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Pàrlamaid na h-Alba

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ECONOMY, ENERGY AND TOURISM COMMITTEE

Wednesday 11 December 2013

Session 4

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ECONOMY, ENERGY AND TOURISM COMMITTEE
35th Meeting 2013, Session 4

CONVENER

*Murdo Fraser (Mid Scotland and Fife) (Con)

DEPUTY CONVENER

*Dennis Robertson (Aberdeenshire West) (SNP)

COMMITTEE MEMBERS

*Christian Allard (North East Scotland) (SNP)
*Marco Biagi (Edinburgh Central) (SNP)
*Chic Brodie (South Scotland) (SNP)
*Alison Johnstone (Lothian) (Green)
*Mike MacKenzie (Highlands and Islands) (SNP)
*Hanzala Malik (Glasgow) (Lab)
*Margaret McDougall (West Scotland) (Lab)

*attended

THE FOLLOWING ALSO PARTICIPATED:

David Grahame (LINC Scotland)
Dr David Lightbody (Biogelx Ltd)
Gillian MacAulay (Strathclyde University Incubator Ltd)
John Waddell (Archangel Informal Investment)

CLERK TO THE COMMITTEE

Stephen Imrie

LOCATION

Committee Room 4

Scottish Parliament

Economy, Energy and Tourism Committee

Wednesday 11 December 2013

[The Convener *opened the meeting at 10:30*]

Decision on Taking Business in Private

The Convener (Murdo Fraser): Good morning, ladies and gentlemen, and welcome to the 35th meeting in 2013 of the Economy, Energy and Tourism Committee. I welcome to the meeting my colleagues and our witnesses and remind everyone to turn off or at least switch to silent their mobile phones and other electronic devices to ensure that they do not interfere with the recording equipment.

Item 1 on our agenda is a decision to take in private the consideration of our approach to and witnesses for the committee's forthcoming inquiry into Scotland's economic future post-2014. Are we agreed?

Members *indicated agreement.*

Access to Finance

10:31

The Convener: Item 2 is the continuation of our inquiry into access to finance. I welcome to the meeting our witnesses: David Grahame, executive director of LINC Scotland; Dr David Lightbody, chief executive of Biogelx Ltd—have I pronounced that correctly?

Dr David Lightbody (Biogelx Ltd): It is pronounced "biogelics".

The Convener: Thank you. We are also joined by Gillian MacAulay, managing director of Strathclyde University Incubator Ltd, and John Waddell, chief executive of Archangel Informal Investment.

Before we get into questions, I invite each of you to take a couple of minutes to introduce yourselves and say a little bit about the current position with access to finance.

David Grahame (LINC Scotland): Good morning. I am from LINC Scotland, which is the national representative association for business angel investors in Scotland. First of all, I should point out that there is an organisation in London called the United Kingdom Business Angels Association, which has no locus outside England. That is not a political point—it is just an unfortunate confusion.

Chic Brodie (South Scotland) (SNP): It is a good point, though.

David Grahame: I will make two very quick points to give members a little context for the angel market at large. The practitioners to the left of me will be able to tell you more about what things are like at the front end.

The obvious point to make first is that venture capital investing of any kind, including angel investing, is absolutely a niche activity. To put it in perspective, fewer than 2 per cent of companies ever access external equity to help them grow. However, although in one respect its niche is tiny, it is still very important because the companies that we support—in our case, from the earliest stages—will, if they succeed, go on to be disproportionately important economically and punch way above their weight in economic impact. It is a small sector that has a big effect.

Another point that we think is overlooked is that business angel investing is not fund management or venture capital management of professional funds. We are private citizens who invest our own money. Private capital and wealth are highly mobile and, if you think about it, you will realise that almost any other asset class that high net worth individuals can put their money into will be managed in London—or perhaps in Edinburgh—but will not be invested in Scotland. Business angel investing is almost unique in that, as a result, private capital is retained and reinvested in the regional economy.

It is generally accepted that there are three main levers in the development of an angel market: first, appropriate tax incentives, which can help to bring in people in the first place; secondly, access to co-investment, which not only allows investors to achieve a portfolio effect but, more important, gets more money into many more companies more quickly; and thirdly, what we simply call support for delivery mechanisms—in other words, the channels by which we get the money into the companies—which is the area where LINC Scotland is particularly active in supporting its members. Scotland has benefited from stable access to all three of those levers for quite a long time now, which is perhaps why, in a worldwide study published in 2012, the Organisation for Economic Co-operation and Development concluded that Scotland has by some measure the most developed and active business angel market in Europe. We have, of course, no sense of complacency, but we certainly have a platform to build on.

Dr Lightbody: I am the chief executive officer of Biogelx. We are a spin-out from the University of Strathclyde and we came out on 18 December last year, so we have been out for about 12 months. I guess that I am at the pointy end of the ship in this discussion.

We nurtured a project at the University of Strathclyde for a couple of years and got it to the stage at which it was capable of securing a Scottish Enterprise SMART award, which was useful. We then brought in a little bit of seed equity from Gabriel Investments, which Gill MacAulay leads. We have been building the business and hitting milestones for the past 12 months and are now at the stage of raising our second round of funding. We are in the process of that and interfacing with a range of angel networks across Scotland.

Gillian MacAulay (Strathclyde University Incubator Ltd): Thank you very much for inviting me here. As you know, I am the managing director of Strathclyde University Incubator and I have been involved with it since its inception in 1990. The incubator was primarily brought about to pull out technology from the university environment with a specific emphasis on marketing, finance and governance—the more business-related elements, rather than the technology, because technology businesses were failing most of the time.

We have a remit to help all businesses, including pre-start and pre-revenue businesses, and we are located on the university campus. We are there to pull businesses out of the academic environment into the commercial world. Being based on campus allows academics to straddle both camps, at least for a period.

As you may be aware, our most recent principal, Sir Jim McDonald, has put commercialisation fairly high on the university's agenda. To that end he bought out the other shareholders of the university incubator and now we are wholly owned by the University of Strathclyde.

As David Lightbody alluded to, most recently SUI spun out our own business, Gabriel Investments Ltd. That was due to the lack of funding for very early-stage technology businesses. We know that it is really difficult for a company to do business with the banks at that stage of its life and we are also aware that Scottish Enterprise's budgets are reduced, so the grant funding side of things is not as available to such businesses as it used to be. Angel syndicates are propping up their existing investments—I am sure that John Waddell will talk about that—and therefore we are not getting the level of exits that are required. There was a gap at the very early stage, so Gabriel was brought out to address that first level of punt funding, if you like, which can leverage a SMART award or a Technology Strategy Board grant, which can be very helpful.

That gives you a little bit of my background.

John Waddell (Archangel Informal Investment): I am chief executive of Archangel Informal Investment which, according to a reliable American academic, is the oldest functioning angel group of its kind in the world. The next oldest is Tech Coast Angels, which started in 1993 in San Diego.

I would echo a lot of what David Grahame said. It is important to understand that one of the reasons why Scotland is doing so well in terms of angel groups is the symbiosis with Government initiatives. The relationships that we nurture with Scottish Enterprise, the Scottish Government and other Government agencies make for a set of circumstances in which people are attracted from abroad—I include England in that term—to come and raise money here, because they think that they have a better chance of getting support, and the sort of long-term support that we offer to companies. In our 21 years of existence, we have led investment of £170 million in 79 Scottish start-ups.

I would make the broad point that there is a great deal of academic, Government and other interest in what we do. I spend a great deal of time filling in surveys and questionnaires—actually I do not, because I do not fill them all in, but I am asked to spend a great deal of time doing that. The reason for that is that it is hard to draw conclusions from an informal way of investing and it is very difficult to get reliable statistics. However, I would rely on what David Grahame tells you, because generally it is right.

The exit challenges for this kind of investing have become worse and worse over the past 10 years since the tech collapse in the early 2000s. When I arrived in 2005, the average time between investing and exiting for early-stage companies was about three years; it is now 10 years or more. It has been recognised throughout the industry that there has been an exit drought, even with the larger venture capitalists.

It is not necessarily about policies or methods; it is just that people do not get exits because people do not want to buy the companies. Sometimes that is because the company has not run itself properly and that is just tough, but it is also because, over the past seven or eight years, the natural buyers of these sorts of businesses have become very cautious.

Having said that, I think that the rabbit is now out of the trap and there are very encouraging signs that larger organisations are starting to take some risks by buying smaller companies, allowing us to get some exits. The great thing about exits for angel groups—this is an observation on psychology rather than something that is a consequence of common sense—is that people recycle their money. If they make money, they tend not to keep it; they tend to want to fire it back into a new venture.

The Convener: Thank you for those introductions.

I invite members to ask questions. Given that we have quite a large panel, it would be helpful if members could direct their questions to a particular panel member or members. If panel members want to chip in with an answer to a question that was directed to somebody else, they should just catch my eye and I will bring them in as best I can. If we could keep questions short and to the point and answers similarly focused, that would help us get through the subjects that we want to cover.

I will start with a couple of questions to get the ball rolling. I want to pick up on the points that John Waddell and David Grahame made about how successful Scotland has been at angel investment. How do we encourage that success to continue? Is it just a question of continuing with what we are doing and not rocking the boat, or would you like to see any changes in policy to make the environment better?

John Waddell: I would be disinclined to interfere too much with what we have. New brooms come into both the civil service and the Government with an inadequate understanding and some kind of idea that they can make things better. The main thing to do is to continue to interact with us and the main thing for us is to continue to improve. What we have here in Scotland is really very good and it ought to be nurtured and developed, as opposed to interfered with, changed or adjusted.

David Grahame: Yes. At the market level, the one concern we have going forward is the new 2014 to 2020 six-year structural funds programme, because the access to finance element of it is not yet absolutely clear. It is important that the co-investment fund that is operated by the Scottish Investment Bank and Scottish Enterprise is recapitalised in order that we can keep getting as much money as possible out to as many companies as possible. In so far as we have a position at all, we think that it would be useful if access to finance as a theme was identified separately within the structural funds programme, as opposed to being a horizontal line that is lost across all the other strands. Beyond that, if we do not throw the baby out with the bath water, we can take things forward.

The Convener: My second question is to David Lightbody and Gillian MacAulay. The figures that Universities Scotland has produced show that Scotland does extremely well when it comes to creating university spin-out companies. Universities Scotland says that 28 per cent of all spin-out companies formed in the United Kingdom over the past three years have been formed in Scotland. The nearest rival was London, with an 18 per cent share. Clearly we are doing very well. What do you attribute that to?

Gillian MacAulay: There are a number of reasons. Specifically on the spin-out side, there is the technology and innovation centre initiative at the University of Strathclyde, for example. The best and brightest academics will be brought into that environment because of the level of facilities there, and they will bring in their teams and huge amounts of grant money. There is now a drive from those academics to commercialise and to be involved in the commercial development of their academic research. We have seen that over a number of years now, and a number of academics have done exceedingly well in the commercial environment. That helps to attract the best and the brightest from all over the world to Scotland, which is an achievement that is to our credit.

10:45

Dr Lightbody: We perform well, but we could do better. Given my experience of the process over the past two years, I have a general comment that I think the committee will also hear from other practitioners who interface in this kind of way. One aspect of university spin-outs is intellectual property, but there is a reluctance in universities to negotiate from an IP perspective. One of our challenges in spinning out was getting the right IP structure and deal. I am not sure how we can tackle the universities' reluctance on IP and get into the entrails of it to deconvolute some of the issues. However, I know from my experience as an outsider coming into a university to attempt to spin out something that we must deal with universities' attitudes to intellectual property.

Chic Brodie: That is an important point. I exclude the University of Strathclyde from the point that I am about to make because I have had some good experiences recently in introducing people to it, although I want to talk about the interface programme in a minute. However, it is instructive to talk to some other universities. For example, I have talked to academics in Stanford University in California, and the first thing that they talk about is not

"production of research publications, citations and knowledge transfer efficiency",

which is what our briefing paper indicates a Scottish Government report on our universities talks about; the first thing that the Stanford academics talk about is equity participation and where they can get it. They do not talk about licensing and royalties, and their engagement is a lot stronger. Why is that? I know that we are doing reasonably well, but we could do a lot better.

Gillian MacAulay: We have very good people sitting on the outside in the commercial world and we have very good technical, academic people sitting within universities. However, we need somebody sitting in the university environment talking a bit more of the commercial language. For example, a commercialisation manager was put into the University of Strathclyde a number of years ago who worked not only to pull out university projects and commercialise them—one of them was Smarter Grid Solutions, which is now doing extremely well globally—but to kill projects early on that were going to go nowhere. We need to do more of that.

We need to bring people to sit closer to the university environment and talk a commercial language with the university academics. We could do more in that environment. I think that you see more of that in the States.

Dr Lightbody: I had 10 years in the United States in Chicago and Washington and dealt with universities there, so I know that Mr Brodie's perspective on them is accurate. They have a greater understanding of flexibility in intellectual property. The issue does not come up in a substantial way in their conversations and is certainly not the leading part of them. Conversations in the States are often about sweat equity and people being prepared to put in time and effort in return for equity participation. I believe that that is a difficult conversation to have across the board in Scottish universities.

David Grahame: What Mr Brodie refers to is of course a cultural issue. In answer to his original question, I think that one reason why things have improved in Scotland over the past 10 years is changes in how the Scottish Further and Higher Education Funding Council assesses the performance of academics and universities, because previously it was entirely about publishing. However, assessment now includes aspects such as patents and intellectual property. When academics see that those aspects contribute to their career and how they are valued, that begins to change the culture towards thinking more commercially.

Chic Brodie: Is that because we are not propagating the notion in the minds of the academics that it would help universities' finances if, in addition to the funding that they receive from the funding council and public sector investment in research and development, they took a more aggressive stance in getting product to market much more quickly and seeking equity participation by the angels? In that way, a raft of income generation could accrue to the universities.

David Grahame: I think that we are a little way from that. Many institutions, quite rightly, would be very nervous about any notion of directed research. They strongly adhere to the right to pursue blue-sky stuff. On the other hand, we have moved beyond the point where it is shameful to be commercial. We are heading slowly in the right direction.

Chic Brodie: I will not say who it was, but there was a professor in a university who had developed a voice recognition unit, with all the impact that that would have on call centres. He left the product on the shelf and seemed to be more interested in going round the world presenting papers on what he had done. Here was a huge product that would have generated enough income for the university.

Shall I carry on?

The Convener: Yes.

Chic Brodie: Talking about Strathclyde, I have a mad inventor in South Scotland who has come up with several products, one of which is very exciting.

The Convener: Presumably he is not really mad.

Chic Brodie: No. He is a character. He is actually half Russian. I will tell you later. Strathclyde has been very helpful and has engaged with him on one of his products and is activating the interface programme with him. However, he has three inventions that he has talked about to the universities—not just Strathclyde—and he can get approval for only one. Why is that? Why would a university say that something is incredible—which it has said—but that it can handle only one product?

Gillian MacAulay: With regard to the interface with universities, I do not make up the rules. Some of the rules and red tape in universities and the public sector are nonsense and should be removed. If somebody comes to you with several good ideas, you should give them more than one bite of the cherry. I would absolutely agree with that and I would fight for that.

Over the decades, I have met a great number of mad inventors. While we need the mad inventor types, and I fight in their corner, they can be their own worst enemies. We need to do more to get technologists—mad inventors—to work with commercial individuals. David Lightbody could talk a little to the chief executive designate programme that we have in universities, which is critical in order to marry the technologist to a commercial individual. That can help to drive a product forward on a business case to the angels. It would be helpful if we could do that more.

Chic Brodie: I have a question for Mr Grahame and Mr Waddell. What is your view of crowd funding?

David Grahame: I thought that we had only an hour. [*Laughter*.]

The Convener: Can you give a brief view, please?

David Grahame: There are several strands to crowd funding; I imagine that what we are talking about in this context is equity crowd funding, although even lending crowd funding has significant potential. Things like Funding Circle, which is a many-to-many platform, have terrific potential.

The equity strand of crowd funding makes us a little nervous. In some ways, it is the opposite of business angel investing; it is private individuals putting money in, but having no option to do any diligence on the investments and having no subsequent involvement. Rightly or wrongly, our belief is that our deep involvement in assisting companies beyond the money is one of the things that contribute to the success of angel investing. The current moves to deregulate are causing some concern.

Chic Brodie: We discussed crowd funding at a recent meeting and I asked one of the witnesses what they thought about having a sort of alternative investment market listing—a mini stock exchange if you like—in Scotland. What is your view on that?

David Grahame: The main issue would be one of critical mass. We used to have regional stock exchanges. Such exchanges need sufficient scale to make them liquid, but the problem, even with AIM in London, is that there is no liquidity—there are insufficient transactions.

John Waddell: I agree with David Grahame. It has been asked on a number of occasions why there is no Scottish stock exchange. The reason is that there would not be enough liquidity. There is also the matter of pricing and there are questions around how to regulate an equivalent to AIM—or to the one or two other smaller markets—in order to give investors confidence that they know what they are buying. There are also questions around how to get analysts to spend time analysing companies so that people have a better understanding of what they are buying. That is just not going to happen. The vast majority of AIM stocks are entirely illiquid. I just do not see how a stock exchange for businesses with even smaller market capitalisations would justify itself.

Chic Brodie: We have mentioned availability of finance. Through the European COSME—which is the programme for the competitiveness of enterprises and small and medium-sized enterprises—fund, €1.4 billion is about to be made available over the next six years for small businesses, with €700 million for equity finance and €700 million for a loan guarantee fund. Scotland has not approached that fund at all in the past. Currently, we have four agencies that interface with the fund, and only one VC, which I believe is Pentech Ventures. Why is there no knowledge of that funding? Why is it not being tapped into, in your opinion?

David Grahame: My opinion on that is very limited. We are not fund managers; we simply invest our own funds. You need to get feedback on that from the VC community and Scottish Enterprise.

John Waddell: We manage to do what we do with the benefit of the Scottish co-investment fund—that is, co-investment with VCs and their own money. Therefore, we have not approached such bodies for co-investment, although we are aware of them. They are pretty chunky, and they take investment decisions. The relationship with Scottish Enterprise is sufficient for us to do what our investors expect us to do, which is to invest in two or three new companies per annum and to follow on with the companies that need additional help—which they always do.

Chic Brodie: In previous evidence we were told that there are 332 funding streams for small businesses and social enterprises. Have you any view as to how that might be reorganised?

Gillian MacAulay: There should be fewer. That is my short answer.

Chic Brodie: We all agree on that.

Gillian MacAulay: I have dealt with the public sector and the various routes of funding for more than 20 years. I find it to be a constantly shifting and changing environment. Even though it is a full-time job for me, I find it hard to get a grasp of it. It is extremely difficult for businesses that are not engaging with an incubator or that are not in that kind of environment to get a grasp of where they should go and where they are most likely to access the most applicable funding. Many go down blind alleys and waste enormous amounts of their time and energy—to the point at which some even give up. We find that although everybody shows willing to make things less complicated, it seems that at every turn things become even more complex.

Marco Biagi (Edinburgh Central) (SNP): My first question is for Gillian MacAulay—I suppose that she is the best person to answer it. We have talked about angel investments, and we have touched on venture capitalism. Where are the commercial banks? Do they have any scope for involvement?

11:00

Gillian MacAulay: We are involved at the start of a company's life, at which point—because our companies are technology related—they experience technological challenges as they push into the commercial environment. We find that at the pre-revenue, pre-start stage, the commercial banks are not involved at all.

One of the small glimmers of hope in loan funding has been the West of Scotland Loan Fund. However, my most recent involvement with the fund was in seeking a convertible loan for a business in which we had already invested. We turned that round in six weeks, and our money stayed in our lawyer's account for that period, but nine months later we are still waiting for the funds to be transferred. The time that it takes for businesses to deal with banks or the West of Scotland Loan Fund needs to be shorter.

Marco Biagi: Pardon my ignorance, but is the West of Scotland Loan Fund partially public?

Gillian MacAulay: It is a partially public fund that is administrated by Glasgow City Council.

Marco Biagi: At what stage in a company's development does that become an option? Are you at that stage, Dr Lightbody?

Dr Lightbody: Are you referring to bank financing?

Marco Biagi: I am talking about the second stage that was mentioned.

Dr Lightbody: No—that stage would be further on. It would probably be a year plus before we would be in a position to take on overdraft facilities from a standard commercial lender.

Marco Biagi: Has that situation changed at all in the past 20 years? I am seeing some nodding on the left.

Gillian MacAulay: In the past five years, with the economic crisis that we have been trying to work our way through, lending from banks at the level at which I am dealing with business has just become worse and worse, to the point of being almost non-existent—no matter what their public relations people say.

David Grahame: Before the crash, we would have had lending under the small firms loan guarantee scheme in a fair proportion of deals. Such lending should never apply at the pre-revenue stage—we should not expect that of the banks—but I would be hard pressed to come up with an example of bank funding in any deal that we have done in the past three years. As banks have moved along the risk spectrum a little bit—well, a long way—away from early-stage risk, that has brought before our investors opportunities that might in the past have been bankable. From our point of view, they are low risk—and also lower return—but there is a danger that that will draw the fire of our guys away from the very sharp end, where we are the only provider. That is a concern.

Our other concern relates to levels of sophistication. Because the banks are so huge and are handling such huge numbers, they are doing everything they can to automate their systems. They have spent a number of years deskilling the lending process, which means that they rank businesses on turnover rather than on the sophistication of their needs. Our small companies get into export very early in their careers, so they need that type of support. However, because decision making for the small companies is being taken at a very low level, there is no one able to take a view on the quality of investor support with regard to whether something might be lendable. The process is too mechanistic.

Marco Biagi: Overall, is the potential volume of angel investment enough to make up for that withdrawal?

David Grahame: No, it is not remotely enough—and nor should it be, because the equity investing end is very specialised and suits only very high potential companies. We are absolutely not a substitute for other kinds of money.

Marco Biagi: I will move on to a slightly different topic. Are there pressures at the second stage and beyond to move the geographical dimension? Does Dr Lightbody anticipate his company's operations and headquarters staying in Scotland for the foreseeable future, or are there pressures?

Dr Lightbody: That question is interesting with regard to our markets. We make a hydrogel product that we sell to cell biologists for stem cell and cell therapy applications. Our market is completely global and is driven largely by customers in the United States and in Asia. Our business plan states that we will have an office in the US in 2014 and one in Asia in 2015. That is very much part of our plan.

However, the intellectual and operational base of the company is in Scotland. We are chemists, so our processes involve wet chemistry, fume hoods and bubbling tubes, and we are based in BioCity in Newhouse. Operationally, we would never need to move away from that base; indeed, as far as scaling up is concerned, we can do much of our manufacturing locally through our relationships with the academics. Our market, however, is absolutely global and will be driven by US and Asian operations.

Marco Biagi: Gillian MacAulay has a broader perspective of all the companies using the Strathclyde University Incubator. Is that experience general or is there more mobility in other areas?

Gillian MacAulay: With projects that spin out of the major universities, there will always be a tie to those universities in respect of intellectual property and on-going research. For example, Biogelx's technical director is not only an equity stakeholder but has academic obligations. The continuing symbiotic relationship between those two aspects is very important and will continue to be fostered because it helps both the business and the university. As long as those kinds of relationships are fostered and are beneficial to both sides, businesses can be harnessed and anchored to the Scottish economy while still being global. It is therefore important that we continue such relationships.

Marco Biagi: Are those businesses less subject to the phenomenon of being bought up and lost to other areas than other business start-ups?

Gillian MacAulay: Other businesses that do not originate from the university environment might be a little bit more mobile and, as a result, might be more influenced by the economic environment and climate with regard to where they want to base their operations.

Marco Biagi: With the convener's indulgence, I want to ask about the general climate for commercial research and development in Scotland. The university spin-out statistics are very impressive and you are all to be congratulated on contributing to them. However, although Scotland is almost at the top of the OECD league with regard to R and D in universities as a proportion of gross domestic product, we also have statistics that show that its equivalent performance in commercial R and D is almost at the very bottom. Why, given the success of university spin-outs and the environment that you have talked about, is that the case? That question is open to anyone who can give me a simple answer.

Gillian MacAulay: When I was involved in some technology awards in the university, we saw five projects that scientifically were fairly mind-boggling but which were all being driven forward by academics. None of them involved anyone from a commercial environment. When we look at projects, nearly all of which are proposed by technologists, the first question that we ask from an investment perspective is, "Who can we bring on as the chief executive or an executive chairman to bring a business element to the project?" That level of expertise is lacking in the university environments, and we need to do more to foster that, to engage individuals with a business perspective in the university environment and to ensure that both elements collaborate and that the commercial individual rather than the technologist drives the business forward.

Dr Lightbody: Gill MacAulay mentioned the director designate programme that runs in a few universities, including Strathclyde; that is how I was brought in. I came in from outside the university and was engaged part time to provide a commercial perspective and to engage with an academic who had a clear international profile and some really interesting technology. We nursed the project for a couple of years, brought the commercial and technological sides together and with input from many different sources shaped it all into a plan that we felt was fundable. We were then able to bring in seed funding through Gabriel Investments.

I am a strong advocate of the need to bring outsiders into universities, because I do not think that university commercialisation groups are designed to generate and commercialise such technologies. Outside influence certainly has a role to play in that respect.

Marco Biagi: Are we as good at bringing inward investment into university campuses from massive existing companies that carry out research as we are at spinning outward the ideas that are generated in universities? When we compare Scottish universities to the likes of the golden triangle of the University of Oxford, the University of Cambridge and Imperial College London, we can see a lot of inward movement of money there to set up institutes and so on, as well. Can we enter that market? That is perhaps slightly adjacent to your work, but you will have observations and opinions on that.

Gillian MacAulay: For the University of Strathclyde, the proof of the pudding will be in our technology innovation centre. There is already some fairly high-level engagement with a number of global businesses that have bought into, and are working with, the University of Strathclyde on research and development with academics, and there will be a commercial element at the end of that. Those will be at least two to three-year projects—possibly longer—so it will be a while before they bear fruit. Nevertheless, things are now being put in place that, over the next two or three years, will result in some change in the climate with regard to how we interact with big business.

Marco Biagi: Having said that that was my last question, I have one more question. I am taking the Columbo approach. The University of Strathclyde has been very successful in renewable energy. What was the key to that success?

Gillian MacAulay: Renewable energy is big money; I tend to be involved in the microbusinesses. Having been around the university campus, however, I can say anecdotally that a lot of that success was probably due to Professor Sir Jim McDonald in the department of electronic and electrical engineering. He had a number of good links with SSE, Scottish Power and so on—companies that were all getting involved in the renewable energy sector. It was almost all about his private networks and his willingness to engage with the commercial environment, which his two predecessors did not have. Those things have been critical to the renewable energy side of things.

Dennis Robertson (Aberdeenshire West) (SNP): My question is focused towards Gillian MacAulay and is about opportunity and competition. Given the opportunity that exists out there at the moment, whether in the renewable energy sector or in the life sciences, is there a collaborative approach across the various campuses or are universities nudging each other out in order to get their own hook in? The north-east of Scotland, which has the University of Aberdeen and the Robert Gordon University, is an affluent area because of the energy sector that is based there. Is there competition among the universities or are you working collaboratively to seek opportunities?

Gillian MacAulay: I again qualify my answer by saying that that is not my field of expertise, so I am not particularly qualified to talk on the subject. Universities will always have a degree of self-interest and will look to their own environment. Only when their interests become aligned will there be collaboration with other universities. I have seen collaborations with the University of Glasgow that have worked very well, but I am not aware of any that are on-going. However, I am not involved in energy projects that are worth huge amounts of money. I am sure that there are collaborations. Could there be more? Yes, there definitely could be.

Dennis Robertson: What about collaborations in life sciences?

Gillian MacAulay: Again, the life sciences are big money a lot of the time. John Waddell might be more qualified to deal with that question.

John Waddell: I am not aware that there is a lot of collaboration between universities in the life sciences, although there is some. Archangel is the biggest life sciences investor in Scotland, and we have done quite well out of it. Quite a lot of the businesses that we have invested in, although not all, have been university spin-outs. To some extent, the life sciences are a little better at finding the right things to do in collaboration. I would like to be able to say that we have done a deal that came out of two universities, but I cannot.

Dennis Robertson: Are we missing opportunities for universities to work together?

John Waddell: Yes. Their doing so makes logical sense.

David Grahame: The general principle is that one would, almost irrespective of the sector, want to encourage collaboration because we have to lift things to the Scotland level of visibility. We were talking about investment in the golden triangle and so on; it is the same idea.

The London effect—or the London and south-east effect—is seriously unbalancing the UK economy, so Scotland has to try to make itself be seen as a single significant centre in each of the areas to which it wishes to attract investment and to be prominent in.

11:15

Dennis Robertson: How would you take things forward as regards any opportunity that exists?

David Grahame: I think that Gillian MacAulay touched on that. From the point of view of universities—including perhaps activity by the Scottish Further and Higher Education Funding

Council—it has to be ensured that it is in the universities' interests to collaborate.

Hanzala Malik (Glasgow) (Lab): My first question is for David Grahame. You touched on international activity and I am keen to see progress in that area. Can you shed some light on what opportunities—if any—we have to increase that activity, not only in relation to attracting students but, in particular, in relation to attracting businesses to come and invest in our research projects up and down Scotland? Do you see any new avenues that may lend themselves to attracting businesses?

David Grahame: Yes. The first thing to say is that business angel investing worldwide is a localised activity, because people want to be on hand to support the companies that they invest in. That said, there is a growing worldwide community and network of business angels and angel organisations, which can be enormously helpful—first, when you are trying to take your companies into other territories but also increasingly in terms of the possibility of movement this way.

I do not think that we will see transnational movement of money at the angel level. It is not terribly practical. However, a lot of other useful things can go on. In fact, UK Trade & Investment has an initiative—I do not know the proper name of it, but it is something like the global entrepreneurs programme. UKTI has recruited a couple of dozen quite high-profile technology entrepreneurs and has them out around the world scouting not for large inward investment companies but for emerging technology companies that could be persuaded to locate here because there is a favourable environment here, including availability of investment. We are just beginning to get our first couple of referrals from that initiative.

Hanzala Malik: How successful has that been to date?

David Grahame: It is too early to tell. Bar one, which Archangel relocated from Australia, I have not seen much movement yet but the initiative is brand new.

John Waddell: That was not very successful. [*Laughter*.]

We have done it in the sense that we had a life sciences business called Lux Assure, which struggled but had technology that had applications in the oil field. By sheer hard work and getting on bikes and planes and so on, we raised money from Statoil ventures, which is Norwegian, and ConocoPhillips ventures, which is American, and we moved the business to Aberdeen; it is doing quite well. There is access to that kind of investment if people are prepared to go out and look for it—which is really the case in every aspect of what we do.

The other interesting thing is that there are clear signs of large multinational corporations taking an interest in venture funding not only directly but by taking positions in funds. Again, that could be encouraged. The reason they are doing that is not simply to make money, because companies such as Samsung do not need to worry about investing a few million here or there. They are taking an interest in venture funding because they want to understand what is going on in the universities and at the level at which we operate because they cannot get visibility of it otherwise. There is stuff to be encouraged in that regard and there are big companies that are interested in what is going on at our level.

Hanzala Malik: So what would your suggestion be—what would make it a successful project?

John Waddell: Iberdrola Ventures has invested in a company whose name I cannot remember; it will come back to me. Iberdrola is a Spanish company that owns one of the—

The Convener: Scottish Power.

John Waddell: I was going to say SSE, but you are right—I was getting the two companies mixed up.

Its venture investment policy is similar to that of a number of international organisations, so it is worth telling you what that is. It has invested in—I have remembered the name—Hammerfest Strøm, the company that is making the tidal turbine that will go to the north of Islay. Iberdrola has invested in that company not because it wants to own it; rather, it thinks that its investment will be useful as a consequence of the relationship that that company will have with Scottish Power. Therefore, Iberdrola is interested in investing in companies in which it can add value because of their local presence in the industries that it owns.

I have spoken to a number of other companies with venture arms and they have similar attitudes. I was always keen to have two oil-based companies rather than one invest in the Lux business that went to Aberdeen. Why? First, if only one company invests, the potential universe of buyers just assumes that it will buy out the company and will not bother bidding for it, but if two companies bid anybody might bid. Their investment is therefore protected as an investment, as opposed to a method of simply making money or getting into a market and ending up owning the thing because they are quite happy for the company to be sold to somebody else, which is interesting. Secondly, those companies can influence their operational guys on the ground to use the product. That is the basis on which international players might be interested in what we are doing. I have given one illustration, but there are others. The approach does not exist as a consequence of a policy maker's initiative, but you may want to take an interest in its development.

Hanzala Malik: Why has the policy failed to date? Are we targeting the wrong people?

John Waddell: Which policy?

Hanzala Malik: The policy of sending people out to headhunt projects around the world for our universities. Is that because they are limiting themselves in the areas of research that we might want to do? Is there a lack of choice?

John Waddell: I do not know. I spoke to one of the entrepreneurs in residence who is involved in the UKTI project, whose job is to encourage entrepreneurs to come to Britain. He said that he encourages people to come to Scotland rather than London because the set-up here is more conducive to long-term investing for such businesses than it is anywhere else in the country. That approach has been successful.

Hanzala Malik: Well—

John Waddell: It is getting there.

Hanzala Malik: What about student importation and bringing fresh talent to the UK? How is that progressing in our universities?

John Waddell: I can speak only anecdotally about that. We have faced challenges with that.

Hanzala Malik: Why?

John Waddell: We have had to ask postdoctoral students to return to their country of origin because of the national clampdown on giving people visas. On two recent occasions we have not been able to get people into the country to work for us. We have to get talent from abroad. It would be lovely to think that Scottish universities were turning out rows and rows of potential vice-presidents for Proctor & Gamble, but they are not. We need to take advantage of people from abroad coming into this country to work for us.

A lot of the start-ups and talent here came as a consequence of inward investment through businesses such as Motorola or IBM coming and going. More of that investment will produce more talent that is tied here. One of the most successful entrepreneurs whom I met is a Canadian who lives in Dundee. He came to work here for NCR, married somebody in Dundee and, as she was not for leaving, he started a business there instead. Getting foreign people in here to help businesses to develop is key.

David Grahame: Quite recently, a striking figure came from the National Venture Capital Association in America: roughly half the companies that raised venture funding in America last year had a founder not born in America. That is a staggering proportion.

Margaret McDougall (West Scotland) (Lab): Following on from what John Waddell said about not being able to get suitable people to carry out the business, perhaps Gillian MacAulay could answer a question on skills. We have heard evidence that we have academics coming up with ideas, that they have the research and are ready to go, and that they have some funding, but that we need to find expertise out there. Are the universities providing that expertise, or is there a mismatch between universities and the skills base that we are providing?

Gillian MacAulay: I do not know that there is a mismatch, but there is certainly a shortage of talent that can take on the chief executive officer role in a business. It is not just about having a number of people; you then have to match the technologist and the technology to the individual, and that is the X factor. It is a case of leading a horse to water; it will not always be an ideal fit, and that can be a bit of a problem as well. We just do not have enough of a pool of potential CEO designates to match them up to the technology businesses, so we need to do more to drive skills and training towards being able to take on that chief executive role. I would include good non-executive directors and chairman positions as well.

One of the other things that has always been a pet project of mine is the lack of funding in the area of sales. I do not mean marketing or market research. It does not matter how great the technology is; it is not going to sell itself, and people have to be skilled up in order to be able to take a product out, knock on doors, pick up the phone, work the leads and produce it through to a sales conclusion. We think of sales as a dirty word, but if we do not sell the products it does not matter how clever the technology is. There is definitely a gap with regard to good technical sales individuals who can take the product out of the lab, have it boxed up and take it to potential customers and sell it. If we could address that area, it could help some businesses create some step changes in their sales cycle.

Margaret McDougall: Does David Lightbody agree that there is a lack of that expertise?

Dr Lightbody: Yes, and perhaps I could highlight one initiative that works and is well worthy of support. The Royal Society of Edinburgh fellows programme takes academics at PhD and postdoctoral level and funds them on a 12-month business programme in partnership with business, or they can do it with their own business if they want to take their own spin-out. We took on a University of Strathclyde postdoctoral chemist about 18 months ago under an RSE fellowship, and we hired her as a product development manager. That ability to take the technical skills that we certainly have and to provide the technologists with business skills at the same time, and to do that in an environment that is collaborative and helpful for small companies, is important and useful.

The people who are involved tend to be university employees and technologists, and the only slight wrinkle in the scheme is dealing with IP within the university and the IP that those technologists are capable of taking out and developing into a business.

Margaret McDougall: Can any of you answer the question on whether universities are now looking at how they can work better to provide people with those skills?

Gillian MacAulay: Strathclyde is engaged with an organisation to build into the university environment a sales academy that will be open not only to university academics but to people from outside. That is just about to start in the next few months, so it is early days yet. There is an awareness of some of the gaps, but the difficulty is that funding to meet those gaps is cut and cut. If 20 things require funding but there is money for only 10 of them, some things will fall by the wayside.

11:30

Margaret McDougall: Can I ask a question in a different vein?

The Convener: Before you do that, I have a follow-up question for Gillian MacAulay. Should we encourage pure science graduates or postgraduates to do business studies, for example, so that they focus a bit more on such issues?

Gillian MacAulay: I think so. When I came to the University of Strathclyde many moons ago, we had a course that was called the technology and business studies unit. When we did a market research exercise, we found that a vast number of the individuals who did that course had entrepreneurial markers, which probably attracted them to the course. For whatever reason, that programme was cut. If we could build in again an element that marries technology and the business side of things, that might foster people who have entrepreneurial goals and dreams.

David Grahame: There seems to be an astonishing lack of connection between the IP production bits of universities and their business schools. Universities have people who want to be in business but, when I asked a university whether its spin-out people used its business school, I was looked at as if I was mad.

Chic Brodie: I met some university commercialisation managers some years ago. How seriously do universities take such roles, if they exist?

Gillian MacAulay: Different universities have different agendas for driving IP forward and looking at spin-outs versus licensing. A few years ago, licensing was the preferred route. All universities deal with annual budgets; each department must look at its annual budget and various outcomes and must undertake box-ticking exercises on things that the upper echelons want to happen, which makes the licensing route more attractive.

I go back to the idea that a principal with a commercialisation hat on will be prepared to invest more in early-stage and spin-out businesses and to wait longer for returns. However, we could do more in that environment.

Chic Brodie: So you are saying that principals need to change their culture.

Gillian MacAulay: I think so, but that is a top-down approach that will take a while.

John Waddell: The situation depends on the university. How such roles are viewed is a loaded question that is difficult for us to answer, because we know all the people and do not want to be rude about them.

Chic Brodie: Go on.

John Waddell: If such people really knew what they were doing, they would not be in their roles—they would be entrepreneurs. Enormous challenges are presented to such individuals in universities, where everybody is at them to create businesses out of what academics invent.

That relates to the point that was made about the availability of academics. I could describe a number of situations that have involved interesting inventions. One academic had previously committed a number of days per week to a spin-out business, as a requirement of the investors, but he invented a second thing that is much more interesting than the first thing, to which he cannot give enough time and which I do not think will succeed. One academic is so brilliant that he has attracted vast amounts of research funding to allow him to go away and think about things. However, as a consequence, he cannot give enough time to the business that he created as a result of his inventions.

Such challenges are a function of how businesses are spun out. People criticise commercialisation guys, but I think—partly because I know them and partly because I feel their pain—that their job is hard.

To deal with the point that Marco Biagi raised, it is also hard to attract foreign capital while trying to keep businesses in the town that they are in because, actually, perhaps they should be in California, India, Australia or Japan.

Gillian MacAulay: To follow up on John Waddell's points, we are in danger of trying to make everybody an entrepreneur in university environments, but universities are learning institutions—they are there not just for commercialisation but for blue-skies research. Some researchers will never spin out a business or do a licensing deal, but that does not reduce their validity. Not every student should be an entrepreneur, but we are in danger of trying to push everybody down one path and creating so many chiefs that we have no Indians.

Hanzala Malik: On that point, there has always been the argument about whether people should study for business or for knowledge, and that will always be the case.

I want to ask about the United Kingdom Border Agency and the havoc that its approach to visas is causing in our universities. I understand that a university body has made representations to the UK Border Agency on that, but clearly that has not worked so far. Do you plan to do anything else to overcome the difficulty, or have you just given up?

John Waddell: We spend a great deal of time liaising with Government departments, particularly on things such as tax relief and encouragement for small businesses. However, I am afraid that I really do not have the bandwidth to take on the UK Border Agency as well.

Hanzala Malik: No, but Scotland has a body that represents you.

John Waddell: That would be David Grahame's organisation, I think.

David Grahame: At our level, all that we can do is lobby and encourage other people to continue lobbying on the issue. Of course, immigration has become a contentious issue at UK level.

Hanzala Malik: What is the latest on that? We hear evidence that the issue is still serious, so when was the last time that you approached the Border Agency to ask it to address the issue and to give practical examples of it?

David Grahame: We would not lobby the Border Agency directly. I am on an advisory group that is chaired by Lord Young that meets at number 10, and we give input on a raft of impacts, including on issues such as procurement, although we will not go into that today. However, we do not lobby agencies directly—that would be more appropriate for a body such as Universities Scotland or big business organisations.

The Convener: Okay—

Hanzala Malik: I just want to clarify the situation, convener. Basically, we are being told that there is an issue, but we have not really got our heads together to try to deal with it effectively as a unit.

David Grahame: In the widest sense, talent is an issue, wherever we source it from, and sourcing it from outside is not as smooth as it could be.

The Convener: Right. We will go back to Margaret McDougall, whom we interrupted.

Margaret McDougall: Thank you. My question is on women in business. Perhaps Gillian MacAulay could tell us what percentage of women are being assisted by universities with research and to go into business. We heard in evidence from another panel that women are debt averse. Have you come across that?

Gillian MacAulay: At the most recent Gabriel Investments meeting, the four projects that were in front of us were all being driven by women, which was by no means by design. The project in which we invested most recently was founded by a very smart young lady who was the winner of Heriot-Watt University's converge challenge. We have invested in some very nice technology that we think she can help to drive forward.

I do not pay too much attention to the statistics on women in business. I am interested in businesses that are viable, investable and have a chance of growing successfully. If they are run by women, that is fine; if they are run by men, that is equally fine. I am here to back businesses; I am not here specifically to back women.

Margaret McDougall: So you have not particularly noticed that there is a gender imbalance with regard to women in business.

Gillian MacAulay: As you said, women are probably a bit more risk averse. They tend to run more lifestyle businesses. That does not mean that they will not impact the economy in their way. I have been involved in technology for the past couple of decades, which tends to be driven more by men than by women. However, a fair amount is being done to try to address opportunities for women.

Margaret McDougall: Does John Waddell have a comment on that?

John Waddell: It is a disappointment to me that so few of our businesses are run by women. I think that we have only one female chief executive at the moment. We have had three out of 27, which is not good, but that is the way it is. We do not regard it as our responsibility to chase about and redress a gender imbalance, which has just happened that way. As it happens, one of our most successful recent exits was run by a woman. It was one of the fastest exits we have ever done and I want to get her back to do another one.

Investors tend to be men, because what we do is pretty dangerous in that we are potentially going to lose our money. We are investing in very high-risk businesses. You might like to reflect on the fact that, last week, I had two phone calls from women wanting to join our syndicate, so maybe things are changing.

Margaret McDougall: Does David Grahame have a comment on what we can do to encourage more women into the sector?

David Grahame: You are right that women are perceived as being more risk averse. As John Waddell said, they form a low proportion of the business angel community, although there is evidence that they do better as investors, which is interesting.

Women's representation in business, enterprise and what we do is one whole turn of the wheel behind. It is changing, but we need to go through the entire cycle of women starting, developing and getting out of their own businesses. That is one whole generation behind, if you like. Women are underrepresented in all areas, but things are moving forward. We think that women represent about 2 per cent of business angels, despite the fact that we believe that they own about 46 per cent of the wealth—and we could argue that they control the rest of it.

Mike MacKenzie (Highlands and Islands) (SNP): The discussion has been interesting, but I am not clear as yet where any restriction, if there is one, lies. We can think of a pipeline of fledgling businesses on the one hand and a pipeline of cash on the other hand, bearing in mind that the committee's inquiry is into access to finance. If I had a big valve on each of those pipelines, which one would I open more to get the kind of result that we would all agree represents success?

The Convener: Who is that question for?

Mike MacKenzie: It is for the panel in general.

The Convener: You are breaking the rules, Mr MacKenzie. Who would like to answer that question?

11:45

John Waddell: It is difficult to get a feel for what you are asking, because it is impossible empirically to prove whether it is a lack of cash or a lack of deals that causes an issue. Everybody has an opinion. Some people will say that the problem is a lack of deals; others will say that the problem is a lack of cash.

The Angel Capital Association is the American equivalent of LINC. Whereas we do about £25 million a year—and that means that we are punching above our weight in terms of population size—the ACA does a billion dollars a year, so its statistics are likely to be more meaningful than ours. Interestingly, the pre-money valuation, by which I mean the amount that we assume a business to be worth before we invest equity in it, has in the broadest sense been going up over the past three or four years. That is a good thing, because it means that there is more competition for deals and more stuff happening, but the situation varies regionally. In the mid-west, in Texas and Ohio and so on, the prices are lower than they are in California, Massachusetts and New York. The reason for that is pretty obvious: there is more money. There is a kind of balance, as a consequence.

In Scotland right now we are quite well set up in our ability to invest. We could certainly do with more follow-on funding, but people can get VCs and angel businesses to invest if they work hard enough and are tough enough with themselves during the initial engagement process. This is entirely anecdotal—I have not done any research on the matter and I will not be doing any—but I think that the quality of new deals is not as good at the moment as it has been. I am not sure why that is, but quite a lot of the stuff that we are seeing at the moment is not particularly well thought through.

Mike MacKenzie: Forgive me, but am I right in saying that you place a high emphasis on making a fairly quick exit?

John Waddell: No, we do not. Absolutely not. We do not really make any money out of such investment until about year 8.

Mike MacKenzie: Okay. Can you explain what you meant by "quality" in this context?

John Waddell: Typically, if there is an interesting piece of technology about which academics are enthusiastic, the academics will do a business plan and say, "We'll have a website, we'll go to a lot of trade shows and we'll sell through original equipment manufacturers or agents, or whatever." The challenge for us is that companies often have no clear marketing strategy and do not really understand what they need to do to get there.

We have invested in Blackford Analysis, which makes software that speeds up the process of comparing magnetic resonance imaging scans, so that a surgeon can spend less time looking at two slides or photographs to consider things such as a tumour's growth. I had experience of another business that sold to PACS—picture archiving and communications systems—vendors, who are the people who sell imaging systems to hospitals, mainly in North America, so I introduced Blackford Analysis to someone who knew about the business. That person spent three years working with the company to get it to a point at which we were satisfied that it understood what it was doing on marketing. We are very happy with progress to date and we have invested quite a lot of money in the company.

I gave that example to demonstrate that it is as difficult for a company to get an understanding of the marketing process and their end users as it is to invent the product in the first place. That is my general observation, which is anecdotal but I think has some strength.

Mike MacKenzie: We must bear in mind that the committee's inquiry is about access to finance. I got the impression from comments that Mr Grahame and Gillian MacAulay made that high street banks have completely retreated from the area, which suggests that there is a gap. You mentioned crowd funding and the lack of due diligence. Given that you look at high-risk propositions, it is obvious that there is a corresponding need for high-quality due diligence.

Is there a gap? Do we need some mechanism or organisation that fills the space that the banks have left empty? Was there a gap prior to the credit crunch in relation to the pipeline of funding requirements?

John Waddell: Yes. A practical example is the proof-of-concept scheme, which is a good university-driven scheme. Because of European Commission regulations, people can get money for a proof of concept to ensure that their concept works, but they cannot use the money to figure out whether anybody will buy it. It would be quite good if they could.

David Grahame: It should be for proof of business as well as proof of concept.

Mike MacKenzie: Does anybody else have thoughts on that?

Gillian MacAulay: Your original question was about whether we need to turn on the tap on the idea side or the money side. Money can always help and we are aware that funding from commercial banks is not there any more, so there is a bit of a gap. However, the issue is not about how much money there is; it is about where the money is deployed.

A concern that I have about recent initiatives such as that run by Creative Scotland and Scottish EDGE—encouraging dynamic growth entrepreneurs—is that the funding is all from the public sector and there is no private sector involvement. It is important to have a partnership between the public and private sectors, as that gives a level of validation from the private sector, which will probably provide the follow-on funding. Therefore, it is helpful to have the private sector involved at some level, as happens with the SMART scheme and the TSB, where there is a mix between the public and private sectors. The answer is not about creating another organisation or layer of bureaucracy but about deploying money within the current structure and getting it into organisations promptly. That is critical.

Mike MacKenzie: What I was getting at was not so much a public sector organisation but some vehicle that would be placed somewhere between crowd funding—in which no due diligence is done in some cases, as David Grahame rightly said—and business angels. Is there room in the spectrum for a hybrid or an organisational mechanism? Given the western background in which people are saving more, despite very low interest rates, is there scope for a mechanism or organisation that sits between savers on the one hand and borrowers on the other, in the business sense?

John Waddell: The challenge is getting people to invest their hard-earned cash in massively risky ventures. What we do is still massively risky, but we spend a great deal of time and effort on diligence to understand whether businesses might or might not be successful. I do not think that there is a solution of the type that Mike MacKenzie described.

I have always said that the challenge is to make things investor ready. I hate to use that term, because it has become something that people talk about all the time. There are investor-readiness courses and everything has to be investor ready. I do not think that such things are a lot of use, because, to make something investor ready, people have to engage with investors. I always ask university spin-outs to come to see us about two years before they plan to spin out, so that we can talk to them about what they should look like in two years' time and how they should use their research cash to get their business to an investable level by the time that it is ready for investment and they cannot get any more money from academe.

Often, we do all that when businesses have no money. They produce something that in their imagination is investor ready, but we tell them that, actually, it will not work, because the equity structure is wrong, the nature of the deal with the university is wrong, they do not have the right staff or they have someone in their business who does not have a visa. Early engagement with people like us is definitely worth it. We are prepared to do it, because it saves us an awful lot of hassle later on. If we get excited about a project, we sometimes have to do all that work after the event and in a short timescale.

David Grahame: There was an initiative, which I thought was commendable, to form a panel of private sector funders to examine things entering the proof-of-concept scheme early on—to do exactly what John Waddell said—but the European Commission decided that it was anti-competitive, as it gave us privileged access.

Dennis Robertson: Obviously, as we have heard, investing is a high-risk element. How successful are you, in percentage terms? Are you 90 per cent successful or 70 per cent successful or lower?

John Waddell: So far, we have lost about half the companies and 17 per cent of the cash. You lose your money quickly in this game, and you make your money over a longer period. The logic of that, of course, is that the companies that have survived have had a substantial number of follow-on rounds. As many angels will tell you, it is important to kill companies early if they are not going to survive.

Dennis Robertson: I love the concept.

David Grahame: Archangel is performing ahead of the market. Worldwide, half of all angel investments are a complete loss, and some of the rest do not return all the cash.

Dennis Robertson: Half?

David Grahame: Only about 20 per cent of angel investments return more than the original money.

Dennis Robertson: That is interesting.

The Convener: Why do you do it, then?

John Waddell: Because it is the future of Scotland and because it is great fun.

The Convener: We are getting way behind the clock, but we will have a brief question from Marco Biagi.

Marco Biagi: What kind of returns come from that 20 per cent?

David Grahame: As with all venture capital—and quite often in life—the 80:20 rule applies. It is almost impossible to give you a sensible statistical answer, as everyone is investing as individuals and there are different weights of portfolio. Only one mass survey has been done in this area. Professor Rob Wiltbank, who is coming here next week to start work on it again, examined about 1,200 angel group investments. If they had been in a single portfolio, it would have got about 22 per cent internal rate of return.

John Waddell: That is roughly what we have experienced, depending on how you look at it.

The Convener: We are getting towards the end of the session, but I have one last question for Gillian MacAulay, touching on some of the things that we talked about earlier.

The committee has taken an interest in Scottish Enterprise's intermediary technology institutes. Do you think that we miss that kind of concept, or was it something that just did not work?

Gillian MacAulay: Well, it obviously did not work.

The Convener: I think that we know that.

Gillian MacAulay: That is the short answer.

I do not know exactly why it did not work. A lot of it was because of mismanagement. The concept was great, but perhaps the wrong people were involved. Vast amounts of money were thrown at it without any kind of due process with regard to what was going on, where the money was going, how things were moving towards commercialisation and when there would be any return. There were a number of failures on the parts of the organisations that were giving the money and the organisations that were using it. After a number of years, someone put their hand up and said, "We can't fund this anymore." There were failures across the board and it was, financially speaking, an unmitigated disaster. Let us not do that again.

David Grahame: The concept of market pull as opposed to technology push is a good one as a fundamental concept. It is just a shame that it did not work out.

The Convener: Given the time, we had better draw the discussion to a close. I thank you all for coming along and assisting the committee.

11:59

Meeting continued in private until 12:23.

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