Business, Innovation and Skills Committee

Oral evidence: Business-University collaboration

HC 249-ii

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At 2.15 pm:

- Professor Alistair Fitt, Pro-Vice Chancellor, Oxford Brookes University
- Nigel Tipple, Chief Executive, Oxfordshire Local Enterprise Partnership
- Professor Ian Walmsley, Pro-Vice Chancellor, Research, Academic Services and University Collections, University of Oxford
- Professor Nick Veck, Head, CEO Office, Satellite Applications Catapult

At 3.15 pm:

- Dr Charles King, Operations Director, YASA Motors Ltd
- Dr Shpend Gerguri, Senior Lecturer, Engineering Design, Oxford Brookes University
- Dr Diana Limburg, Senior Lecturer, Information Management, Oxford Brookes Business School
- Michael Dibben, Partner and Chief Executive, Brethertons LLP

Members present: Members present: Mr Adrian Bailey (Chair), Paul Blomfield, Mike Crockart, Mr Robin Walker

Questions 68 - 126

Witnesses: Professor Alistair Fitt, Pro-Vice Chancellor, Oxford Brookes University, Nigel Tipple, Chief Executive, Oxfordshire Local Enterprise Partnership, Professor Ian Walmsley, Pro-Vice Chancellor, Research, Academic Services and University Collections, University of Oxford, and Professor Nick Veck, Head, CEO Office, Satellite Applications Catapult, gave evidence.

Q68 Chair: Can I start by thanking you for agreeing to assist us with our inquiry and also thank members in the supporting cast for the high degree of interest that they are demonstrating today? I am afraid that—I suppose in keeping with the high-technology centre that we have got—Westminster communications has rather let us down today and we have got a rather primitive audio system, which I will just ask you to trial to start with. First of all, can I just reassure myself that you can hear me alright?

Witnesses: Yes.

Q69 Chair: Good. We will be moving that along when we ask our different questions. You have got two mics. I will ask you to introduce yourselves, starting with you, Alistair, using the mics to ensure that we can hear you.

Professor Fitt: Hello. My name is Alistair Fitt and my role is Pro-Vice Chancellor for Research and Knowledge Exchange at Oxford Brookes University.

Nigel Tipple: Nigel Tipple, Chief Executive of the Oxfordshire Local Enterprise Partnership, working with colleagues around the table.

Professor Walmsley: I am Ian Walmsley. I am a professor of physics and Pro-Vice Chancellor for Research at the University of Oxford.

Professor Veck: Nick Veck from the Satellite Applications Catapult. I am Head of the CEO Office and responsible for knowledge exchange and partnerships.

Q70 Chair: Thank you very much. Could I just say before we start: we always welcome the support and interest of the public; however, I do just have to exercise a degree of caution. It is totally out of order for any members of the public to either supplement, intervene or reject what any of the speakers say and, should they do so, I am sure we have got security people somewhere who will eject them. Whether opinions will run so high on this particular issue I do not know, but it is a caution that on one or two occasions I have had to exercise.

Could I start with a question that is to everybody, but do not all feel obliged to answer every question unless you want either to add to or subtract from what a previous speaker has said, otherwise the sessions could be rather longer than we anticipate and we have got a train to catch. We have received some evidence to indicate that some SMEs feel that the cost of the Catapults is a barrier to them getting involved and that it is basically too high. Do you agree? What is your opinion of that? Exactly how are these fees set? Who would like to lead on that?

Professor Veck: I guess I should. Just to be clear, you are talking about access to Catapult facilities and this kind of thing.

Chair: Catapult facilities, yes.

Professor Veck: I certainly hope not. What we have tried to do here is to provide access to facilities for the community interested in developing applications of satellites, and specifically SMEs. We have to provide those facilities at a cost. We are not allowed through state aids to provide them free to SMEs because that would be a kind of subsidy. We have a scheme by which we offer those facilities literally at cost. The advantage for SMEs is that they get access to facilities that may cost many millions of pounds—it is about £1 million or £2 million for a set of infrastructure that delivers earth-observation data, for example—and they can essentially rent that by the day or by the month at affordable cost. It is hundreds of pounds. They are getting access to something that, if they had to buy it, would cost millions for hundreds of pounds.

Q71 Chair: That is interesting. You are talking about hundreds of pounds. Would you feel that there is a perception in the SME community that it is more expensive than it actually is?

Professor Veck: Certainly there is a perception that access to space is more expensive than it is. Before they talk to us and before they really see what it is we are offering, there is a real perception that satellites are expensive—that you require NASA or the European Space Agency to get any access to them. That is increasingly not true. With the sorts of new technologies that we are working with UK companies to develop, that is very much increasingly not true. There is certainly that perception that space is expensive, but we are really changing that.

Q72 Chair: You are speaking on behalf of the Satellite Applications Catapult. Can anybody elucidate on the Harwell Innovation Centre? You may or may not know how the charges are constructed.

Professor Fitt: No, I cannot elucidate on the Harwell one, but I have talked to some people from SMEs who have made similar comments about Catapults and their facilities being too expensive to access. I wonder sometimes whether they are not really saying, "We cannot afford to do the experiments in the first place". As you have just heard, most of the Catapults that I have seen have tried quite hard to publicise the fact that they are really not charging top rates at all for the complicated facilities and equipment that you can use there. It may be a case of SMEs just not being able to afford to do the experiments full stop.

Q73 Chair: That is an interesting observation, because it does raise another issue, which I appreciate you are probably not qualified to talk about, and that is what SMEs may do to get the resources one way or another to carry out research that they might like to and that you could add value to.

Nigel Tipple: If I may add to that, if you look at the programmes of investment support that we brought through the Oxfordshire City Deal earlier in the year, there was an innovation support programme, and through that programme we were specifically working with SMEs to identify what the barriers were, not just in this sector but across sectors in Oxfordshire, to begin to grow and to develop as businesses from a very early stage through proof of concept and then on. What we have developed through the City Deal and, indeed, have agreed and begun to deploy is a programme of effectively seed-corn funding, proof of concept access, and a voucher scheme that is available to support skills, business development and, importantly, just to reinforce the point about the Catapult, facilities. That voucher scheme is equally applicable to provide support to gain access to facilities that the universities, the colleges and facilities such as this would have to help broker a business relationship with at an earlier stage and to create that relationship in terms of development of products and services. We have some mechanisms.

The availability of that is limited—it is a pilot—but certainly through our ambitions under the European Structural Investment Fund programme and, indeed, through our current negotiations around local growth deals and the economic plan, we are reinforcing that lower-level start-up business support access and, indeed, access to finance. There is a series of measures that we are starting to work in tandem with colleagues in the universities and research establishments.

Q74 Chair: I appreciate it may be a little early, but can you give us any idea of how many companies you have helped or identified as needing and wanting help?

Nigel Tipple: The programme literally is just going live now, so it is very early. However, what I can say is that the approach has been to identify key champions within the sector—for instance, in satellite or space-related technologies or life sciences—where you would bring an industry-recognised individual together with that sector to begin to promote the opportunity. We have what we have called "network navigators". They are effectively peer-to-peer business support, mentoring and advice. That provides us with a gateway access into the fund opportunities. It also allows us to distribute the resources that we have, again through the pilot scheme, but using existing investment capacity. We are not creating new models; we are delivering in partnership with the universities, through investment funds, through Isis and organisations like that, where we are seeking to add value to an investment fund rather than to create a second overhead. Again, that is part of the process.

We have targeted a number of businesses. We are probably looking at supporting somewhere in the region of 1,000 businesses over the programme period with the voucher scheme, with mentoring, with business support, with proof of concept access or simply to gain market opportunity—giving them the opportunity to engage. There are a number of different mechanisms in there that we are already working with.

Q75 Chair: That is very interesting. I appreciate it is early days, but if you could keep the Committee in the loop on the progress you make that would be very helpful indeed.

Nigel Tipple: Yes. I am more than happy to do that.

Professor Veck: To answer your question from the Satellite Applications Catapult perspective, in 2013, which was our first year of operations, we supported 66 SMEs here, either through use of facilities or other business-support type things.

Q76 Paul Blomfield: We are interested in exploring how we get the institutional architecture right to facilitate effective collaboration. We had a discussion last week with Will Hutton and Professor Alan Hughes, who argued that the policy focus should be less concerned with the size of businesses that collaborate with universities, which is the thing we keep coming back to, and more concerned with the value chains and systems of which they are a part, and cited Imec in Belgium as a positive example of that approach. Would you agree with them? Do policy priorities need to shift?

Professor Veck: We do have a focus on helping SMEs, but we really recognise that our objective in our particular case is to get to £40 billion revenues for the UK in satellite applications by 2030, and that is not all going to come from SMEs. To give you an idea of that, that is the equivalent of something like five BSkyBs that have to exist by 2030 that do not exist today. That will be achieved by working with a spectrum of different sized industries—some industries that are large today and some that are perhaps in the Mittelstand of size. Certainly, we do try to look right across the spectrum of industry.

In terms of working with universities, I also looked at Will Hutton's evidence, and he talked about what we might call innovation fellows—examples of where Catapults and other organisations like ourselves support specific examples of individuals in universities to try to make that link across. We certainly support that kind of idea.

Professor Walmsley: From a university perspective, our strategy parallels that. We would expect to work with a wide range of companies. There are a number of reasons for that. First of all, at the smaller end, a lot of those may be our own spin-outs and start-ups, and those are clearly going to be in the SME camp. On the other hand, it is critical for us to have strategic relationships with major global corporations as well. There are different points within the university where those collaborations take place.

I would also make the point that the regional connection here is extremely important for us. Nigel has talked about the City Deal and the strategic economic plan, but a strategic economic plan for this region, based around innovation-led economic growth, fits very well with what we can contribute to the region and the nation as well as being something that is good for us. It enables us to attract the best people from around the world and provides an environment in which they can succeed, not only within the university but then beyond it as well. That is what we are seeking here. An aspect of that that we contribute to the City Deal is what we are calling our innovation centres. These are early places where new ideas from academia can be worked on in parallel and in collaboration with businesses to get through the proof-of-concept stage where we can determine commercial viability. As the companies grow, we expect that they will move out to the incubation centres in the enterprise zone and at Harwell and elsewhere.

Professor Fitt: Can I just back that up? We feel exactly the same. We are very happy to work with SMEs and it can be very stimulating and mutually beneficial working with them, but really our strategy is to work with industries across the whole range. Indeed, we work with huge multinationals like BMW. I do not see the point in having a policy where things are only given for collaborations with SMEs. We want to work across the whole stage.

Q77 Paul Blomfield: I wonder if I can move on to a slightly different point, about Catapults. They are strongly focused and, indeed, industrial strategy is strongly focused, on sectors and technologies. We have heard that that is both a strength and a weakness. How can the Satellite Applications Catapult develop and maintain the flexibility and the agility to evolve effectively and quickly?

Professor Veck: It is a good question. As you know, there are different sorts of Catapults. Some are more horizontal—Connected Digital Economy and ourselves are providing technologies as a basis—and then there are the vertical ones, like Future Cities and Transport Systems. I agree that perhaps there are advantages and disadvantages in each individual Catapult in being either vertical or horizontal, but the beauty of it is when we can work together as a network. We are very much working with, particularly in our case, Transport Systems and Future Cities to play out satellite applications into their markets. It is through that partnership that it works. There are some very good examples where we have benefited from HEFCE funding into a project in Milton Keynes where we were involved and we have pulled in the Transport Systems Catapult in order to try to meet that market need. As I say, the advantage is in that partnership and working together between the Catapults, rather than trying to do everything by ourselves.

Q78 Paul Blomfield: I wonder if I can just probe that a little bit further. When we were touring the facility earlier, I was having a conversation about the benefit of bringing together a critical mass of people working in the same area and the way that that sparks innovation. The downside of that is that they are people working in the same area. The evidence that Oxfordshire County Council gave us referred to a danger of silos. How do you effectively, as a Catapult, avoid that? Could you just develop that point about how you develop cross-disciplinary innovation?

Professor Veck: To give an example, in January 2013 we had two people working here: the CEO and the HR manager, whose job it was to recruit everybody else. By the end of last year, we had approximately 75 and we are now a little higher than that. You may be surprised that out of that 70 or 80 people, only 25% have come from the satellite industry or knew anything about satellites before they arrived. The greater proportion of people working here have come in from other areas, some from what we call the downstream market areas: marine, transport, software or other technologies. It is exactly as Hermann Hauser predicted: it is when you get that mix of those different entrepreneurial skills coming together in a single place that you get the buzz of the innovation. We need to continue in that vein and ensure that, in satellite applications, we do not just employ the best satellite engineers—which we do—but employ people who are really out there in those other application areas. That is certainly how we have been working here.

Q79 Paul Blomfield: I have one further question, which reverts to this question about SMEs. Notwithstanding my question earlier, it is not just about the form of business, but nevertheless SMEs are a sector critical to driving economic growth. I wonder, Nick, if you could develop a little bit more your strategy as a Catapult for increasing engagement. You made some points along those lines, but could you say a little bit more?

Professor Veck: Yes. I have talked a little about the skills of the individuals, I suppose. The other thing is that I mentioned this challenge we have to increase revenues in the UK, and that means jobs. We are talking about 100,000 jobs in satellite applications by 2030. Those 100,000 jobs are not only going to be in Harwell—I am sorry to say to my colleague here—but they are going to be all over the country.

We have to do two things. First of all we have to create a centre of excellence here, get that clustering and get people together from different communities to work in this area, but somehow play that out right across the United Kingdom. We are doing that through universities. We have set up these centres of excellence—they are very small—in a number of universities around the country to try to take advantage of the work that the academics are already doing in terms of bringing in SMEs. We have heard from our colleagues in Oxford that they are already working together with SMEs. We are replicating that around Leicester, Nottingham, Durham and Strathclyde so far, hopefully with more to come, to try to build that clustering geographically. In that way, we hope to reach SMEs in those areas and then grow it out. I am not sure if that fully answers your question.

Paul Blomfield: It does. Thanks very much.

Professor Fitt: Could I just make a quick comment about some of the other Catapults? When we sit round, as we do occasionally, and discuss these things, there is a serious strategic question for some of the other Catapults, like, for example Digital Economy, which is, in a sense, less focused than Satellite Applications. What is their correct strategy? Is the correct strategy to try to be very broad-ranging and involve lots of people and try to cover all the areas of digital economy, or is the correct strategy to risk being labelled as siloed but become very good and very profitable in just a few areas? I do not have an answer for that, but in some of the less-focused Catapults we are waiting to see what develops there. It is not clear what the answer will be.

Nigel Tipple: Could I just add one more point in terms of the Catapult reach and the engagement point? We are the network navigators—the experts within the field and the capacity here—as part of the wider investment proposition development work. It is about creating investment propositions that create a market for SMEs to grow through and into, and working with the universities in collaborative research and then deployment through the innovation facilities—the centres. The expertise within the Catapult is being used to promote and support the benefits here and to stretch that in terms of an investment market. Our target will be having 10% of the 100,000 jobs anchored here, with a reach beyond, in a hub-and-spoke arrangement, so that we have got a core of really high-quality opportunity here that then stretches and engages businesses downstream and, indeed, upstream. It is part of an investment strategy as well as the technical elements.

Professor Walmsley: Could I add one more point to that? From a university perspective—at least from ours—the geographic location is not a negligible thing, for the simple reason that it is all about people. One of the things we are doing at Sat Apps is jointly supporting a knowledge-exchange facilitator that connects our academics to this activity here. Our major interactions are always with the Catapults that are closest, so for us High Value Manufacturing in Warwick, Sat Apps here, Transport Systems in Milton Keynes, and CDEC—although digital can be a bit more de-localised. That is a key point.

Q80 Mr Walker: We have heard evidence from Professor Alan Hughes that LEPs are "not easily linked into the variety of schemes that we have at present". Clearly, in this case, the LEP seems to be very closely linked in with the university-based schemes, but what do you consider to be the core function of the Oxfordshire LEP in relation specifically to business-university collaboration?

Professor Fitt: Can I make a first go at answering that? The LEP arrangement in Oxford, as far as I can see, has worked extremely well. We have had a consistent group of people from the universities, the LEP, the local authorities and other places as well that has been meeting on many occasions to sort out the details of the City Deal, the details of the strategic economic plan, the details of the European structural funding, the Regional Growth Fund and many other things apart from that. That group has worked fantastically well and there is a real critical mass now of people who see each other regularly and pretty much understand where everybody else is coming from. I have not been in Oxford that long—I have only been in Oxford for about three years—but from what I have heard from everybody, that is the first time that has happened in Oxford. You have to realise we have a great many local authorities here—I think it is six—so there is a lot of representation needing to be done. One of my views is that somehow the LEP has brought that about. It is kind of the glue that holds everything together. That has worked very well, and that is already leading to very healthy collaboration with industry.

Nigel Tipple: Just in terms of reinforcing the point, from a membership point of view, the enterprise partnership encompasses the universities and the colleges, local authority partners, private business, etc., so we have got a broad church of engagement, but it is the communication and the engagement that has added the value over the last 12 to 18 months, particularly around a clear focus, as Ian spoke about earlier, on innovation-led growth and being able to tell and re-tell a story about the value of innovation to Oxfordshire's economy and the breadth of that—whether it is food-agri, the social sector, life sciences, automotive, or space and satellite. It is a range of activity that supports collaborative working. We have strengthened that.

Certainly, in terms of our commitment and reach, the opportunity is there to continue to strengthen those collaborative working arrangements. We have board sub-groups that deal with access to finance across a range of activity. We are working with sector-led groups to develop innovation-led propositions that we can then support. There is research and development alongside business application, with businesses now championing new initiatives and then partnering with the academic establishments, again through the innovation support programme, as an example. In our case—I cannot speak for other enterprise partnerships—we have a much more engaged peer-to-peer relationship with our universities, with our local authority partners and with private business and, indeed, the wider community. That is beginning to bear fruit. We can demonstrate strong and true collaboration both in terms of delivery and in terms of strategy development.

Q81 Mr Walker: Thank you. Just following on from that, you have mentioned the EU Structural and Investment Funds strategies a couple of times. Michael Fallon told us that that would be agreed between LEPs and Government by early 2014. Has Oxfordshire LEP agreed its final proposals with Government yet?

Nigel Tipple: We have certainly submitted our final proposals. They are with Government. We have set out a very clear strategy, which is effectively underpinning our economic plan. The European Structural and Investment Funds form part of a programme of delivery against our economic priorities. The structure of that submission is clear and is agreed, and the distribution of resources we have allocated to each of the measures—both in terms of regional development and social funds and, indeed, the rural agenda—as well within that. We are very clear about the priority. It sits as a suite of investment funds alongside the Regional Growth Fund, the Growing Places Fund and, indeed, our City Deal. Ultimately, the current negotiations on our local growth deal will help us to deliver the longer-term strategic investment that we need.

Q82 Mr Walker: From the perspective of the two universities—and I think partly Professor Fitt has answered this already—has the representation on the boards of both the Catapult and the Oxfordshire LEP been the primary route through which the universities have influenced the strategic direction of these initiatives?

Professor Walmsley: I certainly think that has been a very important route, and a reason for that is very early engagement as the LEPs were formed. In that sense, having a new entity with a new remit—if less certain initially—allowed an entry point that was different from those of before. That early stage was important. Second, that entity had a window in which it could be reflective about what the strategic assets of the region were and therefore could build a plan around that. Those two features together, coupled with the very good relationships that were established, enabled us to reasonably influence what that direction of travel was going to be, and that then enabled regionally critical but sometimes difficult issues around housing and transport to all serve that larger aim. That unlocked a few ways of doing things that we might not have had otherwise.

Professor Fitt: Yes, I agree with that completely. It goes back to a little bit of what I said before. There is great power in the same or a similar group of people meeting under different circumstances to determine different things, because it allows this group to take a much more strategic view of what is going on across the region and the county and to understand things from many different perspectives. It is important that we are represented on the LEP board and things like that, but it is much more important that there is a group of us that goes to lots of things.

Q83 Mr Walker: Beyond the LEP and the Catapults, are there any other things that you would put into that category that are particularly useful as forums for this type of discussion?

Professor Fitt: There was a whole lot of meetings for the strategic economic plan and a whole lot for the City Deal and a whole lot for the European structural funds, and they have been groups of meetings that have run in parallel with each other, with, as I say, quite a lot of shared personnel. That has been quite powerful and has worked well.

Q84 Mike Crockart: I have got a couple of questions that are more on driving cultural change in universities to encourage collaboration. I get the impression that I might be preaching to the converted here, but we will go with it anyway and see what your thoughts are. In its submission to this inquiry, the Royal Society stated that “in the UK moving from academia to industry is often seen as less prestigious within universities and hence a one-way move”. Is that something that you recognise—probably more in the university institutions first of all?

Professor Fitt: As far as I am concerned, no. That may have been the case 20 or 25 years ago when I was starting my career, but things have changed enormously now. We get people moving from university to industry and vice versa as well, and that is a very healthy thing. I certainly do not think either direction is seen as a one-way move. The issue of whether it is more or less prestigious I just do not hear being discussed.

Q85 Mike Crockart: Professor Walmsley, is it the same for you?

Professor Walmsley: Yes. These are different career paths, but by no means is there a consideration that one is second rate. If you look at the numbers of our students and our graduates, it is a very small fraction that end up on an academic career track. Most of the people who go through the university are going to end up in industry or commerce. Your question was addressed to cultural change and there are issues about the perception of the activity. We have just completed an innovation review at the university. What we are emphasising is that innovation takes place when you have excellent research, so you build on additionality against a globally leading platform of research. That was helpfully reinforced in our review. We had a number of externals—one from Harvard and one from Stanford—and both of those were very clear that that is the primary role and function of academics. None the less, there is a clear culture by which that research excellence is translated into impact, and that is a piece that we continue to emphasise and will grow in emphasis in the future.

Q86 Mike Crockart: Can I ask the same question of Professor Veck? You are seeing it from the other side. Do you have a universally good experience of dealing with universities or are there differences?

Professor Veck: It is not universally good, but it is good. From our side, there is the perception in our industry of the sorts of culture and the sorts of attitudes that you see, but what generally happens is that when individuals actually engage with universities, they very quickly find academics who are very keen indeed to show the impact of their research. I work with the Natural Environment Research Council on their knowledge-exchange advisory board, so I am a little familiar with these impact acceleration accounts and those sorts of things. From our perspective, those do seem to be beneficial in helping to illustrate impact and to get impact from research-council-funded research. Yes, there is a perception, but, as I say, in reality it is always better than you fear it is going to be.

Q87 Mike Crockart: Can I just pick up on something that Professor Walmsley said? You said it is two separate tracks—two separate career paths, if you like. Is there an argument, as the Royal Society has made, that perhaps we should try to break that down a little bit by allowing scientists to spend some of their time in academia and some in business, or is that not a way forward?

Professor Walmsley: That is a perfectly good way forward. There is an increasing trend that we are very keen on whereby graduate students can spend some time in companies, and we are seeking increasing secondments from industry experts into our laboratories. That culture of exchange is increasing and is a very good thing.

Professor Fitt: I would back that up and I would also point, particularly student-wise, to a trend that is definitely emerging now. You will probably remember that 25 or 30 years ago there were many what we used to call "sandwich courses", which went out of fashion completely. That pendulum is swinging well and truly back again now, and all the issues of employability, graduate skills and things like that are making that pendulum swing very much back towards that being an important component of undergraduate and some postgraduate degrees.

Nigel Tipple: If I may, I just want to comment on the cultural side of things from an external perspective. 12 months into Oxfordshire life, it has been an interesting transition from perception to reality. My experience and the experience of the enterprise partnership working with institutions in terms of both universities and colleges has been an increasing awareness of the commercialisation and the economic value of that research that is going on and an engagement and a willingness to work with us and to work with business to commercialise that opportunity. That in part was behind the investment in the innovation centres. We would not have had the strength of proposition around Harwell, Culham, the university and Begbroke had we not got that more commercialised and engaged process of working with not just SMEs but a whole range of business. There is strong evidence to demonstrate a shift in approach and a very positive approach around commercialisation and bringing academic research and the development of that technology through to business. It is visible and you can see that change.

Q88 Mike Crockart: I have got one final question, which is probably more aimed at the academic institutions. The research councils gave us evidence that inclusion of economic and societal impact within Research Excellence Framework assessments "appears to be driving a cultural change within universities". Do you think that is true? Is that true in your institutions?

Professor Walmsley: I would say that it has emphasised something that we perhaps did not know we were as good at as we turned out to be. It is a very helpful thing to look at what you are doing in a critical manner. It has not been an insignificant amount of work, because it has been a change in how we analyse and think about what it is that we are doing, but it has been a very beneficial thing for us to do. When you do research, you are keen to have that research have an impact. That impact might be in new understanding, it might be economic, it might be societal or it might be cultural, but just to do it and have it sit there and have nobody else care about it is not something that anybody is really interested in. Highlighting it and figuring out how we make better use of it is exactly the right thing to be doing.

Professor Fitt: One of the very smart things the funding council did when they made up the rules for the 2014 REF was to make a very clear statement: "We are not saying that research without impact is no good. What we are saying is we would like you to demonstrate that some of your research has an impact, not all of it." By doing that, they have not closed the door to blue-skies research, which we all know can have a very long latency time and we all know the UK is very good at. As a result of their rather carefully written rules, we now have 6,975 impact case studies. They are just the ones that were submitted; there are probably that many again that did not quite make the cut for institutions. That is a fantastic resource when we are trying to make the case for the great job that science, in its broadest definition, does for the UK's growth.

Q89 Mike Crockart: So you would not necessarily agree with an argument that that weighting should be increased to help speed up that momentum of change.

Professor Fitt: You could argue about what the weighting should be—I know that the Witty report suggested 25% or 20%—but the truth is that when universities know what the rules are for the REF, they will cut their cloth according to those rules. It is a tremendous influence on universities and what they do. Certainly at Oxford Brookes, we now have a pro-vice chancellor for impact. We did not have that five years ago.

Professor Walmsley: I would take a slightly different view, but related to the first point that Alistair made. There are two features of the REF. One is the weighting of 20% and the other is that you needed one in 10, so for every 10 category A academics you needed one impact case study, plus one overall. That is about right. There is a fundamental reason it is about right, which is if you are pushing the boundaries of discovery of knowledge, whilst you start and think, “This is the direction I want to go and I think it is going to be valuable, for this reason”, it is entirely exploratory and it is about risk-taking, which means that some of those risks will not pan out in the timeframe or in the way that you imagined. Anticipating that you pick up the 10% of things that are going to have a big impact seems about right and the weighting overall seems also about right, in the sense that this is something that you build on the back of excellent research. It is things that are additional and ought to be there and you have to draw them out. But to change the dial so that that is your focus—there is a real risk that you undermine the seed that is giving you that opportunity.

Q90 Chair: I am going to bring in Robin in a moment, but before I do so I just want to follow up with a few questions on this cultural change. Certainly when I compare it with my own university years, which I have to concede are pretty prehistoric now in comparison to most people, there has been quite a dramatic change, but I think it is fair to say the change has accelerated enormously over the last five or 10 years. I would be interested to know what, from your perspective, has been driving that change. Has it been some sort of almost organic process of industry and university beginning to get together and the benefits being then so obvious that it has developed like that? Has it been driven by particular Government initiatives? Has it been driven economically by the changes in funding support for students that perhaps have forced universities to look at other potential funding streams, or what? Finally, what could the Government do to accelerate this process even further, if you think that it is desirable to do so? Who would like to lead on that? It is a fairly big question.

Professor Fitt: I am happy to say something about that. As you say, it is a very big question and it is quite hard to ascribe one cause to changes in events that happen over time. One thing that has definitely driven it is a whole feeling that public funding should lead to things that are publicly accountable. When I started in the university business 25 years ago, it was very much the case that the Government gave money to universities and that was all fine and they did good things with it. That has changed now. The public, quite rightly, expect there to be accountability for their funding. That is really at the root of what has driven this cultural change. I also look back a number of years ago, and we did a lot of business with industry then. Maybe you just did not hear about it so much, but we did still do quite a lot of business with industry.

Another thing that I would point to is some evidence that seems to have emerged relatively recently. There has long been a fact that everybody knows, so to speak, that UK research and university research is extremely good at producing what people call “blue-skies research” but is no good at commercialising and making money out of it. There has been a lot of recent evidence to show that that is not true at all. If you look at OECD evidence in particular, that will show you that not only is UK research number one with the USA second, or number two with the USA first in all of the population-weighted statistics for blue-skies research, but we are consistently, over many years, in the top five for patents and commercialisation, number of spin-outs per head of population and that sort of thing. That is an example of how the culture has changed. One thing that people in universities are very anxious to get the message across about is the fact that we are actually, as a nation, pretty good at commercialisation and getting the impact out of our research.

Professor Walmsley: It is about what is the buzz of a place—what is the exciting thing to do? That is where people want to come and do really creative work. If you ask, "What are the sorts of things that students are most interested in when they come for graduate studies?" there are two broad categories of problems. One is: "What are the foundational questions about the way the world works?" The other is: "What big societal problems can I solve?" They are interested in climate change; they are interested in energy; they are interested in quantum information. If you have an exciting atmosphere around that, there is a whole slew of opportunities that you can deliver on. That is the crucial thing that we have to get right in this country.

What are the things that allow us to do that? It is clear that underpinning science funding is important; additionality of work in Catapults, through TSB and through other mechanisms, that give that layer that can help interface; and, I would say, increased absorptive capacity in industry and increased spending in R and D in industry, so that there is a place where universities and students and others can hook into that. Policies that will assist those things and policies that assist us to maintain global connectivity and good flow of people in and out are going to be the things that will be the recipe for success.

Professor Veck: I would just add one thing from our perspective. I fully agree with what Ian was saying. It is when students can see the excitement of research delivering something that gets them excited to do more. The co-location of organisations like our own and innovation parks, where the students can see them happening and see in real life their professors talking to industrialists, is going to make a difference.

Q91 Mr Walker: Following on from the point you were making about the international connectivity of all this, the UK currently has the world's highest proportion of R and D from foreign-owned subsidiaries. Is that a strength or a weakness? It has been put to us that this is additional, really, and it should be seen as an addition rather than an alternative to investment by UK companies. Is there an extent to which that can go too far?

Professor Fitt: I see it as a strength. I have heard this argument before that it could be a weakness, but I have never understood it. It is investment coming into the country. It is international investment and all of us that are involved in research are involved in international research. We are not looking to be the best researchers in a small area; we are looking to play on an international stage. I have never been able to see why that could be a disadvantage. I have also, incidentally, heard a very interesting idea that a lot of that inward investment is partly driven by the Research Excellence Framework, or what used to be the RAE, because if multinationals are looking to come and invest in the UK, they have metrics going back to 1986 that will show them how good our research is and which areas and which places are good. That hard data is something that many other countries are lacking. I suggest that that is possibly why the dual research funding mechanism has worked so well over the last few years.

Professor Walmsley: I would add two things. First of all, if you want to be a global leader, you have got to be globally connected. I do not think there is any other way around that. If you are going to compete with places of investment such as China is getting or the US, Japan or Brazil, then you have got to have a scale that is of that kind. A second point is—this is just from our own university perspective—if you ask where we find the licensing opportunities for our technologies, a majority of those are outside the UK. There simply is not the capability or capacity within the UK to take up that offer. It is vital that we have that sort of investment if we want to continue to be a world leader.

Nigel Tipple: The only other thing that I would add to that is if you go back to the point about strong investment propositions and the quality of the research underpinning those, they become a key aspect of our economic drivers. The investment coming in, the strength of the market, the understanding of that capacity and that technological development helps us to embed new companies from a foreign direct investment perspective but it also creates downstream supply-chain opportunities up into those companies. The academic excellence and the research that then attracts that foreign investment into R and D strengthens our market rather than weakening it.

Professor Veck: I would just add one thing. It is early days here at Harwell—we have been here little over a year—but, where we do get inward investment from foreign companies, whether they are moving here or are simply investing in research that is going on here, we are already beginning to see this clustering of other companies wanting to be here because those foreign companies are here. It appears to be very positive so far.

Q92 Mr Walker: So it is a positive and attractive thing for British businesses.

Professor Veck: Yes.

Q93 Chair: Can I just finish with a question that perhaps, Nigel, you are best qualified to answer? I do not know; others may have a view on this. The Government is piloting university enterprise zones, which "aim to address the issue that there is little or no appetite in the private sector to invest in incubator and grow-on space". It would seem from, certainly, my perspective that it is rather odd that Oxford is not one of these pilot university enterprise zones. Do you lack the facilities, or is it that you are just so successful as you are that they do not really need to make you a pilot?

Nigel Tipple: I am not so sure it is either. The reality is that the first round of those pilot zones went to the wave one cities, by and large, rather than wave two City Deal areas. The reality here is we already have strong collaborations with investment from private sector and, indeed, from public sector into that type of facility—innovation incubation facilities. The benefit of an additional zone allocated in that way is it would help us to accelerate beyond just the incubation process, because it is then into growing the businesses, developing them and moving them on. There are opportunities to strengthen if we were to be fortunate enough to be able to secure an additional enterprise zone status. You are within Harwell here and Milton Park is an existing enterprise zone, but not a university-led one. The innovation centre that is being built here is a joint approach between the public and private sector and the businesses that populate that will come from a broad range of that new start-up and SME sector. We have been reasonably successful. We could do a lot better. The trajectory is good in terms of investment, the awareness of the market and the opportunities, but we would certainly welcome the opportunity to secure a university-led enterprise zone within Oxfordshire.

Q94 Chair: So you will be looking for the second wave.

Nigel Tipple: Absolutely. In fact, we could probably tell you where it will go; we may have a couple of ideas already.

Chair: That concludes our formal questioning. I will just ask if there are any members of the Committee who have further questions they would like to ask. In that case, may I thank you very much for your contribution? I always add at this point: if you feel that there is an answer to a question that we should have asked but did not, please feel free to give us that in supplementary evidence. Equally, we may look and feel that perhaps there was a question that we should have asked but did not and, if we do, we would be grateful if you were to respond in supplementary written evidence. Thank you very much.

Examination of Witnesses

Witnesses: **Dr Charles King**, Operations Director, YASA Motors Ltd, **Dr Shpend Gerguri**, Senior Lecturer, Engineering Design, Oxford Brookes University, **Dr Diana Limburg**, Senior Lecturer, Information Management, Oxford Brookes Business School, and **Michael Dibben**, Partner and Chief Executive, Brethertons LLP, gave evidence.

Q95 Chair: Good afternoon and thank you very much for agreeing to be our second panellists. I will just start by asking you to introduce yourselves and your specific titles, and then we will get stuck into the questions.

Dr King: Charles King. I am Operations Director at YASA Motors, a spin-out from Oxford University.

Dr Gerguri: I am Shpend Gerguri, Senior Lecturer in Engineering Design at Oxford Brookes University.

Dr Limburg: I am Diana Limburg. I am a Senior Lecturer in Information Management, also at Oxford Brookes University.

Michael Dibben: I am Michael Dibben. I am Chief Executive Officer at Brethertons LLP. We are a medium-sized law firm based in Oxfordshire and Warwickshire.

Q96 Chair: Thanks very much. I will just repeat what you may have heard me say to the previous panel. Please do not feel that you all have to answer every question, otherwise we could be here for a very long time. Indeed, my first question is to you, Charles, and you, Michael. We have had many submissions that said the university and research knowledge base is very difficult for businesses to navigate, which is a significant challenge to effective collaboration. How did you find the research expertise that your respective organisations needed? Could you give a clue to others how you would navigate this particular journey?

Dr King: I can answer from my perspective. I come from a background that has had a strong relationship between universities and company, so I have not found that to be a challenge to us at YASA. I understand the university system and I know where to look for the expertise that I need to find. That has not been a difficulty. I would go on to the EPSRC website, for instance, and look for the research available in the UK and where the research expertise is.

Chair: No doubt you are perfectly familiar with all these acronyms, but if you could just give them in full at least for the first time.

Dr King: Okay—the Engineering and Physical Sciences Research Council's website. They have on there where the research excellence is. Then I would go specifically to find that. It was just fortunate in our instance that the research excellence that I needed was in a local university.

Michael Dibben: It was rather different from our perspective. We were not accustomed to using or exploiting the assistance of academia in our strategic thinking, so this was really a very novel concept, I would say. We were introduced originally to the prospect of this knowledge-transfer partnership through our local chamber of commerce—the Banbury Chamber of Commerce—and they put us in touch with Oxford Brookes. We did not really know what to expect. We approached them originally with the concept that we were investing a lot of money in a new practice-management system and that we had a considerable change-management process to undergo in our organisation and were not entirely sure how they could help us. I have to say we were very pleasantly surprised at how readily they understood our business and grasped the concepts that were affecting us as a legal business, and they have been extremely helpful to us since. It has been a very successful collaboration, but I am not sure that I would have found it myself; it was the fact that we were introduced to it that really did the trick for us.

Q97 Chair: Arising from what has been said, it is almost a very personal route; you just happened to know the person who knew the person there. That does seem to underline the difficulty that some businesses may have that perhaps have not got that inside knowledge. Is there anything that you think should be done to assist in that respect?

Michael Dibben: I would have to say that there should be more promotion and publicity of the knowledge-transfer partnership, certainly. As I say, we would not have heard of it ourselves, I am sure; it was something that was introduced to us. Therefore, I am sure the Government could certainly do more to promote it. I also understand that we are the first law firm that has ever taken advantage of it. In all the conferences and other networking events that I go to through the Law Society and various other channels, I have never heard anybody else speak about it.

Q98 Chair: No; it is the first time I have heard of it. Charles, have you anything you wish to add on that?

Dr King: It is a real challenge to promote the wide variety of acronyms to the industry at large, whether in the science space or in the commerce space. There are two aspects. One is that one needs to know that one has a problem that can be resolved by someone else and not merely by the capabilities within the team. Secondly, knowing that one has the problem, one then starts searching. We are fortunate today that we have an internet we can search with. It was much more challenging in the past. Nevertheless, I recall way back, my uncle, who now would be in his 94th year, was sent off to university by a local industry to do a PhD. Industry has had contacts with the university base for a long time and it has been typically through personal knowledge and knowing that you have the problem.

Q99 Chair: Can I just ask you a supplementary? Which was the most important factor in getting you to decide which particular academic institution to collaborate with? Was it reputation, location, research expertise, or what?

Dr King: Certainly from our perspective, YASA Motors is a high-tech industry and a spin-out from Oxford University and one might think, therefore, that there would be a natural bent to look back towards the university we spun out from. Indeed we did not. I had, through previous experience, had very strong connections with Brookes University through some consultancy I did with Siemens. It was knowledge of Brookes University's Joining Technology Research Centre that was important to us. I could find that at Brookes and there was not such a facility with quite the same levels of expertise that I could find easily within Oxford University. And it is down to people. A technology is delivered by people, and that we already had those contacts and the expertise was there was valuable to us.

I would add to that and say that, whereas Rolls-Royce could invest in a technology centre for 10 years and in the first two years teach that academic institution everything that Rolls-Royce knows and then get something back, SMEs and start-ups like ourselves cannot do that. I need to go to someone who already has the expertise. I have not got the time to teach them. I need them to immediately tell me something I do not know and have facilities that I can have access to. I was fortunate that Brookes was on site local to us, but had it been elsewhere in the country, I would have followed it to there as well, because the expertise was the more important thing, rather than the location.

Michael Dibben: In several ways I suppose this is similar. We did not go through any selection process in choosing the university; we were introduced to Oxford Brookes. We met the team there, including Diana, and found that we got on very well and we immediately found that there was something they could offer us and, based on that, we went ahead. The fact that they were local was definitely a factor; I am not sure it would have worked if we had been at the other end of the country from them. You can communicate in all sorts of ways now, but for a project like this you do need to be in geographical close proximity to have the meetings to make it work.

Q100 Mr Walker: This partly reflects on what Dr King was just saying: that SMEs have less time and less money available to go out than perhaps the likes of Rolls-Royce and find the right partners. There is academic research that the Committee has been presented with that shows that one of the things that puts SMEs off from engaging with universities in the first place is the investment of time and money that they think it will take in order to establish and then maintain a relationship. From the perspective of your two businesses, to what extent should that be seen as a barrier and to what extent can it be seen as an opportunity—that you get support that repays your time and money quite quickly?

Michael Dibben: From the experience we have had so far, the latter is true; you definitely do get the benefit of it. Going back to where I was a year ago, I am ashamed to say it probably would not have even occurred to me that we could have got that level of expertise through some scheme of collaboration, whether it is a KTP or anything else, by liaising with a university. It was something quite novel for us, as I have said, and I have been extremely impressed with what we have gained from it.

Dr King: Yes. It has been extraordinarily valuable for us to have ready access to the Brookes team. They had the expertise we required. It was very easy for us to liaise and work with the team there. I say again that the technology is delivered by people. If it is a small group, it is very important that within that group there is someone who has the willingness to liaise and to work with the industry.

Q101 Mr Walker: Clearly, relationship management is key. Perhaps bringing in the members of the panel from Brookes as well, what would you say are the key elements to relationship management between business and university?

Dr Gerguri: I will just give a bit of background. I have been involved in two KTPs. Having a system that supports you through the process is very important. Relationship can be one thing, but if you do not have the process in place to take that process through, that could be an issue. Again, within Brookes we have a very good research and business development office that mediates between academics and the industry. For me personally, that has been a very useful and, to date, very successful way of collaborating with the industry.

Dr Limburg: I would second that. I would also go back to the importance of the building of the relationship. We are now for the first time having a KTP with a law firm. You need to really start to understand. It is not just that; they are embarking on something they have never done before and it is proper business research, so it is not something that has been written down in the business field either. You are doing something quite adventurous for both partners. You are not going to do that if you do not feel good about each other, if you cannot communicate and if you do not—I would even say—trust each other. That is also linked to that sense that, "Yes, there is a risk involved. It is exciting, it is new and it is novel, so it might not work out." You need to trust each other and communicate about where things are going right and where things are maybe a little bit tricky. I would definitely say that the relationship is core, supported, indeed, by processes that force you also to take stock very regularly so that you do not get halfway down the line and think, "We had really great ideas, but it is just not working out".

Dr King: Part of your question was about the cost of engagement. It is a very tolerable cost. We are a start-up; we are VC-funded. When I first started with the company, there were four of us. We needed access to capital equipment and expertise very quickly. There was no way we could have done that were it not with an engagement with a university knowledge base. The cost of that engagement was small in comparison with the loss of the company. Those types of decisions have to be made on a regular basis.

Q102 Mr Walker: One of the other challenges in bringing together businesses and academia is often working to very different time scales. I just wonder if that is something that has come up in the relationships between the companies and academic institutions in this sense.

Dr King: One of the benefits of SMEs, and particularly start-ups, is their agility and their ability to move very quickly. We move, typically, at the speed of light, and it is a tricky thing to engage with universities if they are unable to accommodate and at least understand why we are wanting to push at the speed we are. That is another feature of the UK system; if you can find the right people, they will move at those speeds. In our instance, we have had one KTP that has already succeeded and finished and indeed we recruited the associate at the end, and we have started another one. The benefits to us are very strong contacts with the university and doing the longer-term projects, but also being able to draw on that academic excellence to help us with immediate problems. It is very much in how one engages and knowing what the university is capable of.

Dr Gerguri: Can I add to that? That is a very valid point, because I can see it from the point of view also of a mismatch of expectations between academia and industry. One important aspect is for academics to realise that industry works to certain commercial constraints, not necessarily at the same pace academia works. As long as you as an academic realise that and you have certain deadlines, but equally you have a vested interest, I do not think that is an issue. Certainly it has not been in my case. As long as we realise that there are commercial constraints, perhaps that is something that can help the academics.

Michael Dibben: I merely add to that that there is a similar argument that businesses have to recognise that what they are investing in here is something that is not a very quick fix; this is a longer-term project. For instance, at the time when we were first looking at this, we could have approached it on the basis that we had a new computer system to set up and we wanted somebody to make it work instantly. That would not be something that would work in this sort of partnership. For us, it was much more a longer-term project and it was far more to do with using the knowledge that was out there much better and change management to make sure that we adapted to the rigours and demands that we were facing as part of the changes in the legal world.

Q103 Mr Walker: From the university's perspective, how do you balance that need to work with businesses on a time scale that is reasonable to them, to meet deadlines and so on, with the academic freedom that you need as a university and for your students to develop and for your academics to continue to develop in their careers?

Dr Gerguri: Now that I have been—I keep repeating myself—in two KTPs, I would not just call it a knowledge-transfer partnership; I would, rather, call it a knowledge-exchange partnership, because it is a two-way process. I am going there not only to impart knowledge; I am going there to also bring some knowledge back to our students. That is one side: feeding back into our students by various means, such as case studies. In terms of meeting the deadlines and constraints, the due process that we have to go through as part of the KTP process lays out what we need to achieve by certain dates—certain deadlines and certain outcomes. As long as you follow that due process and you allocate time, which is captured in your workload plan within the institution, that is one way of dealing with it.

Dr Limburg: I would agree with that. It is incredibly important to set aside time on a very regular basis to work on the partnership. That does not go against any academic work pace; it is just the project goes on and it has got its deadlines. The partner has got their deadlines, but it also goes back to that bit of communication. The partner cannot expect us to move faster than we can. Sometimes it works the other way round. As Michael says, sometimes we just say, "Look, you are going too fast here. If you do this now, you are going to regret it—you are going to go down a path that is not in your best interest. Step back. We are going to think this through properly first." It definitely works both ways.

Q104 Paul Blomfield: I wonder if I could move to the commercial risks involved in KTPs and ask Charles and Michael perhaps first to reflect on whether they see any commercial risk from their point of view as businesses.

Dr King: Is this commercial risk in liaising with a university and therefore losing control of IP?

Paul Blomfield: Yes.

Dr King: The way the KTPs are set up—and, indeed, prior to them, the Teaching Company Schemes, which I have also had some experience of—there is a collaboration agreement that exists between, in our instance, the commercial enterprise, YASA Motors, and Brookes University as to where the IP will be used. The industry needs to understand that the raison d'être of the knowledge base is to publish and to move the knowledge base forward. We recognise that when we set the objectives and when we agree the collaboration agreement as to where the IP will lie—where the foreground and background of the IP is. Those risks we manage right from the very early stage, and it has not been a reason for not engaging with the universities, either in this particular instance or in the other universities we have engagement with. It is not an issue. We have to deal with it, but it is not an issue.

Michael Dibben: From the perspective of somebody who has only recently applied for a KTP for the first time, it was certainly something that was at the forefront of our thoughts when it came to discussing the terms of the agreement. Our initial fears were, I suppose, first of all that we might risk losing data that were in some way confidential; we had to protect our customer data and a lot of the knowledge that we had built up over the years. But there is a clear distinction to be made between pre-existing data and knowledge that you gain as a result of a collaborative partnership. We understood from the outset that that was the deal.

As Charles has said, the whole purpose is to create more knowledge that is going to be available generally; it was not a partnership that was to create something just for us. It probably came as a little bit of a shock—it goes a little bit against the grain for a lawyer that we are creating some knowledge and then going to publish it across the world—but then the world is changing generally. There is so much knowledge that is available out there generally and available very cheaply, if not free, that we have moved away from a time when you really had to protect everything you learned and keep it very secret from everybody, because nowadays you can be pretty sure that somebody else knows it and somebody else has published it somewhere out there. Rather, it is the opposite; nowadays the onus is on the business to select the right knowledge that is available from that big bank of knowledge that is out there—the knowledge that is right for their business and that fits in with their culture. That is much more where we see the challenge, rather than clinging desperately to something that we think we really must protect against anyone who might be able to snoop.

Q105 Paul Blomfield: That seems rather reflective, looking back on the process. When you first thought, "This is going to be shared more widely", did that make you double take as to whether that was the right vehicle?

Michael Dibben: Yes, that is a fair point. That is absolutely right. That was something that certainly we considered at the outset, but it really hit home when we got the first draft of the collaboration agreement; that was the clause that immediately sprang out: "Wait a minute. We really are giving away knowledge here." As I say, once you make the distinction between pre-existing knowledge that you have to keep secret anyway and knowledge that is going to be gained as a result of this whole project, it is fairly easy to understand the reason why it does need to be available and, hopefully, will be published and other people will make use of it.

Q106 Paul Blomfield: What about from the point of view of universities? What are the risks for universities of this sort of partnership?

Dr Limburg: I am not really in a position to speak for the university there, but from the perspective of the—

Paul Blomfield: From the perspective of the higher education sector and your experience of it.

Dr Limburg: For the sort of research that I would publish, where we are developing knowledge in the partnership, I would say it is just good, because you are creating more knowledge than there was and you have got all the opportunities to make that public. We get support from central university in the process of putting those agreements together and, as the team doing the KTP, we are only sideways involved in that. I do not get the impression that the university sees a risk in terms of intellectual property.

Dr Gerguri: If I may just add to that, it is our legal department that deals with the IP issues, but it is important for us as academics to remember two things. There are commercial rights that will belong to the company—it is not something I am involved in directly—but equally, it is important for us to ring-fence our academic rights so we are able to use some of that knowledge in, or feed it back into, our teaching.

Dr King: It would be valuable to avoid a situation where the university is seeking to gain licence income in order to fund itself. If that becomes the main driver for the university income, then the university is competing with the industry in that respect. One does not see that at present, but if we were to do deals with universities where the university has a very high right to exploit the IP, specifically in order to fund itself, then that could become a problem. Presently, that is not the issue, and good strong negotiation goes on and a good deal is done.

Q107 Paul Blomfield: You can see why that sort of arrangement might be quite tempting for universities.

Dr King: Very much so. The TSB collaboration agreement is on fair and equitable terms and therefore it is the understanding of what that "fair and equitable" term is; that is where the negotiation comes. The university, in addition, gains the insight into the problems of the industry. The previous panel were talking about doing blue-sky research and that which has impact. In order to have impact, you have to know where the problems are. That is one of the issues of the relationships that industry has with the university: to reveal what the problems are. In so doing, that gives relevance to some of the work that universities are engaged in.

Paul Blomfield: Which is when it becomes more of an exchange than a transfer.

Dr King: Absolutely.

Q108 Paul Blomfield: Can I just explore, perhaps with Michael, a little bit more that issue that we were touching on? Clearly, most academics and universities want to publish their research as soon as possible, and some public funders will demand that. How does that objective interact with the priorities of business to control research that they have been involved with? You have talked very philosophically about it, but practically.

Michael Dibben: Yes. That is probably because we are at a fairly early stage in the project, so we have not yet got to a point where we feel that we have created something that is going to be incredibly valuable to business or to academic research or anything else out there. If it were, I would probably just echo what Charles says, that the terms would have to be negotiated. I do not think the temptation would be to become super-controlling over it. That probably sounds a bit odd coming from a lawyer, because you know what we are like, but we would recognise that this is something we, again, need to collaborate on. We have got to be fair. I might differ slightly from Charles, in that if there were a commercial opportunity that we could both gain something from, I do not see why we should not explore that as long as the terms were fair to both.

Q109 Paul Blomfield: Charles, what about this issue of the urge to publish versus businesses' desire to control that information?

Dr King: Within the KTP we have recently finished and the one we are presently involved in, the need to publish is there. The value of publishing in the first KTP was low; there was not a substantial amount that was going to add to the general knowledge out in the world, and therefore it did not seem appropriate for the university to want to do that. There may well be in the second one, which is more research-y; there is more risk associated with it and therefore the bounds we are breaking may be a little higher. We will address those as they come along.

In general, in the relationship between industry and universities, particularly when one is funding students to complete a programme of work in which they may get a degree at the end, the commercial enterprise has an opportunity to restrict the publication. For instance, a PhD can be restrained for three years. I am sure that same situation would happen with MSc theses and so forth, but it would be for a limited period to give the industry a chance to take advantage of the space. In the ones that we have running at present, there is the potential for that and we will need to look at that. The collaboration agreement deals with it very easily; the university can write and then there is a joint review of the paper and what information is going to be revealed.

Paul Blomfield: That is very helpful. Thank you.

Q110 Mike Crockart: If I can turn now to admin and the setting-up of a KTP, I would like to just ask a few questions about how you found that process. First of all, did you find it unduly bureaucratic to set up a knowledge-transfer partnership or did it have the right balance and give you the appropriate level of certainty that you required?

Michael Dibben: Is it okay if I start, perhaps on the basis that I have done this more recently, and for the first time more recently? It was surprisingly arduous, I would say, to go through the process of the initial application. Having said that, I do recognise that we are talking about a substantial contribution here from TSB and they are not just going to give away the money to anyone; you have got to present a very good and strong case for what you are trying to do with your project. I fully understand that.

However, my recollection is that we went through approximately a two-month process of filling in the form, sending it to the regional adviser—by the way, I should have mentioned that is something we could not have achieved it without; it is essential that the adviser is there—her going through it with a red pen and sending it back to us, us re-doing it, and her accepting those changes but then saying, "Because you have done that, you have now got to re-do what you did in the first place". That whole process seemed to go backwards and forwards for about two months. There were certainly one or two occasions where I almost felt that we would have to give up; it was getting so hard that I was wondering whether it really was worth it. In terms of the manpower that was going into providing all this information to make the application, was that going to outweigh the benefit that we were going to get? I am glad we did go through with it, because we are gaining far more, but I would say that I could quite understand that other potential applicants could find that whole process something of a deterrent.

Q111 Mike Crockart: So that help that you got was from the TSB regional rep. Without that, you probably would not have managed to get through the process.

Michael Dibben: I do not think our application would have been successful—put it that way. We thought that we had put together a pretty good application first time round and I would say the amount of red pen on it that came back from the first go was probably about 80%.

Mike Crockart: Something that you would not be used to as a lawyer.

Michael Dibben: Absolutely not.

Q112 Mike Crockart: Charles, was it the same process for you?

Dr King: As you might imagine, it is somewhat less of a challenge to us, because we have dealt with TSB on a number of occasions so we understand the format, and that helps a great deal. There are details of looking into the future, which is a real challenge for a VC start-up—an early-stage company. We have aspirations of how we think the world will look in three years' time, but whether it does or not very much depends on how the market grows and how the business grows. There is some information that seems excessive, but nevertheless it helps focus the mind. Less, in terms of administration, speeds things up, but it does focus. Certainly from our experience, the second one was much easier than the first one to put together, because we knew what we were doing better. Indeed, I would say again that our TSB associate, Gill Rysiecki, was a great help to us in guiding us as to what the TSB is looking for and how we could meet those needs.

Q113 Mike Crockart: Can I just probe a little bit, Michael, the 80% that came back with red pen through it? What types of areas was it that you had gone down a blind alley on and not given the information that they had been looking for?

Michael Dibben: My recollection is that a lot of the fault—I am ashamed to say—was in the figures. What we had put in one section did not match what we had put in another. That was partly because of the way some of the questions were worded; we were not entirely sure what they were getting at. One of the reasons for the adviser is to be able to say, "Look, if you are saying that you are expecting to grow by X% per year—whatever you have put down in that section—you cannot then say in section so-and-so that you expect your net profit to be something that is way out of sync with that". I am putting that in very simplistic terms, but the advice was absolutely correct; she was finding holes in places where what we had said in one section of the form in isolation made sense but did not quite match with what we had said somewhere else.

Q114 Mike Crockart: So not errors that an accountants' firm would have made, perhaps.

Michael Dibben: Exactly, yes.

Q115 Mike Crockart: Charles, you have already gone through the process again, so the bureaucracy was not something that was off-putting.

Dr King: Not at all, no. The benefits are substantial to us. It was really important for YASA Motors to have a relationship with a knowledge base, and particularly the one we have chosen because of their expertise there, that gave us access to that. It is a longer-term project that we are on—it is a two-year project that we have embarked upon—but within that two-year project, we have access to the academics and capital equipment that we would not otherwise have had. There is a whole raft of benefits that we derive from having the relationship with the knowledge base and with Brookes. We also needed to do this work. It was too high a risk for us to do internally, nor did we have the expertise, so it was an ideal project of work for the university to be dealing with.

Q116 Mike Crockart: Michael, what about you? I get the impression that you feel the benefits have outweighed the issues of the application already, even at this early stage.

Michael Dibben: That is absolutely right. We are already seeing benefits in terms of the way we have been able to change the way we work through the introduction of the associate that we now have. It has made a considerable difference to the way we work and probably considerably faster than we would have expected at the outset.

Q117 Mike Crockart: If I can turn now to the implementation phase of your agreements, because these are contractual agreements; they have outcomes and added value that is expected to be delivered. How well did that process work? How well were the outcomes that you had agreed across both sides delivered?

Dr King: I mentioned at the beginning of the KTP we were a year out from Oxford University; we were maybe seven or eight people by that stage, planning on what the world was going to look like in two years' time and initiating a market. This is technology push; we are pushing a very new technology into the market. It is a challenge to predict exactly what is going to happen. Business plans change. The aspirations that we had commercially were not entirely met. A number of them were, but our proposal to grow the business at the rate we had wanted was maybe too aspirational. It will happen; it will just happen maybe two years later. Trying to match those plans, particularly for an early-stage business, is more challenging, I suggest. Nevertheless, the technology that we developed during that two-year period was absolutely what we needed and has delivered exactly what we had planned. On that side of things, we did precisely what we said we would, so that was ideal.

Michael Dibben: I would say from our point of view it is probably a little early in the process to be able to judge the outcomes. In terms of the growth aspirations, as far as turnover is concerned, we are fairly confident that we will achieve that even sooner, but we have to work more on profitability; that is the real challenge for us, and it is all part of the process. The real benefits that we have seen so far are much more to do with changing the way we do things, making sure that everything we do—all the activities and projects that we undertake—is properly aligned to our strategic thinking and not done on a whim or on the basis of something that just sounded good. That is the big change.

Q118 Mike Crockart: That was going to be my next question: has going through this process had an effect in your organisations more widely? Has it changed the way that you look at projects, the way that you develop new products or anything else that you do?

Michael Dibben: That is very much the key to what we have achieved so far. In the past, as I say, we tended to take on new ideas on the basis that somebody would come up with something, present it to the management board and, if it sounded good, we would delegate to somebody to form a project team and get on with it and then, two years later, we would think, "Whatever happened to that project, then? Oh, yes, it either never got off the ground or we spent an awful lot of money but never achieved anything." Now, our KTP associate has formed what we call a value integration office, with the main purpose of assessing these new ideas as they come in, measuring impact against risk and then helping to produce a proper business plan, which is then presented to the board for approval—if, indeed, it gets that far. If it is approved and it goes through the process of development and implementation, the value integration office will then monitor and assess progress against the specified outcomes. We are much more structured and much more strategic in what we will take on and, as a result, we will restrict the number of projects we do, so some people will be disappointed, but it is far better to do that at the outset than take things on and then not have the resources to fulfil them, as we were guilty of in the past. That is a very big change.

Dr Limburg: Can I just add something to that? This KTP is a business KTP; there is not a technological project being developed, and this value integration office is not something that really exists. As far as we talk about outcomes and whether outcomes have been achieved, from the university's perspective, yes, we are in that sense ahead of schedule. A real value integration office has been put in place in a very challenging context and we can play around with it, if you like, to develop the concept further and make it work for Brethertons but also develop it as a concept that would be transferrable to other businesses and would be highly publishable. Coming back to that idea of outcomes, they are not just on their end; they are certainly also on our end, and they are being realised.

Q119 Mike Crockart: You are all painting quite a rosy picture of how it all works and how, although it was a bit difficult at the start, everything is looking pretty good. Are there any barriers still out there to the effective working of knowledge-transfer partnerships that you can see?

Dr King: Knowledge-transfer partnerships come in a variety of different lengths of studentship. The ones we have engaged with have tended to be the two-year ones. We have two sandwich students starting with us. We have had them before. We are now four years out from the university and we have had one for a year. We have seen that as a way of engaging for a longer period of time with students on site, but that loses the academic link, if you will; we just have the students on site. If the same level of effort were necessary to get a six-week placement, that would be a challenge. I do not believe it is, but that is something that we would need to have a look at, because one can get much shorter-period relationships with a knowledge base. That is something we need to look at: very specific problems that have a short term and where we are calling on particular expertise. That is something we would need to have a look at and might be a barrier.

Q120 Mike Crockart: So going through the bureaucracy is fine if it is for a longer-term project, but for a shorter-term one it would write it off.

Dr King: It would be much more challenging and we might approach it by a different route.

Q121 Mike Crockart: What about others on the panel? Everyone looks quite happy.

Dr Limburg: Adding to that, yes, I am quite happy, in the sense that it brings together a lot of the things that, particularly in a business faculty, you would expect to make people happy. It is working with business partners; it is working at the cutting edge.

It is exciting. You are moving things forward. You are bringing things back into teaching and into research. There is not an awful lot not to like about it. Are all partnerships really brilliant all the time? Of course not. It is a partnership and it is a real-world problem in a real-world organisation. I know of one KTP I am sideways involved with where there have been personnel changes at the business partner that have made it much more complicated. You are vulnerable to things like that, but there are support structures in place to try to deal with that, so I do not think there are a huge amount of issues there. As a vehicle it is really good.

Q122 Mike Crockart: My final question, then, is to the university representatives. How much more of this could you do? Is the capacity there? From what I see from the figures, there are 672 KTPs on the go at the moment and they are supposed to use up pretty much all the funding that there is available. Is there a vast market out there that could be being tapped into that you are unable to?

Dr Gerguri: My view is it all depends whether you can match what the industry is looking for with the knowledge base. In other words, do you have a system or—shall we say—knowledge brokers in the middle that can say, "Well, industry needs these problems solved. Can we match these problems to some knowledge base in the university?" Is the capacity there? I do believe it is in there; it is just how we mediate that. How we do that I am not entirely sure. Two of my KTPs were based on some personal links that I had. They were students who graduated from our department and then went on to employment; one of them after 10 years contacted me asking whether I could I do some contract testing, and then we discussed the KTP. My view is: can we have some kind of a knowledge broker in the middle that can try to map what the industry needs and what we can offer? Do we have the time? If we go through that due process and we see who can do what, I am sure they can find people.

Dr Limburg: I would second that. To be honest, the key bit is to get businesses through the door of the university. As Michael says, once we are talking, it can be made perfectly clear how a contribution can be made and how both partners can benefit from that. A lot of businesses never get to the point of even trying to talk, partly because they would not know who to talk to or what about or, as Charles was saying, that they have a problem that would benefit from the involvement of a university partner. If we can get more businesses to come and talk to universities, we have got people in place who will be that first port of call and will then, within the university, help the business partner to navigate and find the right specific people to talk to.

Dr King: The industry's problems are polymath problems. By that, what I mean is that it helps if you have someone who has a holistic view of that area of industry to be able to understand what the issues are and then relate that from the industry's side into the university and vice versa. For some three years I worked as a technology translator for the TSB, working with some 50 different companies with very wide breadth of background, but then I started off life as a physicist, I moved into material science and then spent a year in post-doc in chemical engineering, and worked for corporate research labs, of which only one still exists.

Although others are rising here, the Cookson Group research lab, which was out at Begbroke just up here, closed down, and the company has divided. Johnson Matthey

Research, which I also worked for, still exists. Those companies that retain a research base produce individuals who have polymath outlooks, particularly if it is a vertically integrated company; you have a very much broader view. Those are the people who can do the translation between what the industry has as a problem and what the universities need to understand. Those individuals are fewer now; people are more focused, with less of that knowledge base, so it is more challenging.

Michael Dibben: I would really just endorse what has been said. Businesses do not understand what help is available from the universities. Even if they understand that there might be some help there, they do not know who they should turn to. If more could be done to achieve that bridge to get that knowledge of what help is available, that could be hugely beneficial to business generally.

Q123 Chair: Just a couple of questions to finish off with. I suppose the next one, in a way, is slightly personal. You are all academics, at least up to a point. Has the collusion and collaboration with business affected your academic careers?

Dr Gerguri: I think it has affected it for the good in this case. One thing we need to realise, in my view, as academics is that we need to contribute to the economy now. The usual academic attitude is just that you publish research and that is where the story ends, but nowadays you want that research to have an impact, and seeing it work within a commercial context can only be a good thing. So, yes, it has changed my mode of operation—let us put it that way. In anything I do nowadays—even with the students at undergraduate level—I try to think, "Has this thing got a bit of IP we could use?" Yes.

Dr Limburg: I would second that. I almost see myself as a portfolio academic. I love teaching, I like doing research and I love working with businesses. In that sense, it really helps to make my job much more fulfilling. It is really great to see a direct impact of all the things that we talk about, research and teach, and it actually making a difference. It is not something abstract; it is not something where somebody—as particularly happens in business teaching—says, "Yeah, right, well that sounds great in theory but that is not how the real world works". You know, actually, it does work like that, and it works better because of our involvement there. In that sense, it is really helpful to broaden the portfolio and inform each element of being an academic. Ultimately, hopefully it also feeds into the three and four-star journal publications that we are all wanting.

Q124 Chair: Yes. Has it enhanced your academic institution, do you think?

Dr Limburg: Yes, definitely, for those same reasons. People have a higher estimation of the institution, particularly if you are teaching business but it is probably the same if you are teaching engineering, if it works in the real world. That is where the proof of our existence lies. In that sense it helps the institution. It is good for its reputation. It is good for us teaching better and more interesting things, and it is good for the institution producing direct impact and being able to publish things that are very relevant.

Q125 Chair: Can I just conclude with this question? How would you measure whether a KTP has been successful? What are the criteria, hallmarks or benchmarks that you would use to evaluate it?

Dr King: First of all, by asking the participants. I would seek to look to the participants to see how they respond to the interaction. Commercially, I would look not immediately; I would look at least two, maybe three, years out. It very much depends, I suspect, on the size of the business that one is looking at as to what that timeframe would need to be. It is useful to see a commercial impact. There is value in looking at that from the input that the TSB has put in. That value just needs to be looked at over maybe a longer timeframe for different company structures. Those are already reviewed; that type of information is already gathered at the end of a KTP to see how the KTP has run, whether it was a successful relationship and, indeed, whether the relationship wants to continue, so there is another valuable input there. Had we not continued it as a KTP, we would have sought some way of continuing our relationship with the academics that we are working with at Brookes University and with that team, because they have a knowledge base and resources that are valuable to us.

Q126 Chair: Does anybody want to add to that?

Michael Dibben: Again, it is probably fairly early days for us to start thinking about end measures. Perhaps it is not; perhaps that is exactly what we should be doing at this stage. I think you are able to measure the success. As far as our business is concerned, what we have seen is something that I would call thinking and acting like a business. We were guilty as a law firm of behaving far too much like a law firm and we knew we had to change. We are now beginning, at least, to think far more like a commercial organisation. We are properly planning for the future and we are making sure that everything we do is properly aligned to our strategic priorities and objectives. At the end of the two-year period, we should be able to see how that has affected our success and our ways of dealing with things over that time when we look back as to how we were beforehand.

Dr Gerguri: If I may just add to that, it is also worth mentioning our KTP regional advisers because they make sure that the KTP is on track and delivering value. There are mechanisms in place that ensure that is happening.

Dr Limburg: You write down how much more money has been made and whether all those interim things that you promised you would do have been delivered or how they have changed. There is also that general sense in how you measure success of, "How much have we actually all learned?" Learning is a really important part of that: at the end of it, what do we know that we did not know when we started out? It is not just knowledge transfer or even just knowledge exchange; it is a knowledge-creation partnership and it should be measured against the amount of knowledge that has been created.

Chair: Thank you. That is probably an appropriate note on which to finish the proceedings, but I will just ask if any of my colleagues have any further questions. No. Thank you very much. That has been incredibly helpful. I will repeat what I said to the previous panel. If you feel that we should have asked you a question but did not, but you would like to answer it, then please feel free to submit us supplementary evidence, and we may well decide that there are further questions we would like to ask you and would be grateful for your co-operation in replying. Thank you very much.