Overall I think it is very unlikely that regulation has reduced the level of commercial innovation that companies are doing, but it is highly possible that it has influenced the type of innovation that they are doing. Let me give you an example: about 37% of our members who are innovating said that the driver of innovation was in response to environmental standards and regulations. A big one that stands out here would be the REACH European chemicals obligations, which our members consider to be extremely onerous and difficult to comply with. We have had a lot of anecdotal evidence from members saying that, because they are innovating to respond to REACH, they are not able to do as much innovation in other areas as they might like to do, and indeed, we see that more generally with regulation as well. As I have said, innovation is extremely resource-intensive and for businesses there is only so much you can do, particularly at the smaller end. So I think regulations can impact the type of innovation companies do.

There is a bit of a silver lining here as well. We look around the world, and places like North America, Asia, are now looking at introducing similar chemicals obligations, and EU companies will have a head start because they will already be compliant with these regulations. There is a global need for a certain degree of regulation and so long as the ones in the EU are well made—and we do need to have a seat at the table to make sure that is the case—many companies might be well placed to deliver and export more in the future.

Lord Hunt of Chesterton: Let me give you an example. It is not always like that. The United States has a much better regulatory framework to stop ship pollution, whereas Europe is finding that very slow.

Ms Felicity Burch: Yes.

Q85 Lord Hunt of Chesterton: May I just ask another question? Do Innovate UK, EPSRC and so on, when grants and programmes are being considered, consider how these will be fitted into European networks? I have good evidence—my European colleagues work in these

European networks, and there is not very much impetus from Innovate UK or our research councils. In fact, for example, of 24 leading groups to do with aviation technology and so on, only two out of 20 are UK-led. I wonder whether there is a move in this direction, since you are Innovate UK?

Professor John Latham: I think there is definitely a move in that direction. The UK is extremely well represented, certainly in the area I come from, in our computer scientists and digital technologies—telecommunications is my background. Those figures would be turned round the other way if you were to look at commission-led advisory boards and support mechanisms.

Again, you are highlighting the fact that across Europe there is a lot of sector dominance. Depending on what sector you are in and whether the UK is seen as a leading light within that sector, or whether the individual companies are seen as a leading light within that sector, you will see a different portfolio, and in certain areas, like healthcare, there is quite a lot of activity. Certainly, if you look in the automotive area, for example, there is a lot of German dominance. You can see almost a disparity across.

Trying to make generalist statements is often quite dangerous in terms of the overall representation of where individuals come from. Part of it also goes back to a question that you asked about organisations that were headquartered in one country but do most of their operations out of another. Quite often what you find is UK organisations that are headquartered here but their operations are in Holland or somewhere, and what you have is influence coming through their operations in the other member state rather than just coming from what is going on within the EU.

There are certainly areas of regulation—and regulation and legislation are both very interesting areas—that are always a bind or an issue when they are first brought in to meet. Once you have met them, they always have a competitive advantage, of course, above those that have not yet met them in terms of where they are and what they want to do. Part of the question is around enabling organisations to meet those regulations, and support them to enable them to meet them. Once they have met them, it can on a global scale be an advantage to have met them, because you then become compliant in so many markets at the same time with your product.

Q86 Baroness Neville-Jones: I want to ask you both, if you would not mind, a bit more about your view of the value of the EU supporting competence in the area of innovation. My impression is that you largely regard it as being helpful rather than a hindrance. Am I right in that, and are there any exceptions you would like to point to which are not the case, for, say, sectoral reasons? As a general proposition, do you think that the support that comes from EU innovation sources is really compatible and complementary with what we do in the UK, or are there areas of conflict or difficulty? If there are, how would you suggest sorting them out? More generally, do you think that UK firms could derive more benefit from more bespoke innovation support rather than the rather generalised EU packages that actually come along?

Professor John Latham: I think generally the addition that we get from the activities that come out of Europe adds value to the whole innovation ecosystem that a company engages with. There are certainly areas, particularly around collaboration partnering, where the opportunity to get access to the right expertise is certainly a benefit. Most of what comes

out of Europe complements what we already do in the UK. To go back to a statement I made earlier, it is not going to be the answer to everything for everybody; with the UK national innovation agency, the EU is one element of collaboration it is working with in terms of governmental support. I am doing a lot of work at the moment funded by the Brazilian Government; the work that is going on in Science Without Borders and at some of the innovation support around developing technology and science parks in Brazil is not getting support from the EU innovation system, but the national innovation system is working very well, in collaboration with the Brazilian Government, to enable that to happen. Where we can, we are making very good strides in terms of the complementarity between what comes out of the EU and what comes out of and is supported nationally from the national Government. We have also to bear in mind that national agencies are having to operate and work with other markets and deal with other support.

Baroness Neville-Jones: Is there sectoral differentiation?

Professor John Latham: I think there is, and there is always sectoral differentiation and, as I said earlier, there are also issues around size and scale of company and the life cycle to do with that. There is no doubt that there are some areas or sectors where the EU—

Baroness Neville-Jones: Can you give us some examples?

Professor John Latham: If you look at what we are trying to do in development of climate change, some of the things we are trying to do around healthcare development and the work that is going on around IT, there is a lot of very positive support coming out of the EU. For example, my own organisation is doing some work around water and food security—perhaps Europe could do more with us, but, fortunately, we are doing more with the UN and other funding agencies to enable that work. Effectively, I am going back to that term of hiding the wires behind so that the companies are benefiting overall without necessarily being too bothered about where the support infrastructure comes from.

Baroness Neville-Jones: Are you saying that if innovation support is not available in one particular area, the national system tends to pick it up?

Professor John Latham: Yes, I think the national innovation structure as it stands certainly has a base level of support for anybody who wishes to engage. Obviously, we have a number of nationally recognised priorities where there are additional programmes that are put in place. Certainly, if you look at the complexity, there is Innovate UK, the support coming from BIS, the work of the ODA activities, the support coming out of DfID and other bits of government as well as the support mechanisms coming out of UKTI. Companies in the UK are very fortunate in that they get a lot of cross-departmental support to enable them to engage with what they need to engage with. That is not necessarily true in other countries, because the innovation life cycle is not just about doing the science; it is about the whole process of developing the underlying science and taking it to market or making sure it is exploited.

Q87 Lord Fox: We have heard about collaboration in answer to a number of questions so, just to round it up, I think I heard you say that EU membership does encourage collaboration with companies within the European Union. How about its effect on companies in collaboration outside the European Union, the USA or China, for example? Does it distract or does it benefit those collaborations?

Ms Felicity Burch: From EEF members' perspective, certainly we have never had feedback from members that collaborations within the EU have distracted them from other collaborations. In fact, I have spoken to US companies working in the UK and collaborating in the EU as well, but I think there is an additional point here. I was making the point about exporting earlier, and accessing EU support. For manufacturers, once you have done something once, it gets easier the next time, so if you are collaborating in Europe, the first international collaboration you do it is a relatively straightforward one, the next collaboration with a country further afield might be a bit easier, a bit less scary in many ways.

I think it is also worth noting that Horizon 2020 is open to the world. Many other countries are involved in it. We have agreements with places like Turkey and Korea that may not be partners in the same way as the UK or an EU member is, but it is about pulling in research from all round the world.

Professor John Latham: Can I add to that? The other hidden benefit quite often is the indirect benefit of collaborating with a company from a certain member state that has a very good relationship with another overseas market where maybe the UK's relationship is not as strong. There is certainly an opening or an opportunity that you find that some of the collaborations that have come together through the EU framework programmes in the past have survived well beyond the collaboration in terms of that science project in itself; they have become long-term collaborations, not just about the science but actually those organisations working together and then going to market together afterwards. There is this pull factor: if you work together initially, come up with the idea, as long as you are comfortable working together, you have a good partnership and collaboration agreement, you then can be much stronger than the individual organisation. Certainly, for most of the organisations I talk to, that collaboration, that partnership, getting the underlying fundamental agreement in place, being forced to go through that good practice of having a collaboration agreement, an IP agreement, and everything else, once it is in place, enables you to go again and again and work together again and again, and it can actually strengthen a company's portfolio.

Q88 Lord Fox: How about the EU's eight public-private partnerships? How do you rate those?

Professor John Latham: Some of them are still in their early days in terms of driving things forward. I think they are definitely of benefit. Organisations that have engaged with them are finding that the whole concept of having these areas of specialisation is adding value and supports their overall development. The gap, of course, is that you could have 16 or 32 if you wanted to cover everything you wanted to do. You can only do so many. I think those who have engaged have found them positive. I think they are a positive move. They are certainly something that we can play an important part in.

Lord Fox: Is business sufficiently aware of these opportunities?

Professor John Latham: That is the million dollar question. You only know what you know, and part of the issue is about engaging people and helping them through that process.

Q89 The Chairman: The European Union clearly has some excellent schemes for encouraging scientists to move around within member states—the Erasmus scheme and the

Marie Curie scheme. Is there any danger that such schemes might disadvantage scientists coming from outside the European Union?

Professor John Latham: I do not think so. I think there are, again, equivalences in many countries. If we look at the Science Without Borders programme, we have a number of individuals currently coming from Brazil, Brazilian students but also academics and support individuals. There is an opportunity through those; I must admit that in my early career I benefited from an Erasmus exchange into both France and Germany, which I found very beneficial in terms of becoming much more of a global citizen, never mind a European citizen in terms of the approach, so I do not think it hinders. It opens up the opportunity for people to take that first step. It is like students at my university who do an international exchange programme; they come back much more able to deal with things than if they had not had an international exchange, and that is true also for scientists and academic members of staff. Once you can engage with them and show them potentially it is not so scary, or there are real benefits of going and working and spending time in overseas markets, that is a real benefit for them.

The framework that Erasmus and Marie Curie, for example, and the old Leonardo programmes used to put together, did open the minds of a lot of individuals, both from the UK but also from other member states coming into the UK. That is very positive; it is quite a positive thing that the EU engages with, particularly around developing science base. As one of the earlier speakers said, what you really need to do is get people to spend some time together. I am a great supporter of technology—I would be, with a computer science background—but, fundamentally, getting people to spend some time together in the same place allows free thought and allows activities and agendas to move forward. If all you are doing is speaking to somebody about a specific topic at a specific time, you do not then get the benefit that you would see within the science and innovation agenda of people working together.

The Chairman: We are most grateful to you. We have covered a lot of ground in this session and you have been extremely helpful to us. Thank you for sharing your expertise with us, Professor Latham and Ms Burch. We are most grateful to you. Thank you.