



Northern Ireland
Assembly

**Committee for Enterprise, Trade and
Investment**

**OFFICIAL REPORT
(Hansard)**

**Inquiry into Developing the Northern Ireland Economy
through Innovation, Research and Development:
Queen's University Belfast**

8 March 2012

NORTHERN IRELAND ASSEMBLY

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Inquiry into Developing the Northern Ireland Economy through Innovation, Research and Development: Queen's University Belfast

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Members present for all or part of the proceedings:

Mr Alban Maginness (Chairperson)
Mr Gordon Dunne
Mr Phil Flanagan
Mr Paul Frew
Mr Paul Givan
Ms Jennifer McCann
Mr Stephen Moutray
Mrs Sandra Overend

Witnesses:

Professor Tony Gallagher	Queen's University Belfast
Mr Scott Rutherford	Queen's University Belfast

The Chairperson: Briefing the Committee today are Mr Scott Rutherford, who is the director of research and enterprise, and Professor Tony Gallagher, the pro-vice chancellor of Queen's University. Gentlemen, you are very welcome to the Committee meeting. Thank you for your very considered, detailed and interesting written submission to the Committee. It is very helpful to our work on this important inquiry into research and development.

We see research and development as crucial to developing our economy and generating innovation within industry and business throughout the economy. Thank you for your attendance and, once again, for that submission. Would you like to make an opening statement? Then we can ask questions.

Mr Scott Rutherford (Queen's University Belfast): Thank you very much, Chair. As you have indicated, it is quite a comprehensive and detailed response, and I will keep this briefing as short and succinct as possible. I will go over just a couple of the key points.

With regard to the list of questions that we were asked in the inquiry, the opening part is about funding opportunities and sources of funding. The drawdown of EU funds is a high priority on the agendas of governments and universities at present. I will focus on that. I want to draw your attention to a couple of things in that area.

As you are perhaps aware, there is a lack of infrastructure and expertise to support academics and businesses in drawing down EU funding. It is more than a lack of infrastructure; it is more like a lack of embedment of expertise close to the research base and research institutes in Northern Ireland. An example of it is to the fore at present. We have a small allocation of funding from the Department for Employment and Learning (DEL), which allows the universities to embed a consultant, on a part-time arrangement. It is proof that having that level of expertise closer to academics and businesses linked into academia makes a huge difference. It has allowed us, since November 2011, to put forward 11 funding applications to a value of up to £30 million. It is a small example, at an operational or tactical level, of how expertise that is closer to the research base makes a huge difference to the drawdown of EU funds.

Another aspect that is critical to funding is the Higher Education Innovation Fund (HEIF). It allows the universities to have in place an infrastructure of people and expertise, working alongside academics and brokering on gaps with industry and businesses. It has experienced a small number of cuts in recent years, and that is out of kilter with other parts of the UK where it is seen as a key driver of the economy and a key mechanism by which universities engage with outside organisations and, essentially, exchange knowledge out of the institution. I included an example in our written response. HEIF, in general, leverages between £3 and £5 of income for every £1 of investment from government.

As to the process of accessing programmes that support R&D in Northern Ireland, it is fair to say, as I outlined in the response, that it is seen at times as a bureaucratic and drawn-out exercise. I am sure that that issue has been raised consistently. I included the example of the knowledge transfer partnership (KTP) scheme, which essentially involves an academic — a graduate — who is placed in a company and works on a problem. That is a great way of tactically engaging with a range of small and medium-sized enterprises (SMEs) across a region. A national appraisal of the scheme was undertaken in September 2009, and it concluded in February 2010. The scheme is actually endorsed across the whole of the UK. It was adopted and implemented in all parts of the UK except Northern Ireland, where an additional review was conducted in October 2010. We have heard, this week, that the scheme will be launched, hopefully, later in the year. So, as you can see, it is a long process of evaluation and appraisal. As a result of that, our KTPs in Northern Ireland have declined by 30% over the period. That is an example of the implications of a longer-term appraisal of those sorts of schemes on the SME base in Northern Ireland.

A number of other schemes are under assessment and appraisal, such as proof of concept, which is a key way in which, for researchers who have early stage ideas, the technology is made available to move those on to an actual application that is used by industry.

It is not just about funding and investment, important as that is. It is also about people. Certainly, the Northern Ireland Science Park (NISP) has a CONNECT model, which is a way of increasing the entrepreneurial ambition of the region and bringing together the elements of networking from a social point of view. I endorse and support that. It is incredibly important that universities engage in that arena. I have seen, however, in recent months, perhaps a bit of a scope creep around NISP CONNECT. It is hugely important that it focuses on the entrepreneurs. An increase in entrepreneurs in the region would make a huge difference in building new start-up firms and companies.

I touch on a range of other elements in the written response. As the range and models of funding in place in Northern Ireland are largely similar to those across other parts of the UK, I think that it is the implementation of those, the actual beefing up of those, that would make a huge difference to the wider ecosystem here.

The Chairperson: Thank you very much. Do you want to add to that, Mr Gallagher?

Professor Tony Gallagher (Queen's University Belfast): I am fine.

The Chairperson: Thank you for the candid analysis of the situation here with regard to R&D. I have a couple of points to make.

It seems to me that Queen's University is attempting to try to bring together research and development and business so that it is, really, business orientated. We are not dealing with pure academic research, although there may be elements of pure academic research. Largely, you are trying to engage with business, apply that research into business and, therefore, into the marketplace and to create innovation. That is the main thrust of what you are doing, is that right?

Mr Rutherford: Absolutely. As we are experiencing at the moment, it is about engagement by industry at a much earlier stage. The idea of us pushing our research onto companies or industry is a very old-school approach. It is very much more about engaging much earlier in the process, understanding what the problems of industry and companies are and ensuring that our research pieces are tuned to those needs and that we work in partnership. As I said, HEIF is a key element of the brokerage part of that.

The Chairperson: Can we come to HEIF? You are a bit critical of the reduction in funding to HEIF. Is that decided locally? Is that something that DEL or the Northern Ireland Executive decided, or was that decided at a UK level?

Mr Rutherford: My assumption is that it is regional.

The Chairperson: It is regional.

Mr Rutherford: It is a small reduction overall, but it does have implications, as I said, in the context of our driving innovation and having it as a pillar of our strategy in the region.

The Chairperson: It is going in the wrong direction. What you are really signalling is that that is valuable stuff. It produces results. For every £1 that you put in, you get £3 back. Therefore, why go in the opposite direction? I think that is really what you are saying.

Mr Rutherford: Absolutely.

The Chairperson: You have not concentrated on European funding because the research and development is much wider than that. That is very clear from the programmes that you support. Just taking European funding in isolation, particularly framework programme 7 funding, we have not been particularly good at getting that here. Uptake has been fairly poor here in comparison with parts of England, Britain and, indeed, the Republic. Is that really the result of bureaucracy and the difficulties of navigating through the labyrinth that has been created around framework 7 funding?

Mr Rutherford: There are, probably, a couple of reasons. Influence in Brussels is critical. Having sustained engagement in Brussels and understanding and being involved in shaping the agenda over there is critical. At some point, it comes down to implementation. There is a range of EU strategies and priorities. It is actually the people on the ground who understand the schemes and networks who can help academics and businesses to navigate a range of complex funding areas. Therefore, as I said, it is twofold. It requires that influencing and lobbying element as well as dedicated expertise that is not out of kilter or in any way disconnected from the research base and companies. It needs to be embedded. You need to understand researchers and how they work and operate.

The Chairperson: Where is our deficit? You talked about infrastructure. I think you said that the infrastructure is OK and adequate but there is a problem with people. Is there a lack of knowledge, expertise and experience in accessing that type of funding and, perhaps, other funding as well?

Mr Rutherford: I suppose that, at Queen's, I see researchers who have capabilities. There is certainly no issue as regards quality and ambition. It is just a matter of understanding, the ability to take the first step and knowing how to apply. As I said, it takes a certain level of administrative expertise to help researchers to engage in that way.

The Chairperson: Finally, the issue of knowledge transfer partnerships came up in evidence from the Belfast Metropolitan College. Because of changes in the criteria, which you touched on in your oral and written submissions, there has been a significant drop in knowledge transfer partnership projects between the universities and SMEs in Northern Ireland over the past year or two. Is that correct?

Mr Rutherford: That is correct.

The Chairperson: The reason for that is the change in criteria, which has been established at a UK level. Is that correct?

Mr Rutherford: It is because of an absence of funding at regional level. Applications go to a national assessment framework. Those assessment frameworks are not necessarily attuned to the needs of a region, hence there is a different set of criteria — a different threshold, I suppose — and a different set of priorities. In that case, applications that might have secured a degree of funding in the region are not funded at national level.

The Chairperson: You said that there have been some changes. We heard about some changes during the past week. Are they good or bad?

Mr Rutherford: Yes. I am aware of those changes. I think that they are positive. The scheme is likely to move forward now.

The Chairperson: Therefore, that could remedy itself?

Mr Rutherford: Yes. I think it is about how we optimise it as quickly as possible, given that there has been a hiatus of a couple of years and that a pipeline of industry contacts and companies are interested in engaging in the scheme. It is about moving as quickly as possible on that front.

The Chairperson: I am going to move on to another member. Professor Gallagher, if, at any stage, you want to intervene, please feel free to do so.

Ms J McCann: You are very welcome; thank you for your presentation. Among the responses we have had so far in evidence sessions and in writing, a lot of people or organisations are saying that it would be helpful to have a one-stop shop that had responsibility for co-ordinating all research and development. At the minute, it is happening in different places. What would that sort of one-stop shop look like? Would it be beneficial to have somewhere for representatives from the different organisations, business or the universities to go to for support or signposting, for instance?

In your briefing paper, you refer to the industry-led competence centres, which Invest NI initiatives have funded. Do you see a new model for developing research and development being developed within Invest NI? Would it be helpful if Invest NI looked at it in a different way or if there was a different structure within it?

Mr Rutherford: At the highest level of the economic strategy, the Programme for Government and the university strategies, there is a consistency and an alignment in what we are all trying to achieve here in Northern Ireland. As I have indicated, it is, perhaps, the operational and implementation area that is not as cohesive or coherent as it should be.

With regard to the one-stop shop, I will use the EU as an exemplar. There is already a capability in Invest NI to support the EU. I do not know whether that has had an impact on the increase and drawdown of funding in recent years. If you are asking me whether that is a suitable home for a one-stop shop across the region, I think it needs dedicated expertise close to the research base and an ability to draw on our research expertise, our industry links and contacts in those areas. I am a big fan of having integrated approaches, as opposed to a detached approach, in that sense.

Professor Gallagher: It is worth remembering that, as things stand, the two universities work together very well on some issues. The Science Park is a particularly good example. It is an initiative in which the two universities provide a very good model of how we can promote motivation. The Advanced Composites Centre is another good example. It is an industry-led initiative, which the two universities are involved with, and we hope that a cluster of industries linked to research expertise will develop around that. It is maybe not so much about needing another mechanism to help the thing along; in some senses, the problem is that it takes a long time for decisions to be made. The system has too

many audits built into it, which slows everything down, and there is too much risk aversion. All of that is getting in the way of making genuine change quickly. That is the bigger problem.

The Chairperson: Does that apply across the board, or is it only in specific areas?

Professor Gallagher: I think it is across the board. If you are going to encourage genuine innovation, you need to have quick access to small amounts of cash to try out ideas. You have to be prepared for some of those ideas not to work, but the pay-off is that the things that do work, work well. If you want to create that type of innovative environment, those are the sorts of things you are going to have to put in place. However, we often take ages and ages to make decisions on things and actively drive creativity out of the process.

Ms J McCann: A more flexible type of structure is required.

Professor Gallagher: Yes.

Mr Rutherford: An acceptance of the fact that, in some cases, failure is part of the learning process is also required. It is part of R&D.

Mr Frew: If I can, I will go up to the higher level of government and its knowledge and understanding. I think that we would all agree that there is a lack there at the minute and that that could be improved on. Various parts of government will know some aspects of R&D, and other bits of government will know others. We really need that to be joined up, so that we all can get a spectrum of understanding of where we are at in Brussels, Westminster and, I suppose, the Republic of Ireland. We could learn from the Republic of Ireland and the high levels of success that it has had in R&D.

In your view, where are the gaps at present? What would be the most appropriate way to fill those gaps?

Mr Rutherford: As I said, at the highest level, in the strategies that are in place, there is an alignment across Departments and across each of the schemes. I have been involved in a commercialisation review, which Invest NI is leading on at present. It is acknowledged that the hand-offs across the process of R&D are not always as smooth as they ought to be. As each of the programmes work, as each of the engagements occurs and as each of the pieces of funding is put in place, they are not always cohesive and aligned. That, I guess, is largely a communication issue. I am not sure whether it is a structural issue. Do we need to radically overhaul all the structures, or is just a lack of communication or, perhaps, even a silo approach in some areas of the system?

I have indicated in my response that I do not think that anybody has stepped back and looked at elements of best practice across other economies or looked at the system as a holistic area and come up with a sustained, long-term plan. It has to be a long-term ambition here. It is not about a short-term, three-year turnaround with the EU or R&D competence hubs and so on. It has got to be a long-term and sustained period of investment. Tony may want to add to that.

Mr Frew: More specifically, on Horizon 2020, what ideas does the university have that we need to engage with or learn more on? Do you have any ideas around that programme? Is there something that we need to learn quickly to get the best benefit out of Horizon 2020?

Mr Rutherford: I have mentioned a couple of things already. As you said, the Republic of Ireland has invested heavily over the years in a network of experts across the island who are cohesively and, in some cases, thematically aligned. Again, that links to the ground challenges in Brussels and contained within the Horizon 2020 programme. Here in Northern Ireland, there is the MATRIX framework. Our universities have their capabilities and strengths as well. It is about the alignment of those areas and the embedment of dedicated expertise with a long-term approach on Horizon. It is in the operational parts and the implementation. I do not think that it is in the strategy. Our strategies are understood and clear. It is that implementation arm that is not working.

Mr Moutray: You are very welcome this morning. Following on from Paul Frew's question, some respondents to the inquiry so far have indicated that they believe that government must be more

connected. What are your thoughts on connectivity and networking, not only between business, academia and government in Northern Ireland but across the Republic of Ireland, Europe and the mainland? Do you see scope for improvement there?

Professor Gallagher: There is certainly scope for improvement. One thing that we have been doing in Queen's recently is trying to significantly enhance our engagement with businesses in a variety of ways. In doing that, there is a recognition that we need to improve that. We have done that quite quickly. That will have all sorts of benefits for the programmes we provide and also for the R&D knowledge-transfer opportunities that come out of it. As I said earlier, we have provided some examples — particularly good examples — of that at the moment, such as the Science Park and the Advance Composites Centre, which are very useful models to work with.

As for engagement in the UK and Ireland, we are talking to Trinity College Dublin and University College Dublin (UCD) at the moment on innovation work. We are trying to develop that further. There are various funding mechanisms, whereby we have engaged with innovation-type programmes on an all-Ireland basis to try to bring people over and let them engage with businesses. That has often been very successful as well, and it brings in high-quality international expertise to get that across.

So, yes, there are plenty of ways in which that type of networking can be improved. Where we have been doing it, you can see the very tangible benefits. There is clearly a hunger in the SME sector for access to that type of expertise as well.

Mr Moutray: So that is something that you would like to expand further?

Professor Gallagher: Absolutely.

Mr Rutherford: There are a few initiatives, some of which are run by InterTradeIreland, that are cross-border. FUSION is a funding initiative that is cross-border. We have engaged in both of those areas heavily. In the context of the EU, it is about getting partners and consortia. If we have cross-border initiatives, that allows the possibility of increasing our partnerships and building links with consortia. If there are ways of accessing information and intelligence on those sorts of areas where there is mutual compatibility and strength, we welcome that as well.

Mr Flanagan: Thank you for your presentation, gentlemen, and for taking the time to complete the Committee's form. Many of the respondents that we have spoken to so far have said that not enough is being done by government to promote R&D. Is that something that you would agree with? What do you think government should do to promote R&D? What steps should it take?

Mr Rutherford: Moving away from a strategising role to implementing policies is incredibly important. This is about action as well. We have already touched upon speed of response. It is fine having ambition, targets and whatnot in place, but speed of engagement and follow-through in those areas is critical. Also, it is incredibly important to have a joined-up approach. Consistency in approach and in the mechanisms of funding and engagement is also key. There is an absence of detail in some of the strategies. Strategies say that there will be significant investment in R&D and significant investment in innovation, but a quantifiable amount is not given. Is there a degree of financial commitment in that? In the longer term, this is about building a knowledge economy. That is at the forefront of all the strategies.

Professor Gallagher: Let me add to that. One of the important things about trying to encourage an innovative environment is to create a situation whereby new opportunities can be seized as soon as they arise. By definition, you are trying to allow new things to develop rather than putting in things that you already know. Sometimes, we get the impression that there is an excessive tendency to try to direct things, as though it were possible to steer things to particular places, when what government should be doing is creating an enabling environment that allows creative opportunities to emerge. Once they emerge, something can be done to try to drive them forward. From a personal point of view, that notion of creating an enabling environment, rather than taking a directive approach, might make a huge difference.

Mr Rutherford: Finding a balance of accountability is incredibly important and is inherent in the system. Government must balance a little autonomy and freedom with accountability in the system, in an area that is inherently flexible and unpredictable in its nature.

Mr Flanagan: Going back to your point on targets, the Executive have set a target in the draft Programme for Government to get R&D to 3% of GDP. However, at the same time, they cannot tell us what GDP is now. If we cannot predict it for 2020, how will we know what 3% is and, therefore, what we are aiming towards?

Your recommendations for what you would like to see done are very broad. They are all logical and I do not think that anybody would argue with them. However, if the Executive could take one specific measure to help to improve the levels of R&D here, what would be the best one?

Mr Rutherford: The Higher Education Innovation Fund is the critical piece of people infrastructure that can bridge the gap between the R and the D of R&D. It is the research base that connects with business and other sectors outside the university. Having that as a core, sustained element of funding would enable the university to really improve its business engagement areas, develop its licensing activities and spin-out and attract foreign direct investment into the region. It is the crucial nuts and bolts.

Mrs Overend: Thank you very much for your presentation. You mentioned support through the application process. That has come up time and time again with other respondents to the inquiry. Do you find that that is very important to accessing R&D? Furthermore, do you think that it would be beneficial if you had ongoing support, mentoring or training while you go through the process? How do you feel about that? Others have raised that issue. Is it relevant to you?

Mr Rutherford: With regard to researchers and academic members of staff, over the years, as funding has increased and become much more complicated and competitive, there has been a need to have individuals in place who understand the system, the necessary nuts and bolts of applications and how to make a successful application. At Queen's, it is recognised that dedicated expertise in helping and supporting the application process is needed. Therefore, I would say that, yes, it is incredibly important, particularly as R&D funding is now constrained internationally. As I said, it is complex and competitive. Ensuring that there is expertise to help us to identify opportunities and target our staff in the best ways is critical. Otherwise, it becomes a scattergun approach, which is burdensome in respect of overheads.

Professor Gallagher: The support that is needed is a range of expertise at different points in time. Therefore, the trick is to try to find a way in which it is possible to fold in particular types of expertise at particular times. When a particular type has had its use, it steps out of the picture again. In some senses, the Science Park provides a pretty good example of how that operates, because a constellation of support is provided to people there, which allows them to go from very small to very large. People who are involved in that expertise fold in and out as required. Sometimes, the difficulty is that if you assume that there is a particular mentor or support that you have to have, it may be useful at some point, but if used the entire way through, there is a risk that it could become a drag in the system.

Mrs Overend: So the Science Park is a good model for that?

Mr Rutherford: Yes. Also, our approach at Queen's is to help people who help themselves. It is not about mentoring for everybody: it is about trying to embed expertise in those people who are winners — those who are most capable. It is about recognising who needs help and at what point in their careers, whether it is during an application process or in their research.

Mr Dunne: Thank you for your presentation. A number of issues have been covered. I want to deal briefly with funding opportunities, which have been mentioned. Could more be done to provide funding opportunities that are best suited to firms in Northern Ireland, considering that we have so many small businesses? Among the complaints that we get is that the process is too heavy and complicated. The uptake is very low; it has been eye-opening to see how low it has been. Do you have advice on how that could be improved from the university point of view?

Mr Rutherford: I agree with all of those thoughts and comments. R&D engagement is generally fairly low in the region, and it is not helped by the bureaucracy of the schemes.

Mr Dunne: It is too heavy.

Mr Rutherford: Yes, it is too heavy-handed and out of sync with other needs of business, in relation to the timescales involved. Perhaps there is a role for trade associations and other such organisations to aggregate the needs of SMEs. If there are particular consistent needs or consistent problems, I think the university is able to help more. It is difficult in such a dispersed area where we have such a wide and expansive range of issues. Sometimes it is hard to engage tactically across a huge range. If there were a way of aggregating, consolidating and understanding the needs of business, it would certainly help improve things.

Knowledge transfer partnerships, as I have noted, have been a key tool in universities. I think they have been a huge hit and success across the UK. That is a key way of tactically engaging.

Mr Dunne: Is it fair to say that short-term funding is available in a lot of cases, but not long term? Risk is a big issue in relation to R&D. Does the risk of committing to funding that, in the long term, may not produce anything, stop people getting involved?

Mr Rutherford: It is a consideration in any decision on any type of investment; there is risk attached. As we have indicated, it is an area in which there needs to be a degree of flexibility, understanding of the process and assessment of risk in a rational and logical way. It is fair to say that there is a lack of venture capital investment in Northern Ireland, in comparison with other areas of the UK. Addressing that is a priority in the strategy.

Professor Gallagher: I want to reinforce a point I made earlier. The other side of that coin is that we have an overly risk-averse culture. That is reflected in very high levels of audit. The reason why people will not take those steps is that the penalties can be huge, if things do not work. Allowing a degree of risk is necessary and important if we are going to get genuine innovation. It should not matter if some things fail, because, if you want to encourage innovation and gain success, you have to allow that to happen. I understand why people want to play safe, but it dampens down what is possible.

Mr Dunne: You mentioned the audit. Were you talking about audit in relation to European funding?

Professor Gallagher: It is general audits across all programmes. There is layer after layer of audit.

Mr Dunne: European funding is highly audited.

Professor Gallagher: Yes, and it creates huge bureaucracies and huge opportunity costs, which drive people away.

Mr Dunne: That is a fact; it is restrictive as well.

Mr Rutherford: It should be a consideration. We have an ambition to drive up EU funds, but the management of those funds has a high overhead. We are looking to increase the amount of money brought in, but how will we address and manage it if that increase materialises? It comes with a huge amount of overheads. Funding schemes such as INTERREG are hugely costly to administer. I believe that both universities are considering looking carefully at the amount of engagement in those areas simply because of the amount of bureaucracy that is involved.

Mr Dunne: I have one more short question. We heard last week about a new composites centre on the Airport Road. How is your R&D engagement for that going?

Professor Gallagher: Is it the one in the Titanic Quarter?

Mr Dunne: Yes.

Professor Gallagher: That has launched. It is a particularly good example of an industry-led initiative, with both universities playing a key role in supporting it. The ambition is that having that sort of facility, with high-quality research and development, will encourage a cluster of companies to develop around it, tapping into the expertise as they need it. I think that it is a particularly good example of the sort of thing that can have hugely beneficial effects for the economy and link in with SMEs and other businesses very effectively.

Mr Rutherford: It is an example of both universities here and companies being involved. It is a piece of infrastructure that houses all those types of people in one building and in one place.

Mr Dunne: It is a good example. We are looking forward to visiting it. I think that we will get an invite to it at some time.

The Chairperson: Gentlemen, that completes the questions. Thank you once again for your very interesting oral and written submissions. It was very helpful.