

ENTERPRISE AND LIFELONG LEARNING COMMITTEE

Tuesday 25 February 2003
(*Afternoon*)

Session 1

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CONTENTS

Tuesday 25 February 2003

Col.

INTERMEDIARY TECHNOLOGY INSTITUTES	3115
SCIENCE AND THE ECONOMY	3126
TEACHING AND RESEARCH FUNDING	3140
BAA (CORRESPONDENCE)	3151
ANNUAL REPORT	3155

ENTERPRISE AND LIFELONG LEARNING COMMITTEE

5th Meeting 2003, Session 1

CONVENER

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DEPUTY CONVENER

*Miss Annabel Goldie (West of Scotland) (Con)

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Gordon Jackson (Glasgow Govan) (Lab)
Marilyn Livingstone (Kirkcaldy) (Lab)
*Mr Kenneth Macintosh (Eastwood) (Lab)
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Fergus Ewing (Inverness East, Nairn and Lochaber) (SNP)
John Farquhar Munro (Ross, Skye and Inverness West) (LD)
*Elaine Thomson (Aberdeen North) (Lab)

*attended

WITNESSES

Janet Brown (Scottish Enterprise)
Dr Kevin Cullen (University of Glasgow)
Professor Georgina Follett (Scottish Higher Education Funding Council)
Sir Alan Langlands (Scottish Institute for Enterprise)
Roger McClure (Scottish Higher Education Funding Council)

CLERK TO THE COMMITTEE

Simon Watkins

SENIOR ASSISTANT CLERK

Judith Evans

ASSISTANT CLERK

Jane Sutherland

LOCATION

Committee Room 2

Scottish Parliament

Enterprise and Lifelong Learning Committee

Tuesday 25 February 2003

(Afternoon)

[THE CONVENER *opened the meeting at 14:06*]

Intermediary Technology Institutes

The Convener (Alex Neil): Now that we have a quorum, I open the Enterprise and Lifelong Learning Committee's fifth meeting this year. For agenda item 1, we have Janet Brown from Scottish Enterprise, who has circulated a helpful paper. After she says a few words, we will ask questions.

Janet Brown (Scottish Enterprise): I will not talk for long, because the paper explains much of what we have been doing. I thank the committee for giving me the opportunity to update it on the status of our planning for the technology institutes. The goals and objectives of the ITIs are well and truly in line with those of "A Smart, Successful Scotland".

The basis of the ITIs is to bring a market focus to an aspect of research and technology development activity while recognising the value of basic research and adding a dimension in market-focused platform development.

We are working as a team in Scottish Enterprise to prepare the ground for establishing the technology institutes after the chief executives and the chairman have been identified. We are in the process of recruiting a chairman, whom we hope to have identified by the end of March, three chief executive officers—one for each technology institute—and a CEO for the holding company, which will manage the infrastructure and the shared services support function.

The team is also providing background information for the CEOs when they come on board. The team will identify and provide information on Scotland's research capability strengths in universities and higher education institutions, as well as research institutes, and in the company base. We are also providing information on linkages that the CEOs might want to take up and key contacts with which they will need to be involved. We are providing an overview of the market and some of the market opportunities that might be available in the three

subjects that we have chosen—communications technology and digital media, life sciences and energy—but the chief executives will make the market selection.

We are undertaking a series of communications with the broader community—those in the company stock, and academics and researchers in universities and research institutes—to promote understanding of how the technology institutes will work and to promote potential interactions with them.

I welcome the committee's questions and I hope that I will be able to answer them all.

The Convener: I welcome Elaine Thomson, who is substituting for Brian Fitzpatrick, who sends his apologies. Tavish Scott sends his apologies; he will be late because he is flying in from Shetland. Rhona Brankin sends her apologies, Marilyn Livingstone is ill, Gordon Jackson is in another committee that is dealing with legislation and David Mundell sends his apologies. I say to Janet Brown that all the top-notch members are here. Talking of top notch, I pass to my colleague Annabel Goldie.

Miss Annabel Goldie (West of Scotland) (Con): I apologise for being late. I did not realise that my presence would be so crucial.

I thank Janet Brown for her comments. I am interested in two aspects; I appreciate that they might be outwith your knowledge or might not be matters on which you can give specific information. The funding for all of this is £450 million over 10 years. I am interested in how that will work. Is the funding envisaged as being top-heavy, with most of it being distributed in the initial stages, or will it be spread pro rata over the decade?

Janet Brown: The way the funding proposal stands is that we propose a £15 million research budget for each institute each year over the course of the 10 years. The £15 million will be worth less in 10 years than it is today, so the assumption in the plan is that there will be increasing private sector funding towards the later stages. The view is that as the technology institutes become more useful to companies through providing them with additional research capacity, companies will see the ITIs as being good places to put their research money. We have done things that way based on discussions with similar institutes around the world.

At the beginning of such initiatives, there is not a lot of value for companies but, as the institutes develop, companies are far more interested in putting their research money into them. One research institution in the US, International Sematech, started with 50:50 funding from the US Government and companies. After five years, it

ended up with 100 per cent private sector funding. Such institutions generally require on-going public sector core funding, which is supplemented by the private sector to a greater and greater extent as they go down the road.

Miss Goldie: That is helpful. The £450 million might be the base component but, if all goes well, leverage will come from the private sector, which proportionately—if all goes really well—might eclipse the public sector donation.

The other aspect that I am interested in is the final point in your submission, about “performance monitoring and measurement”. The submission states that that “is under development.” Given that the concept of ITIs is quite difficult to envisage, is there any indication of what form performance monitoring will take? Who will monitor whom? What will happen if somebody does something bad?

Janet Brown: We are pretty close to closure on the type of measures that we want to put in place. The first thing that we need to think about is that we must distinguish between the direct outputs of the ITIs and the indicators that we would examine in the earlier stages. We acknowledge, having considered similar institutions around the world, that there is a period of time before one starts to see major outputs from the ITIs. It will take between five and 10 years before we see significant figures for company growth, or an impact on economic environment. Prior to that, it is possible to see indications that such institutions are having an impact in the environments in which they work.

We are trying to understand the lead indicators that we need to put in place in the early stages to show whether an institution is having an impact on infrastructure, and we need to indicate what are the connections and linkages. We are considering what has happened in different areas of the world in similar environments and what happens at various stages of the process. We also want to consider the impact of the ITIs, rather than the direct outputs, which is something that we can also learn from other institutions.

We are developing the three types of framework for different stages. The ITIs will work to an annual operating plan, which will be agreed by the board. However, there will be a three-year review and a six-year review; those will feed into the different types of measurement that we will be able to determine.

14:15

We need to monitor performance in several ways. We need to ask the ITIs to report their outputs, their linkages and the basic indicators towards which we are trying to get them to work, but we also need to monitor performance

continually and we need periodic evaluations of the whole process.

If the ITIs do not work, we will need to stop the process. That is why we cannot simply wait to measure the number of jobs and companies seven to nine years down the road. That would be too long and we would have spent far too much money. We will set indicators and measurements for earlier stages, which we are finalising now.

Miss Goldie: That is very helpful. Basically, the mechanism will be internal to the board, which will make some sort of assessment of what is happening, and Scottish Enterprise will keep an eye on what is happening. What input will industry have on whether the process works?

Janet Brown: The holding company board membership will contain a significant industrial component.

Miss Goldie: Will the industrial component be a majority presence?

Janet Brown: The final numbers have not yet been decided. However, we envisage that a significant number—four or five members—will be from industry.

The model defines a holding company that has two owning members, one of which is Highlands and Islands Enterprise and the other being Scottish Enterprise. The board will also have an academic component, but will have a significant company base, because we believe that the companies are the measure of the ITIs’ success.

Miss Goldie: However, at the moment, the industrial component will not necessarily be a majority presence.

Janet Brown: I am rapidly adding up in my head. If the chairman comes from industry, the industrial component will probably be a majority. However, we have not finalised the numbers and we need to discuss the matter with Highlands and Islands Enterprise.

Mr Adam Ingram (South of Scotland) (SNP): I am interested in how you arrived at the figure of £15 million per year for each institute. As we all know, Scotland’s corporate sector does not have a great record on research and development expenditure. I am concerned that the amount of money that we are putting into such public sector pump priming might not be sufficient to get us up and running properly. On what models have you based the initial investment? What are the indications that Scottish industry will respond positively to the establishment of the ITIs and how strong are those indications?

Janet Brown: On the amount of money per institute, we examined similar institutions around the world that are focused on specific market

areas. That is the key—if we want to focus on a specific area in which we can support companies with technology platforms on which they can build, £15 million is about the right amount of money for focused activity such as in the institutions in Sweden and Singapore, for example. If the activity were to be much broader, more funding would obviously be needed.

We considered funding from that point of view and as something that would have a significant enough impact to change the behaviour of some researchers or increase their desire to participate. Another measure that we have is proof-of-concept funding, which is about £5 million to £6 million a year and is stretched across seven different focuses. That has been extremely successful in taking curiosity-driven research a stage further into proof of concept, but it does not drive the original research work.

We considered the situation using those data and the data that were out there about similar institutions, and with the view that we wanted to impact on the corporate research and development figure. We wanted not a direct impact, but a sort of pseudo-corporate research and development figure. The figure is currently about 20 per cent of what Scotland's research and development spending should be. We came at the issue of funding from those three directions and concluded that £15 million a year is sufficient if it is focused. To be honest, the answer to that question is a bit like the answer to the first question. If we put a load of money in too early, we might not use it appropriately. We believe that £15 million a year is appropriate right now.

Mr Ingram: I take it that it will not be just Scottish industry that will be able to invest in membership. However, what are the early indications in terms of the response from Scottish industry?

Janet Brown: We have had strongly positive responses from the people in the industry to whom we have talked. Obviously, we have talked primarily to a lot of the technology companies. Their view is that the institutes give them the ability to move up a stage and do the type of generic research that lots of different companies in their market spaces need to do. They can then use their hard-earned money to add the different competitive component to it.

The challenge that we face is to broaden participation in the technology institutes beyond the companies that presently see them as valuable. The companies that are already regarded as part of the cluster—part of the particular market focus—are supportive of the institutes. Our challenge is to ensure that we show the market opportunity to more companies throughout Scotland and help them to take advantage of it.

Elaine Thomson (Aberdeen North) (Lab): It is nice to be back in the Enterprise and Lifelong Learning Committee, if only temporarily.

The Convener: It is nice to have you back.

Elaine Thomson: Good afternoon, Janet. I am sorry that I missed your presentation, although of course I have had the benefit of hearing it once or twice before.

To a certain extent, Adam Ingram has covered the area that I wanted to talk about. A significant investment is being made, which I hope will produce real results. Do you have any feel for what every pound that is being invested might produce, or is that like asking how long is a piece of string?

My other question concerns the need to encourage in-house research and development in Scottish industries. We all know that the level of in-house R and D is quite low here—perhaps lower than it should be and lower than it is in comparable industries and companies elsewhere in the world. How might the ITIs help to overcome barriers—as you see them—to increasing the amount of in-house R and D in Scottish industry?

Janet Brown: Your first question concerns the amount of leverage that the ITIs can produce. The longer they exist—if they are successful—the greater their leverage; there is a multiplication factor that increases significantly because more companies are able to take advantage of a given piece of work. In Canada, for example, companies see a ratio of return of about 1:4. More important, however, companies can show a family tree that can be traced back to the technology institutes. One can see a rapidly growing company base as a result of the institutes; that base might or might not be directly using the technology now, but can be traced back to it. One of the challenges that we face, and one of the things that we have started to do, is to consider how we evaluate fully the economic benefits that will come out of the ITIs and how we compare similar situations elsewhere to be able to understand that.

In assessing the ability and the drive of companies to undertake more R and D, and in establishing how the ITIs will help them to do that, the first thing to do is to have the companies lever in their own money. The membership fee is intended to be reasonable for a small or medium-sized enterprise. We are trying to enable as many SMEs in Scotland as possible to participate in ITIs. As I have said previously, the aim is that SMEs should participate in, rather than simply be members of, ITIs. The key is that people should be able to use them, not that they should be in the room when something happens.

There is a mechanism in ITIs that allows a company to second an employee to work on a

particular programme, so that they get a head start on competitive work. The work that the employee does will be pre-competitive and will be shared by the other members of the ITI. However, as members know, if someone is closely involved in a project, that person learns a great deal more than they would by reading about it in a book or from a piece of paper. We are trying to encourage true participation and leveraging in of companies' resources.

Scottish Enterprise must ensure that there are mechanisms that will make it easier for companies to undertake competitive research afterwards. The European Union rules that govern R and D funding for companies were changed recently—we removed the de minimis criteria and we are trying to understand how to support companies more broadly. The purpose of the ITIs is to put on the table more ideas and opportunities that intersect with market opportunities. However, we must help companies to take up and support such ideas.

Elaine Thomson: I have another question about companies' being able to access R and D funding. An issue related to proof-of-concept funding, which has been hugely successful, has been flagged up to me. I understand that proof-of-concept funding can be taken up only by higher education institutions; it is not accessible by SMEs. Is that the issue that is being addressed and were you referring to it?

Janet Brown: There are two mechanisms by which a company might become involved physically with R and D. First, it might possess a good research facility—as is the case with some companies in Scotland. Research and development can take place in the company's industrial labs, just as it could take place in a research institute. However, it must be recognised that the portion of the work in a company's labs that is funded by the ITI will be accessible by other members.

Secondly, a person might be seconded to another institution to work on a particular programme. Again, that work will be shared with the other members, because it is still pre-competitive. We are not talking about direct funding of competitive company R and D.

Elaine Thomson: You are probably aware that, as an Aberdeen MSP, I am most interested in the energy ITI. Yesterday, Brian Wilson announced the results of the energy review and made some very significant statements about future United Kingdom energy policy. He talked about moving towards using renewables and about energy efficiency. How do you think that policy direction will affect the kinds of pre-competitive research that the energy ITI does?

Janet Brown: I reiterate that the CEO will be responsible for the market selection of work areas.

However, they will do that in an informed way, based on market opportunities, skills and strengths in Scotland. There is probably more wind around the Scottish coast than there is anywhere else in Europe. That natural resource is a specific Scottish strength, so we should be able to take advantage of wind and wave power. The drive of the British economy and of several other economies will be to consider increased use of renewables. There is good market potential in that area, on which a CEO might want to focus. However, it is for the CEO to make that decision.

Mr Ingram: I want to pursue the point that you made about defining future market areas. Can you give us a flavour of the work that has been done on that? How confident are we that we will be successful in exploiting the market areas that have been selected?

Secondly, you have made it clear that the CEO will decide what eggs to put in which baskets. Clearly, the appointment of the CEOs will be critical. Where are we looking for those people, and what is the specification for the positions?

The Convener: I take it that no redundant MSPs need apply.

14:30

Janet Brown: We do not know which of you will be made redundant yet.

We came up with three focus areas through using much of the work that has been carried out over the past few years on cluster activity and the strengths of Scotland's companies and research base. However, we also considered global market opportunities and examined areas of rapid growth or potentially significant growth that match the skills sets in Scotland. Sufficient data suggest that those spaces present an opportunity and that we have the strengths in Scotland to address them.

Interestingly enough, the white space between the three sectors presents us with an incredibly large opportunity. For example, an IBM supercomputer was donated last week to the University of Edinburgh specifically to examine the interface between life sciences and communications technology. If we focus on the major opportunities that exist both within and between sectors, use the market to identify and choose such areas and do not try to chase someone else's tail, Scotland could become a key player.

Although CEOs will make selections, they cannot be omnipotent and simply make personal decisions. Decisions will be informed by general foresighting work, by the processes of membership and steerage that will be put in place and by steering group support from global players

and local companies. However, you are right to point out that the CEO position is absolutely critical.

We are searching for CEOs in two ways. First, we have placed advertisements in the local and international press to solicit input and nominations. Secondly, we are using a search company to target people in the industry who have the right skills set and experience base. Indeed, we have received strong and positive feedback from people around the world who are interested in the positions. Obviously, some of those people are potentially returning Scots, but a significant number are not Scottish and regard the positions as an opportunity to get in on the ground and leverage their expertise.

Mr Kenneth Macintosh (Eastwood) (Lab): I apologise for my late arrival. I also apologise if you have already answered this question. If you happen to invest in an intellectual idea that is developed into a commercially successful product, would you expect to see any return on that investment?

Janet Brown: Yes, because the ITIs will take a licensing fee. However, their goal is to ensure that companies are successful. As a result, the measure will not be the amount of money that the institutes can bring in from licensing revenue, because we want to ensure that particular work is used and we do not want to charge a specific company an exorbitant amount if it is successful. We might think about charging Scottish companies differently from other companies, if that is legal.

Returns will be generated, because that drives market understanding and market focus. However, the goal is not to make as much money as possible for the ITI, but to make as much viable and commercially exploitable work as possible available to companies.

Mr Macintosh: If you strike it rich, as it were, would that money be reinvested in the ITI?

Janet Brown: Yes. We propose that model so that, the more success there is, the more money there will be to reinvest and be successful.

The Convener: According to information provided by the Scottish Executive enterprise and lifelong department, if Scotland's spend on research and development as a percentage of gross domestic product is compared with the Organisation for Economic Co-operation and Development average, we would need to spend an additional £750 million or so each year to get up to the level of our competitors. That is a big gap, which must be closed. What ballpark contribution will the ITIs make to closing the £750 million gap?

Janet Brown: In the longer term, their contribution to that £750 million gap being filled

will relate to how companies invest in what enables them to make products for the markets. The ITIs' goal is to provide a leg-up for companies to start to make such investments. The ITIs should help to identify markets and to link companies to those markets so that they know what they should invest in. The ITIs should help companies with early-stage pre-competitive work so that they can focus their money on competitive activity. However, the first target is to facilitate companies' understanding of where they need to put their money. It is not efficient for the public sector to add the research component—companies need to do so.

The Convener: Eventually, one would need to look for a leverage of around 20:1. Is that a realistic target?

Janet Brown: Seven, eight or nine companies that have been going for a while build on the base of the pre-competitive platform. If one assumes the same level of funding in respect of competitive advantage, it is not unreasonable to look at that target for the future. I am talking about only those companies that are directly linked to the ITIs; I am not talking about those that would do things on their own as a result of having learned how to address spaces.

The Convener: So through time, the ITIs should make a significant contribution to closing the gap.

Janet Brown: Yes.

The Convener: Obviously, another prerequisite to success is the co-operation of the universities. University vice-chancellors are keen on the whole commercialisation process and positive about what needs to be done, but venture capitalists say that, further down the university chain, the bureaucracy and the time that it takes in some universities to reach basic decisions in principle on commercialisation are blowing some projects out of the water. What is being done with the universities to address those problems?

Janet Brown: You have touched on two issues. One issue is the universities' interaction with the ITIs, which involves ITIs commissioning work within universities in specific areas; the other is commercialisation of work that is already on-going inside universities and the ability to take that out and use it in the marketplace.

It is important to recognise that, in their commercialisation departments, the universities have capacity that helps to ensure that they do not lose out on intellectual property values for particular levels of work. We are trying to ensure that the right contacts with the appropriate companies and venture capitalists are made in potential markets for any technology that has been developed inside universities. We are also trying to ensure that people see effective models from

around the world whereby, as a result of the rapid transfer of technology, a larger share of the revenue is going back to the universities.

There is almost a proof-is-in-the-pudding approach. There are successful examples of the generation of increased revenue from allowing technology to go out quickly, which has started to result in significant changes in how some universities are operating. Those universities have done a good job in understanding what intellectual assets they have. They are increasingly becoming aware of how valuable those assets are and how important it is to move and to do deals quickly. We are seeing significant changes in that area now.

The Convener: Is there a need for further infrastructural change? On the basic research side, the research assessment exercise builds in incentives for publication of papers, for example. Is there a need for some kind of parallel incentive to encourage universities to spin out more, to move quicker and to be more nimble on their feet?

Janet Brown: The universities should be recognised for doing that. We should not just count the number of spin-out companies that we create; we should count the value of the companies that are created. Sometimes it is better to put two pieces of technology into one company than to put one piece into two. Universities should be supported in their efforts in working with the private sector and in supporting understanding of how technology fits markets.

The Convener: Once the ITIs are up and running, what role will be left for Scottish Enterprise in commercialisation?

Janet Brown: There are two aspects. First, the ITIs will identify what needs to be done to address markets. The second aspect is the randomly occurring commercialising activity that is going on across Scotland—that is often where the next big wave comes from. Scottish Enterprise faces a big challenge in providing the infrastructure to allow companies to take advantage of the platforms that will be available through the ITIs and to link more closely into the curiosity-driven commercialisation activities within universities.

The Convener: So there is still a big role for SE and HIE.

Janet Brown: I think so, yes.

The Convener: That covers everything. Thank you. That was extremely helpful. We look forward to seeing you after 1 May at the new committee.

Science and the Economy

The Convener: Item 2 is on science and the economy. I welcome Sir Alan Langlands, the vice-chancellor and principal of the University of Dundee—my university—and Dr Kevin Cullen from the University of Glasgow. Thank you for your papers. Would you like to make a few introductory remarks?

Dr Kevin Cullen (University of Glasgow): Like Janet Brown, I thank the committee for giving me the opportunity to make some comments. There has been a lot of debate recently—we have just heard some of it—about the role of universities in commercialising science and technology, particularly in relation to economic development.

In my paper, I cover the fact that universities exist to create and disseminate knowledge. Research creates new knowledge; that is what it is for. Traditionally, we have been expected to disseminate knowledge through teaching and publication and we have been rewarded for doing so. With the creation of the knowledge economy, we are looking for universities to do more stuff, different stuff, better stuff and stuff that we reckon the universities are well positioned to do. They are starting to perform extremely well at that.

There has been a lot of debate about what universities do, which has concentrated on activities such as working with SMEs, licensing and creating spin-out companies. In my submission, I focus on why universities do that, rather than on what they do. Understanding the motivation and the objectives is fundamental to getting the best out of the higher education sector.

We do lots of things that contribute to economic development. In my paper, I show the spectrum of objectives. In the middle, we have the creation of knowledge through research. As we move to the right, we begin to commercialise. We begin to act like companies; we begin to act like venturers. As we move to the left of the spectrum, away from research, we begin to act very much like Scottish Enterprise and we become agents of economic development.

Many of the problems tend to lie in the confusion between the two roles. I think that universities should be encouraged to fulfil both their outreach and outcome roles. Both those modes lead to benefits for the economy, although they should not be confused. Simply put, outreach helps other people to make money—we help SMEs and larger companies to make money. Under the outcome mode, the universities set out to make money themselves, although it is important to stress that that money is reinvested in research and teaching.

14:45

We argue that the two modes of outreach and outcome are entirely complementary in the same framework and relate to the intention behind individual projects. We would not expect Scottish Enterprise—as an economic development agency—to make money; that is not what it is there for. Nor would we expect Scottish companies to have economic development as their primary objective. We believe that universities should be encouraged to undertake both outreach and outcome modes, while being clear about what they are doing at any given time.

Whenever a university tries to do public good and to make money at the same time, it will face a conflict of interests. If we have valuable technology that could be used by a Scottish SME but a French company is willing to pay us more money for it, what do we do? We have to choose and that choice is between outreach and outcome. If we were SE, the choice would be easy; if we were a Scottish company, the choice would be easy. As we are a university, it is not easy.

We think that such decisions could be made easier if the distinction between outreach and outcome was recognised under the funding and measurement systems. If universities choose to go down the outreach path, that should be recognised and rewarded through public funding, as is the case with SE. I should acknowledge at this point that the knowledge transfer grant—KTG—from the Scottish Higher Education Funding Council is a significant first step in that direction. However, if the university chooses to go down the outcome path, that should be recognised and applauded in the same way as successful Scottish companies are.

There should be more focus on the why than on the what in relation to universities and economic development and it should be clear why universities are doing the important stuff that they are doing. Success requires to be measured in terms of objectives and it needs to be supported. In that way, we will stop confusing the universities—we often find ourselves confused—and we will bring about more of the economic impacts that we all want.

The Convener: Thank you. Were those remarks made on behalf of both our witnesses?

Sir Alan Langlands (Scottish Institute for Enterprise): No.

The Convener: My apologies, Alan. Please go ahead.

Sir Alan Langlands: I will add a few comments. There is an obvious overlap and my note is just a different take—from the point of view of a different university—on the process that Dr Cullen

described. It was suggested to me before the meeting that I might also say a word about the Scottish Institute for Enterprise, whose board I chair.

I wish first to make three simple points based on my note about the commercialisation of the university research base. First, I underline the importance of investing in basic research and in high-quality research infrastructure as a means of attracting and retaining top scientists in Scotland. We cannot underestimate the importance of that when we are dealing with this complex policy area.

Secondly, I stress the importance of partnership working, which is a particular strength at the University of Dundee. In our case, that involves Scottish Enterprise Tayside, Dundee City Council, the major charities in the medical and biomedical areas, the United Kingdom research councils and SHEFC. The national and local levels of engagement among all those institutions is strong. As someone who has returned to Scotland having been away for a while, I am struck by our ability to get things done simply through being able to engage people on a day-to-day basis. That needs to be acknowledged.

The third point that I want to stress is the importance of providing high-quality support to academic staff at each stage of the commercialisation process. For many of our scientists, that is not a natural way of doing things. My sense is that universities are now doing more in their technology transfer offices and are putting more into the management of academic staff in providing proper support at each stage of the commercialisation process.

My work with SIE, which is part time, has a different flavour. It focuses mainly, but not exclusively, on the 30,000-plus science, engineering and technology students in Scotland. SIE had £6 million funding from the office of science and technology, which is a Department of Trade and Industry project. Its objective is to support culture change in all 13 Scottish universities and a couple of associated institutions.

SIE's main aim is to embed enterprise education, particularly at an undergraduate level, although a lot of work is going on with postgraduate students as well. Increasingly, we aim to do that through credit-bearing courses. The second thing that we are doing with the student population is encouraging business creation. We have set up a student patent fund. We are now running for the second time a successful student business plan competition. More than 100 students in about 30 teams took part last year. Slightly more are taking part this year. There are 26 surviving student businesses as a result of the initiative.

The third thing that we are doing is supporting knowledge transfer. We feel that we have a contribution to make and an obligation to provide support and courses for SMEs. We feel that we need to invest more in the continuous professional development of university-based staff working in enterprise education. We work closely with the partnership between the University of Cambridge and the Massachusetts Institute of Technology in trying to promote such professional development. In relation to one of the questions that we have already considered today, we have held a series of meetings bringing together people in technology transfer offices in universities and people from the venture capital community. To put it bluntly, we have tried to make those two groups understand each other better. We think that that is beginning to show early signs of success. Those are some of the things that we are doing locally and nationally in SIE.

The Convener: That is helpful. Thank you.

Miss Goldie: I should declare an interest as a member of the court of the University of Strathclyde, in case I am accused of nabbing ideas. I was struck by Dr Cullen's paper and, perhaps disappointingly, I want to ask questions about the whats rather than the whys. What have been the most effective commercialisation strategies at the University of Glasgow?

Dr Cullen: I always think about commercialisation in terms of both outreach and outcome, so I shall talk about both. On the outcome side, spin-out companies have been extremely high profile and successful for the University of Glasgow. Kymata did not go as high as everyone expected, but it was a success in terms of its economic impact and the high-quality jobs that were created. It was followed by Intense Photonics Ltd, which is still gaining massive funding rounds in a climate in which no one else is, and Essient Photonics Ltd. I love to quote those examples. To go back to what Janet Brown said, they are high quality under any measure that we can apply.

We have not been so active in the creation of what I would call outreach companies, whereby the university facilitates and encourages students to create companies, which is a good entrepreneurial thing to do. We are now working closely with SIE on that, because it is a fundamental part of its mission. At the outreach end of things, we are running a project called DIALOGUES. I will not go into the acronym, but it is about developing links between the university and existing SMEs, getting technology transfer in place and developing relationships so that the SMEs and the university understand each other. We are crystal clear that we are talking about a long-term game. Building a relationship with an

SME that will lead to a project and a research contract takes three, four or five years and costs money.

We have put together a partnership involving the university, the local enterprise company, European regional development funding and the city council. Some £1.2 million has been put towards developing those relationships. The partnership is going extremely well and is an example of classic outreach. We do not expect to make a bean from it, but the Scottish economy will benefit.

Miss Goldie: That is helpful. Is it a challenge to get funding for early-stage development?

Dr Cullen: Yes. I must be careful about saying how challenging it is at the moment. In the current venture capital markets, universities can find themselves having more money available than many of the capital markets have. Like most universities, we have an internal development fund, whereby we can put £5,000 to £10,000 against a project that we believe has a lot of potential. The proof-of-concept fund is a fabulous thing for us because it allows us to fund things that we would not have been able to fund in the past.

Miss Goldie: Has the University of Glasgow made extensive use of the proof-of-concept fund?

Dr Cullen: Yes. I am proud to say that the University of Glasgow has more proof-of-concept projects than any other university in Scotland. We will continue to use that fund to develop our technologies and to bring them to the market, as we have done in the past.

Miss Goldie: My final question for Dr Cullen concerns his submission's interesting distinction between outreach and outcome. Does the university have a strategic overall aim for its approach to commercialisation?

Dr Cullen: The overall aim is to ensure that we have a balanced portfolio, so that we can ensure that the university makes a financial return from highly valuable intellectual property. If we create something of huge value, we see it as a moral obligation to ensure that there is some return to the institution. Most of our intellectual property does not have sufficient commercial value for a commercialisation project, but it has significant value to Scottish SMEs. We see it as a moral obligation to get such intellectual property out into the companies to ensure that they can use it to their benefit.

Miss Goldie: I have a couple of questions for Sir Alan Langlands. His paper was very full, so I have fewer whats for him. I was struck by his reference to the student patent plan. Is that a recent innovation?

Sir Alan Langlands: Yes. It was started during the past six or nine months. The patent lawyers

Murgitroyd and Company have been appointed to run the student patent plan on behalf of SIE. There is a lot of student interest.

Miss Goldie: Are there possible conflicts of interest, in the sense that what might be good for the university in the longer term might be restrictive for the student? Clearly, the student has a future to plan.

Sir Alan Langlands: The focus in all the discussions is on the well-being of the student. SIE and its 13 tentacles in the universities are not in the same sort of commercialisation game as might be pursued with established members of staff, from whom we would look for a contribution to the university. The focus is on helping and supporting the student. Clearly, where a university contributes something to a project, we might ultimately look for a return. However, the emphasis is always in favour of the student and the student's development.

Miss Goldie: Finally, I notice that the very end of Sir Alan's submission states:

"The overall aim of the University's approach to commercialisation is to develop a concentration of company activity that will help to sustain the University and its research activities into the future."

Does that imply that such activity is seen as critical to the general financial well-being of the university?

Sir Alan Langlands: At the moment, commercialisation is not a huge factor in the general financial well-being of the university, but I think that it will increasingly become so. I believe that the commercialisation process has an inherent value in supporting economic development in the local community. In a city such as Dundee, that is something of a responsibility for the university. Therefore, we do that as a public good, as it were.

There is now a good critical mass of biotechnology companies in Dundee. Those companies will ultimately want to have further support from the university and to let research contracts to the university. That is not happening in a sustained way, but it is happening. In the life sciences sector, there is no single commercialisation strategy, but a combination of aspects makes us successful. For example, we have a consortium arrangement that led to a significant inward investment, which resulted in the company concerned letting further research contracts to the university. The trick that we are trying to pull is to create a virtuous cycle in which the industrial community feeds the university and vice versa.

15:00

The Convener: I welcome to the meeting Tavish Scott, fresh from Shetland.

Tavish Scott (Shetland) (LD): I apologise for being late.

Mr Ingram: I found Dr Cullen's analysis of the outreach-outcome spectrum useful. We must establish a balance between the different types on the spectrum. Can Dr Cullen highlight models—whether international or otherwise—that the University of Glasgow strives to emulate? He referred to the need for public support, both for public-good activities and for profit-making activities in universities. Where are the gaps in public support?

Dr Cullen: There are no models that we can just lift and apply in Glasgow. One reason why I developed the framework was because I had considered the situation of colleagues in institutions throughout the world. For example, MIT is famed for its commercialisation or money-making activity. The people in MIT's offices who do a job that is equivalent to mine regard promoting economic development as a core part of their role. When I speak to them about outreach and outcome, they nod in agreement. They sign up intuitively to that model, but no one else has articulated it in that way. I am working towards the time when others lift the Glasgow model and apply it elsewhere.

On the issue of gaps in support, my concern is about outreach and outcome becoming confused. For example, universities are asked to do public-good activities and to submit business plans that show how those activities will generate a profit after three years. Outreach and outcome are fundamentally incompatible. A university's outreach activity can be sustained only with continued public-funding support at a lower level; if a university acts like an agent of economic development, it should be treated and funded as such.

Mr Ingram: Can you give examples of that?

Dr Cullen: The best current example is that without SHEFC's knowledge transfer grant, I would not have had the match funding to combine with money from Scottish Enterprise Glasgow, Glasgow City Council and European regional development funding to make the DIALOGUES project happen. SHEFC's funding stream was critical to making the package fit together.

Mr Ingram: I am interested in Sir Alan Langlands's activities in embedding enterprise education. Can he develop that a bit for us? Is he trying to make scientists into entrepreneurs, or is it more a question of trying to make scientists business literate, so that they can engage with people such as marketeers?

Sir Alan Langlands: The focus is not on scientists or staff but on students, particularly undergraduates. We do not expect or encourage

every student to be interested in enterprise education. However, exposing every science, technology and engineering student to at least an element of enterprise education during their undergraduate years and giving them other opportunities throughout that period is potentially a good thing and would allow them to ascertain what is possible. For example, they could work with case-study material or link their studies to extra-curricular university activities.

The entrepreneurs club at the University of Dundee, has been going for only a short time but it is now one of our strongest student associations—mind you, the gothic society is the second most popular. The main idea is to expose as many people as possible to enterprise education and to fan the flames of good ideas. It is encouraging to see what has been happening in business plan competitions as well as the early reactions to the patent fund, but it is an upstream activity that will take a long time to work through the system.

Mr Macintosh: The model that you have described is helpful for understanding the conflicting policy objectives that you face as an institution. Are the criteria developed or theoretical? Do you use the model in practice to differentiate between opportunities when it comes to funding them?

Dr Cullen: The answer is that the model is practical rather than theoretical. We apply it every day in practice. We have a decision tree on the wall of every office in our building. When a project is being considered, it goes through the decision tree, which is extremely unscientific but extremely practical. The first question is, "Will the project make money?" If the answer to that question is, "Yes," the next question is, "How much?" If the answer is, "Loads," it becomes an outcome project. If the answer is, "None," it becomes an outreach project. We have criteria within the office to decide which projects we will do and which we will not.

Mr Macintosh: What is the balance? How much do you fund those that will make money, and how much funding is there for those that are just for public good?

Dr Cullen: Until now, more of the resources from the office have been deployed against outcome. However, since we put the DIALOGUES programme together, we have been able to balance things up. The office is split almost 50:50 between outreach and outcome, with everyone chipping in towards the research and technology development projects in the middle of the spectrum.

Mr Macintosh: Do you find that other universities in Scotland share that approach to funding? I take it that they face the same difficulties when making decisions.

Dr Cullen: Yes, they do. I have been banging on about our approach for a while now, and we are getting some consensus within the sector that the framework is useful, even if everyone does not completely agree. Through Universities Scotland and under the auspices of SHEFC, we are developing a set of metrics, or measures, that is based on the framework. We will use that to examine outreach performance as distinct from outcome performance.

The convener asked earlier about the potential for an R and D mechanism in knowledge transfer. We are certain that that will come. It is only right that, if we are spending a lot of time, money and resource in this area, we should be able to demonstrate as a sector what we are doing and the value that we add.

Janet Brown said earlier that we should not count only spin-out companies. I absolutely agree: that is why it is so important to apply different objectives and measures against such different activities. We hope to have a signed-up survey by the end of the summer. That approach has already been endorsed by Universities Scotland's research and commercialisation committee.

Mr Macintosh: My question is for Sir Alan. Do you find that universities and other institutions are pursuing an individualistic approach to the development of ideas and commercialisation generally, or do they want to work collaboratively through the Scottish Institute for Enterprise?

Sir Alan Langlands: There is a will to work collaboratively. The interesting point about the institute is that when the project started, it was funded for only five universities in Scotland. Other universities took a very strong interest and, despite the fact that the other universities have not been allocated nearly as much money as the original five, they are working together constructively. Universities such as the University of Paisley, the Robert Gordon University and Napier University have a long tradition of teaching enterprise management and entrepreneurship and have brought a great deal to the party.

There is a sense that people are willing to work together and share good practice. Of course, there will always be an element of competition—that is how we are set up. However, I have been impressed by the collaboration. The staffing groups in each of the universities are very strong and come together regularly to share good practice and to share out what can sometimes be a demanding work load. The signs are good for collaboration.

Mr Macintosh: If good ideas are coming through the University of Dundee, for example, and you want to support those ideas, would you do so as the University of Dundee or would you go through the institute?

Sir Alan Langlands: We could do both. We have been pursuing a project in Dundee that involves working with two major, established companies in the city. We are working with their middle managers to help to support progress in SMEs and in some student projects. That collaboration has been working well and other members of the SIE have been considering it. I am sure that some of them will pick up elements of that project and run with them in their own setting.

Mr Macintosh: Do you support the idea of a separate funding stream for universities, just for economic development?

Sir Alan Langlands: The obvious and quick answer that any principal or vice-chancellor would give to a question about whether they wanted separate, and presumably more, money is yes. We have to be careful that we do not skew the activities of universities too far in one direction, either by a new incentive structure or through the allocation of funds. My paper is clear that universities have other purposes before commercialisation of the research base. There has to be a research base to commercialise, so I would be cautious.

A reasoned approach is being taken to the issue at the moment. Scottish universities, and the University of Dundee in particular, benefit enormously from the support that they get from Scottish Enterprise nationally and locally. I agree with Kevin Cullen that SHEFC has handled the knowledge transfer grant well. In our case, we have not received a lot of money—perhaps £500,000—but it is important money because we have discretion to use it to lever projects in a way that we have not been able to do in the past. SHEFC has been clever in striking the right balance between giving people local flexibility and holding them to account for what has been achieved. More of that approach could be extremely helpful, but we should go at a reasonable pace and not forget the real purpose of our universities.

Tavish Scott: I have a wider question for our guests about the number of young people taking science degrees. I am not clear as to what the latest evidence suggests. Are we doing enough to encourage young people to take science degrees and to specialise in particular disciplines?

Sir Alan Langlands: I have two or three comments about that. There is a slight dip in the number of applications to Scottish universities and I have no doubt that there will be a dip in the number of applications for science subjects.

We happen to be swimming against that tide. There was a 20 per cent increase in applications to the University of Dundee last year, and a 6 per cent increase this year. We attract students by

working hard to put on new courses that cross traditional boundaries and appeal to young people. We try to do that in a way that does not damage in any way the integrity of what we do. However, the market is very fickle, and there is undoubtedly a shortage of young people taking science subjects. Of course, that can be traced back to school; the physical sciences such as mathematics, physics and chemistry have become almost unpopular for those in my children's generation.

15:15

Tavish Scott: Can you discern trends as to why that is the case? This is the wrong way to describe it, but is it a fashion issue? Is it something to do with modern society, or are there deeper, long-term trends that we must address through policy?

Sir Alan Langlands: It is a deeper issue. I am certainly no expert, but it goes very deep into the schooling system.

Tavish Scott: Do you have a perspective on young people and science, Dr Cullen?

Dr Cullen: I admit that it is not my area of expertise. However, as a scientist who came through the education system and as someone with kids who are reaching that age, I can say that science is not seen as exciting, although it was when I was a boy all those years ago.

Along with everyone else, universities have a responsibility to make the case that science is exciting and sexy as well as important to the economy. University outreach activities should be used to do that. The universities would not make much money out of that, but it would be good for the economy. Indeed, we apply some of our knowledge transfer grant money to support that work.

The Convener: In this job, I get invited round the country to see different things—

Tavish Scott: You get invited all over the world.

The Convener: I get invited all over the world, like Tavish.

Undoubtedly, a lot is going on in Scotland. One needs only to mention the University of Dundee as a classic example of an institution that is now world renowned for its work on cancer, for example. However, two weeks ago I had a meeting with the company that specialises in the commercialisation of university research. It claims to have identified about 60 potential projects in Scotland's universities; the same has been said by a number of venture capitalists whom I have met. Rightly or wrongly, a lot of those projects are being held up by issues such as the jam in universities' decision-making processes.

University contract researchers are not happy campers, to say the least. They are among the

most talented people and, as has been rightly said, we need to retain them. However, one hears of SMEs that have approached the proof-of-concept fund but have been told that they cannot get funding because they are not in one of the seven cluster areas. Therefore, their projects are effectively lost.

What must we do to make a further step change towards commercialisation? I think that we all accept that heavy investment in basic science must be a prerequisite to a successful commercialisation strategy. Much more money than ever before is being allocated to the commercialisation process through a multitude of ways and means, including Scottish Enterprise, the new institutions that are being planned and yourselves. What step change do we require to make, given that we are still aiming for the same level as many of our competitors?

Sir Alan Langlands: There is a danger of talking in caricatures. For example, our technology transfer offices in universities are bad but venture capitalists are good. From recent, personal experience, many of the delays that are built into some of the deal making that goes on between universities and other bodies have as much to do with the other bodies as they do with the universities.

Certainly, there might be a case for streamlining the decision-making process in some universities, although I do not think that that is a major problem for Dundee and I expect that it is not a major problem for many places. In general, the technology transfer offices are not saddled by the committee structures that apply to other aspects of universities' work.

We have referred to the SIE initiative of bringing together venture capitalists, people from technology transfer offices and others to talk about the issues. My sense is that a lot of the work that is being done is to do with gaining an understanding of the motivation of all parties involved and trying to create a win-win environment. On a simple level, some streamlining in relation to the amount of paper that has to be produced as the companies are established would be helpful.

It would be wrong to characterise the technology transfer offices in our universities as being sluggish and a barrier to progress. That is not my experience. Over the past few years, they have come on in leaps and bounds. They are smart, aggressive and keen to make progress.

Dr Cullen: Obviously, as I am one of the people who is criticised and caricatured all the time, I have a vested interest in this matter.

The Convener: I am not taking sides, by the way; I am merely making observations.

Dr Cullen: Yes, but we hear those criticisms all the time.

Some consultants say that they have identified the technologies and that they would get on and do the work, if only the universities would let them. I spoke to two of them last week, both of whom wanted £15,000 each to get on and do the work—if they would do it for nothing, they would be welcome to do so. We encourage and involve anyone we can to get the technology out of the door. Venture capitalists say, "Give us the technology for nothing and we'll go away and make a fortune." They would not deal with other venture capitalists in that way and they must deal with us on level terms.

I have sympathy with SMEs and, in that regard, the interface between the university sector and the SMEs has not been optimal. That is why we have proactively put together £1.2 million to try to make that interface more effective by translating the technology into language that the SME can speak and by recruiting people who can make linkages and create the relationships that will lead to economic development.

From a personal and a professional point of view, I can say that we are not burdened by bureaucracy. The caricature of the university having to go through committee after committee to reach a decision on the colour of the crockery is not the case any more. We have devolved authority and it is seldom the case in our office that deals are held up because of bureaucratic delays at our end. We have a job to do in public relations because the claims that people like to make about universities cannot be substantiated.

The Convener: Is there anything that the Scottish Executive or the Scottish Parliament should do to facilitate greater commercialisation in addition to what has already been done?

Dr Cullen: In the paper, I suggested that more should be done to support us to be both an agent of economic development and a venturer in different ways at different times. Sometimes, we are beaten up if we operate as international businesses when we are operating in the outcome mode.

We need more support and more encouragement. It would not take much more funding to make what is already happening lead to something quite special. From speaking to colleagues, I know that the rest of the world is looking at Scotland as something of a role model in this regard.

Sir Alan Langlands: I suggest that the Scottish Executive should not set spurious targets. As you discussed with Janet Brown earlier, something should be done about the low level of research and development in Scottish companies. That idea

of industry pull will be important to universities in the next stages of this process.

The Convener: I certainly agree with the last point in respect of targets. The nation that achieved most of its targets on paper was the Soviet Union and we know what a raging success it was.

Your evidence was extremely helpful. Thank you very much indeed.

Sir Alan Langlands: Thank you.

Teaching and Research Funding

The Convener: We move to item 3, which is our consideration of teaching and research funding in higher education. I welcome Roger McClure, the chief executive of the Scottish Higher Education Funding Council and the Scottish Further Education Funding Council, Professor Georgina Follett, whom I think we have seen at the committee before, and Professor David Gani, whom we have certainly seen before. Are you going to kick off, Roger?

Roger McClure (Scottish Higher Education Funding Council): Indeed.

The Convener: Thank you for your very helpful paper. Perhaps you might like to supplement it with a few remarks.

Roger McClure: Thank you for the opportunity to meet the committee this afternoon. As the committee recognises my colleagues, there is no need to introduce them apart from saying that Professor Follett is a member of the United Kingdom committee that is looking at the research assessment exercise. I know that the committee is interested in that exercise. Professor Gani, who has been with the funding council for just under a year, represents a very positive move by the council to establish a research policy and strategy directorate, which increases our capability to support the universities in respect of research policy and so forth. That is a very welcome development.

I have apologies from my chairman, Dr Chris Masters. Unfortunately, he is not able to attend the committee this afternoon. I also have apologies from Professor Geoffrey Boulton who, as the committee knows, is the chair of our research policy committee. Both of them would have liked to have attended the meeting today had they been able to do so.

I do not have anything to add to our submission. I understand that the committee's interest is primarily in science, the economy and knowledge transfer and in SHEFC's role in all of that. I know that on the last occasion that the funding council appeared before the committee before I arrived in Scotland, there was some discussion about teaching and research funding methodologies. I therefore thought that it would be useful in this introduction to reassure the committee that, when the allocations were made last year, its concerns were registered and responded to. I am sure that members know that the revised methods of allocation took account of nearly all the points that the committee made. I hope that that was indicated in our submission.

I will summarise the key points. The committee was concerned about price groups, prices and the treatment of fees-only students in respect of teaching funding. I confirm that movement has been made on all those matters. Similarly, the committee's comments on widening access and premiums for disabled students were implemented and allocations were made.

Few concerns have been raised by the sector. Indeed, we are pleased that early returns for the current year show that the sector is delivering about 1 per cent above the Scottish Executive's target for students in Scotland. At the moment, with Universities Scotland, we are progressing work on prices, price groups and so on in order to be satisfied that the basic relativities that are expressed in those broad groups are appropriate.

On the research side, a key development is the additional funding that the Scottish Executive made available after the results of the 2001 research assessment exercise were known. One can never be sure how these things happen, but the additional money, which the committee recommended, made a huge difference to settling the allocations for institutions in Scotland. It enabled us to make a 14 per cent increase in quality-related funding.

In making those allocations, we were able to include some of the 3-rated departments. I remember that that issue was of particular concern to the committee. Members were also concerned about the post-1992 institutions and whether their research contribution would suffer. If they have had a chance to examine the figures, members will see that that group received substantially the biggest increases—admittedly, from a fairly low base compared with research-intensive institutions.

15:30

The sector welcomed the research allocations and the various components of our research funding to which we refer in our submission. Those include picking up rising 3 departments, the foundation grant and the strategic research development grant that we have introduced. It is interesting that many of the components of the white paper on the future of higher education in England and Wales that was published recently are very similar to those that are already in place in Scotland. I take that as a form of endorsement.

One of the key points that I want to make about science, the economy and knowledge transfer was made earlier today. The essential roles of universities have been widened gradually over many years. Additional roles that universities would not naturally have thought of as being core territory include widening access, with its social

justice implications. Now there is an emphasis on how universities can support and develop the economy. Sir Alan Langlands pointed out that that is not a core function of universities, but one that they are taking on.

The shift that I detect, even while I have been in post, is that universities and higher education institutions throughout Scotland are now ready to accept supporting the economy as a role and responsibility in which they are engaged fully. They do not regard it as an unwelcome role into which they are being pushed or as something that they are required to do in return for grants. There is a clear acceptance that supporting the economy is a responsibility of the system. I am sure that universities will respond extremely well in this area, as they have done in many other areas. They have been successful in increasing the quality of research, widening participation and so on. We must consider how well they do over the next two or three years.

Our submission makes three basic points about the funding council's role. First, we must have an excellent science base and it is a fundamental responsibility of the universities to provide that. Secondly, we need excellent teaching, because the export of appropriately qualified and skilled graduates into the economy is probably the biggest transfer of know-how that the university sector makes. Thirdly, we need to facilitate the process of knowledge transfer that the committee has explored. The funding council has a role in that process. Our knowledge transfer grant has been referred to. SHEFC is considering how, in forward planning its budgets, it can increase that grant, as the messages that we are receiving about it are very encouraging.

The Convener: That is a very helpful introduction. It is good to know that many of the recommendations in the report on our inquiry into teaching and research have been implemented in whole or in part.

As the emphasis of today's meeting is on research and commercialisation, I will begin by asking about the relationship between, and respective roles of, the new science advisory committee and SHEFC's research policy committee. There is potential for considerable overlap and complementarity in what those two bodies are trying to achieve.

Roger McClure: This is an evolving situation. We did not immediately agree how everything should work in the future. However, you are right to suggest that the two committees have complementary responsibilities. Professor Gani attends meetings of the science advisory committee. He is in close contact with Professor Sibbett and the work of the science advisory committee. In simple terms—as we said in our

submission—we will await the committee's broad recommendations vis à vis science in Scotland, although we will take part in generating its output. We will then consider the role of SHEFC in developing those proposals. This is an evolving relationship, but because Professor Gani's role is focused on university research and its development it should not be difficult for the relationship to work well.

The Convener: What role will the funding council have in relation to the ITIs?

Roger McClure: Up to now, our role has been to ensure that the ITIs are set up in a way that enables them to work with the universities. Some of the criticisms of the RAE centre around the fact that such processes do not always take sufficient account of the way in which research is undertaken or the aspirations and incentives that drive researchers. In working with Scottish Enterprise, we were keen to ensure that, as the model and its way of working were developed, they fully took into account the aspirations and ways of working of the researchers on the ground. It was evident that if they were pulling in opposite directions, it would be much harder for the initiative to be successful.

It is fortunate that, as a result of the work of the joint task force, which was undertaken last year by the funding council and Scottish Enterprise, I now attend the board meetings of Scottish Enterprise and Robert Crawford comes to our meetings. In discussion with him on how the ITIs were developing, I organised a meeting to bring together university representatives, Janet Brown and others from Scottish Enterprise and people from the Executive's enterprise and lifelong learning department, and we now have a standing group that meets regularly. It is led by Andrew Hamnett, from the University of Strathclyde, along with other representatives, and works closely with Scottish Enterprise to ensure that the way in which the model evolves is sensible and reinforces the objectives instead of working against them.

Therefore, the funding council has had an important role in facilitating. We also have a financial role. In our forward funding, we have been allocated funds—similarly to the dual support arrangement—to mirror the funds that Scottish Enterprise is investing as if it were a research council. We have funds to invest in the research base to provide the infrastructure on which the additional work of the ITIs will be based.

The Convener: I would like to ask Professor Follett about progress on the review of the research assessment exercise. When do you expect that review to be completed?

Professor Georgina Follett (Scottish Higher Education Funding Council): We will have one further meeting in March, after which a paper will

be produced and go out to consultation. It is incredibly difficult to draw together all the different strands in research. It is no longer purely papers that are involved, but also practice-based work and work that has other types of output. We are currently developing—or proposing to put into the consultation—two models to be evaluated by the academic community and partners. Those models will go out to public consultation.

The discussions have been rigorous. The group includes representatives of industry, academia and other interests, including medicine and the humanities, so there is a broad grouping within that arena. I do not think that we have found the answer—it is a bit like a holy grail—but we have certainly moved some of the agendas forward.

The Convener: I ask that our successor committee, after 1 May, be notified officially when the consultation exercise starts. It may want to submit a response in the light of the work that we have done on research and teaching.

Professor Follett: I will make sure that it is.

Miss Goldie: I am interested in the part of your submission that covers the increase in student numbers for science and the related subjects of engineering, computing and mathematics. Has there been a sustained increase that will continue, or has there been a proportional increase in relation to what has happened in previous years? I refer to paragraph 7 of your submission.

Roger McClure: I cannot give you exact comparative figures off the top of my head, but my impression is that science has been doing better than expected. It was interesting to hear the evidence of your earlier witnesses, which was a bit ahead of our submission in that it concerned applications. Application rates are not as important as getting enough good students. Whether there are 10 or four applicants per place does not matter. The figures in paragraph 7 show the number of students who are present in the institutions and, over the past few years, the figures for those subjects have been encouraging.

Miss Goldie: Does SHEFC intend as far as possible to maintain funding to meet that demand by institutions, if that demand is sustainable?

Roger McClure: Yes. Our whole funding approach is to try to support student demand. I am sure that you are familiar with the fact that having gone through all the convulsions of the model, we come out with a block grant. The intention is that the institutions should recruit in response to demand, except in a few controlled areas such as medicine for which, because of the costs and so on, the numbers are capped.

Miss Goldie: I have a more general question, which is still related to where the applicant

students come from. There has been some anecdotal evidence that there is a paucity of teaching of science subjects at secondary school. Is there any dialogue between SHEFC and the educational system—whether at Executive level or elsewhere—or is your dialogue directly with the institutions for which you are directly responsible?

Roger McClure: I cannot give you a comprehensive answer on whether there has been any dialogue between SHEFC and the schools. I am personally not aware of any senior-level dialogue of that kind, but I would expect it to originate between the institutions and the schools. That would be the natural locus for that kind of discussion. As you know, the schools are in frequent annual contact with universities to discuss what they are looking for, the types of opportunities that are open to students and so on. Where we can support students emerging from schools is in the kind of information that we make available to them. The funding council has had a role in supporting initiatives to improve the information that is available to students when they are choosing their universities and courses.

Tavish Scott: I wish to follow up with a small supplementary on Annabel Goldie's line of questioning, which is important. What about the many bodies that you sit on and their liaison with Scottish Enterprise and many other organisations? Is any work going on with working groups or Government departments to examine specific questions? Annabel Goldie's point about the figures in paragraph 7 on student numbers is important, but we heard earlier about what is happening generally. I agree that that is anecdotal. That is what worries me, because it is not evidence based. Is any work going on at strategic levels to examine the deep-seated problems that Sir Alan Langlands described earlier regarding the lack of younger people who are doing science degrees and science disciplines?

Roger McClure: I am not personally aware of such discussions. I can find out from colleagues whether that is happening. While we are on this line of discussion, it is worth making the point that there have been many examples recently of funding councils trying to correct demand-side shortfalls by creating extra places, but of course creating extra places does not itself stimulate demand.

If there is a demand issue, it is much more a question of trying to understand the market forces that are causing a shortfall in demand where one might have expected demand to come through. We engage in that kind of discussion. One recent example concerns the health department in Scotland. There have been recent reviews of the supply of doctors in Scotland and of people taking up professions allied to medicine, where there are

clear shortages and we are asked occasionally to supply places. Depending on the circumstances, we try to respond if we can, but that does not address the fundamental problem, which is that people do not want to do some of the jobs as they are currently structured and rewarded.

Tavish Scott: I have two specific questions on the submission. The first is on one of the bullet points in paragraph 5, which states:

"£10 million per annum to institutions to strengthen capacity where it is lacking in selected priority economic and other areas".

As with previous points that you made, who makes that assessment?

Roger McClure: We have a process in the council. We have a committee to advise on which proposals to support. We often work with Government departments and look to co-fund in particular areas. To give a specific example, one of the first projects of that kind was in health and we have just done another one in education, which considered how better teaching practice could be developed in schools.

The strategic research development grant is taking on a new form and replaces an earlier type of grant. We recently published information on the different streams of funding that will fall under the grant, how we will target the money, which people we expect to apply and the people for whom we expect the funding to be top down. We have tried to construct a scheme that gives us flexibility in responding to gaps and deficiencies that we see in the research base.

15:45

Tavish Scott: Given that we are discussing science and knowledge transfer, are gaps and deficiencies in those areas coming through in the initial stages of operation of the fund? Will the fund be particularly focused on those areas?

Roger McClure: There is no doubt that many of the bids that we receive relate to science projects and that we consider those bids. However, other areas are involved and we must strike a balance. The second paragraph of our submission makes the point that we should not think that supporting science is the only way in which the economy will develop because other areas, such as the creative arts, also have an important role. We try to balance our support for projects.

Mr Macintosh: I was encouraged by your assessment of the impact of the changes to your price structure that were made last year—perhaps the worst fears of the new universities were not realised. Are you aware of any adverse or untoward effects of the changes?

Roger McClure: That is an interesting question. If your question is whether we have had representations from institutions, the answer is yes, but whether I judge that to be an adverse effect of the funding system is another matter. When we consider the system from an overall perspective, we do not think that it is deeply flawed and we have had virtually no responses from the sector to indicate that. However, occasionally, people argue that a particular discipline is underfunded; for example, modern languages have been in the headlines for that recently.

In Scotland, we have 13 or 14 price groups—depending on how one counts them—but in England there are only four. In our situation, there is an averaging of costs. As there is a range of subjects in each group, it is inevitable that, when a mid-point funding level is fixed, people involved in some subjects in the group feel that they are underfunded and others feel that they are slightly overfunded, although they will not admit it. However, because most universities are multi-faculty institutions, the usual swings and roundabouts come into play. The system is perfectly satisfactory and allows us to strike a balance; it gives institutions flexibility and ensures that our funding is not too detailed or prescriptive.

The people from whom we hear always think that their subject is underfunded—no one says that their subject receives more than the average—and tend to have bypassed the head of their institution. Once we have issued a block grant, it is for the senior management and the court of the university or higher education college to decide how to distribute the funding among its departments. That is a detailed matter and must be left up to the institution to decide internally because we can have no sensible understanding of the organisation and cost structures in different departments. Now and again, people say that their subject is underfunded but, at least in part, that reflects the decisions that the institution has taken.

Mr Macintosh: Your submission highlights many points on which you support science, but, overall, are you increasing the share of funding for science in relation to the funding for other subjects across the spectrum? I cannot tell that from your submission.

Roger McClure: If you want a precise answer, I will have to check back through documents.

Mr Macintosh: I am asking for a broad view.

Roger McClure: Science still has the dominant proportion of expenditure, but the figure depends on how science is defined. For example, paragraph 7 of our submission says that the figure is 40 per cent, but that includes funding for subjects such as engineering and computing. If

medicine and some social sciences are included in the definition, it could easily be said that 75 per cent of teaching funding was allocated to science disciplines or disciplines that are closely related to science. The proportion for research funding is about the same.

Mr Macintosh: Not all fluctuations in student intake or graduate output are directly related to your decisions, but do you collect evidence on the effect of funding decisions on student numbers in some subjects, or do you use other evidential bases for assessing the impact of funding changes?

Roger McClure: We monitor the number of students who are recruited in each area. Each year, institutions have the opportunity to seek to make adjustments between the price groups. I said that institutions have much less flexibility in a few subject areas and that they are expected to operate within the funding group, because of its special nature. Medicine is the obvious example of that, and parts of education are other such areas.

Except in the controlled areas, we give institutions the flexibility to transfer numbers between groups before each funding round, so that the numbers reflect as closely as possible what is happening on the ground and student demand. As I said, it is not sensible to insist on recruiting in an area for which there is no demand. That becomes a diversion of resources away from something for which there is demand.

Mr Macintosh: Some witnesses have welcomed the knowledge transfer fund. Universities have difficulty in deciding the criteria to use to fund opportunities that will be commercially successful versus those that are just for the public good. Do you use a set of criteria for supporting funding? For example, the knowledge transfer fund appears to be a success. Do you have criteria for rewarding and increasing that?

Roger McClure: Allocation relates to a formula and we have a basis on which we make distributions to institutions. We give institutions much flexibility—which has been welcomed, as you heard—about what funding can be used for in the broad area of knowledge transfer. Again, we try not to be prescriptive. We follow up matters and receive reports from each institution on what they use the funding for.

As has been said, we are working with others to develop metrics for knowledge transfer. When we establish good, reliable metrics, I am sure that we will want to use them to improve our formula for allocating the knowledge transfer grant. As I have said, we plan a substantial increase as soon as the budget allows that. We see that coming on stream not next year, but in the second and third years of our triennium.

Mr Ingram: My colleagues have covered most of the ground. I am particularly interested in the comment in your submission that

"It is important to emphasise that the single most important route for the transfer of ideas and know-how from higher education to the economy comes through the employment of graduates."

We know that there has been leakage of graduates from the Scottish economy through the years. It is vital for our growth prospects that we retain a far higher proportion of our graduates. Do you monitor that situation? Can you say whether the proportion of graduates from Scottish universities who are employed in the Scottish economy is increasing or reducing?

Roger McClure: We are becoming more interested in such figures, but they are extremely difficult to obtain. A first-destination survey is undertaken six months after graduation. That does not provide brilliant data, and data about what has happened to graduates of Scottish universities are poor after that.

That is certainly an area of increasing interest. As I said, we are likely to make progress in fields such as health, in which a specific issue has arisen and the health department is now looking at its work-force planning in the medium to long term. The health department knows that Scotland trains far more doctors than it needs, but that it is still short of doctors. We are in discussion with the department and with our parent department on what responses are available to us to do something about that. Sir Kenneth Calman, the vice-chancellor at Durham, is leading an inquiry on that at the moment. I have met him and we have discussed the matter, and we will have a further meeting before the summer.

Mr Ingram: Clearly, those are the outcomes that we want to drive towards, and the impact of your decisions should be measured against them.

Roger McClure: That is difficult territory, because, under European legislation, people from other nations cannot be discriminated against. One method of retaining people in Scotland might be to try to get more home-grown Scots into specific courses. Something would have to be done at the recruitment stage, which is where you run into difficulties about what actions are available to encourage more home-grown Scots. The committee will be well aware of the recruitment issues that have been aired in the press recently in relation to how candidates are chosen.

The Convener: I read in one of this morning's newspapers that the First Minister is making an announcement today on his population measures, which will include some ways of retaining more graduates in Scotland. I do not know the details, but no doubt we will find out later.

Roger McClure: I would be interested to hear how he is going to do it.

The Convener: You have obviously not been consulted, then, Roger.

Thank you for your helpful evidence.

BAA (Correspondence)

The Convener: Item 4 concerns correspondence from Donal Dowds, who is the managing director of BAA Scottish Airports. When I receive correspondence about a report that the committee has produced, I normally reply adhering to the committee's line. However, the tone of Donal Dowds's response was such that I thought that other members of the committee might want to comment before we respond.

My view is that Donal Dowds's tone was a bit hysterical, to say the least, and that he totally missed the point. The point was that we took evidence from some people who believed that the BAA monopoly was damaging to the aim of encouraging more direct flights into Scotland. We took evidence from other witnesses, particularly those from BAA, who clearly did not believe that the position was damaging. My view is that when we reply, we should point that out and emphasise that we were not saying that BAA is damaging to the Scottish economy, but that we had sufficient evidence to justify a request for an inquiry by the appropriate body—in this case, the Select Committee on Scottish Affairs—to investigate the matter thoroughly. BAA will clearly come up with its evidence and others will come up with contrary evidence.

I think that we should simply reply to Mr Dowds, emphasising that point and recognising that BAA has announced a substantial investment programme in Scotland. That is clearly welcome, but the key issue that we were trying to address was whether the monopoly position—in Scotland as well as in London—was damaging to the Scottish economy, and whether, if it is damaging, appropriate action can be taken. We did not reach a view or conclusion on the matter; we simply raised it as an issue to be addressed.

Given the tone of the letter and the statements that were made by Donal Dowds the other day in relation to Prestwick airport, I question whether he is sufficiently independent to be a member of the board of VisitScotland. If boards are made up of people with vested interests—which Mr Dowds clearly has, as his primary job is to defend the interests of BAA—the question arises whether such people should be members of the board of the main tourism body in Scotland. I am not suggesting that the committee should comment on that or take any action at this stage, but I raise that as a question that is in my own mind.

16:00

Miss Goldie: The convener is, if nothing else, entitled to express his view, which is personal. I agree in principle with the proposal for dealing with

the letter, but must confess that I was unclear about one or two facts when I read it. Perhaps other committee members or the clerks can help. I do not recall BAA's £60 million route development fund emerging as a critical piece of its evidence. I simply want to ascertain whether it was in BAA's submission or emerged during oral evidence.

Simon Watkins (Clerk): To be honest, I cannot remember whether it was in BAA's submission or oral evidence, but it was mentioned.

Miss Goldie: It was mentioned, but not as a significant part of BAA's submission. It was only mentioned.

The Convener: That would be open to interpretation.

Miss Goldie: That brings me to my next question. Do we know what BAA has achieved on new routes on the back of that route development fund? Did that emerge in evidence?

The Convener: I do not remember the detail being presented. BAA made a clear assertion. We questioned BAA closely on the matter. It clearly believes that it is making the investment to get direct flights into Scotland. It believes that, far from damaging the prospect of direct flights, it is investing heavily. Perhaps an inquiry would find that that is indeed the case and that, without BAA's monopoly and consequent investment, such flights might not take place. However, Donal Dowds has missed the point that we did not come down on one side or the other. We said that there was enough concern to justify an inquiry.

Miss Goldie: I would want the committee to make clear in its response that it does not doubt the veracity of BAA or any of its representatives who gave evidence, but that there are differing interpretations of the situation. If I recall correctly, the operators gave evidence that, at best, conflicted with BAA's evidence. That is a perfectly natural situation, but it requires the committee to make some sensible suggestion about how to determine a way forward from conflicting evidence from two sources.

The Convener: If issues of monopoly and competition were devolved matters, we would, no doubt, conduct the inquiry ourselves. However, as they are reserved matters—I make no comment on whether that should be the case; the committee can guess my position on that—we have to refer it to the Westminster Select Committee on Scottish Affairs, which would be the appropriate body.

Tavish Scott: My recollection is that BAA gave evidence with representatives from Glasgow Prestwick International Airport Ltd and Highlands and Islands Airports Ltd. The evidence, particularly from Prestwick airport and BAA, inevitably conflicted. The committee therefore had to reflect

and come to a view on what was said on that day. I seem to remember that our reflections were pretty vigorous and that that made for a livelier meeting.

If BAA takes our report as a firm prod for it do better, so much the better. That makes it a more effective organisation in the context in which we hoped that it would be more effective.

I agree on the practical issue of our recommendations. It is for another body to act on them. I do not agree on Donal Dowds having a conflict of interest. It could be argued that Peter Lederer has a conflict of interest. I recollect that we recommended that the industry bodies' structure—not that we got into structural issues, which was right—should reflect the four sectors that are involved in tourism: retail, accommodation, visitor attractions and transport. It would be inconsistent to argue that Donal Dowds should not be a VisitScotland board member when we rightly argued that the structure of our industry-led bodies should include those four sectors.

The Convener: There is a practical issue. One of the points that we made to VisitScotland, and which VisitScotland has made, is the need for more joint marketing with companies such as Ryanair that operate out of Prestwick airport. When the VisitScotland board discusses such matters, should Donal Dowds absent himself? It seems to me wholly inappropriate for him to know about, let alone be involved in, any such negotiations.

Tavish Scott: I am sure that you and I have been in situations in which we have had to do exactly that, so I presume that that is the practice. However, if VisitScotland were to reconstitute the industry bodies' boards in the way in which the committee has gently suggested that it should—

The Convener: They would be elected.

Tavish Scott: They would be, but one would hope that other representatives would be included to reflect the broader spectrum of industry issues.

The Convener: Absolutely.

Miss Goldie: I did not comment directly on the convener's suggestion on the position of Mr Dowds on the VisitScotland board.

I agree with what Tavish Scott says. The board of VisitScotland should be able to act autonomously. It is not for the Government, the Parliament or any other political process to interfere with that. However, that implies that the board should be widely based, so that it can make sensible decisions about how it represents issues and is sensitive to the possibility of there being a conflict of interest on certain occasions.

The Convener: I will write to VisitScotland in a personal capacity, to seek assurance that the

interests of Prestwick airport and of non-BAA operators are not being compromised in any way. Given Mr Dowds's attack on Prestwick in the press two days ago, it would be wholly inappropriate if he were to be directly involved in negotiation.

Mr Ingram: I support that position, as I have a local interest in Prestwick airport, which has been doing a great job in attracting new routes and direct air links.

The Convener: Let us not forget that BAA ran a campaign to close Prestwick 10 years ago.

Mr Macintosh: I want to distance myself from those comments. We should not get into a dispute with BAA or with Donal Dowds. We have no evidence to suggest that he does anything other than a fine job for VisitScotland. I hope that, when the convener writes to VisitScotland, he makes it clear that he is doing so in a personal capacity, rather than on behalf of the committee.

I was concerned about the way in which we singled out BAA in our discussions. However, I was happy to go with the wording that we came up with for our report, not only because some members of the committee felt strongly about the issue, but because we were drawing the attention of the Department of Trade and Industry to a possible perception of BAA's position. I did not share that perception.

In our response to Donal Dowds's letter, I urge that we do not repeat his tone. We should adopt a calm and moderate tone. I am sure that that would be the convener's instinct.

Miss Goldie: The convener will not draft the letter.

The Convener: The member must remember that Brian Fitzpatrick has described me as a calming influence. I would be quite happy to circulate the draft reply to committee members, if they would like to see it before we send it. Is that course of action agreed?

Members indicated agreement.

Annual Report

Meeting closed at 16:08.

The Convener: Item 5 is consideration of the committee's draft annual report. Is everyone happy with the report?

Members *indicated agreement.*

The Convener: Excellent.

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