HOUSE OF LORDS

Select Committee on Science and Technology

Corrected oral evidence: Life Sciences and the Industrial Strategy

Tuesday 14 November 2017

12.10 pm

Watch the meeting

Members present: Lord Patel (The Chairman); Lord Borwick; Lord Mair; Lord Maxton; Baroness Morgan of Huyton; Baroness Neville-Jones; Lord Renfrew of Kaimsthorn.

Evidence Session No. 16 Heard in Public Questions 135 - 142

Witnesses

Dr Glenn Crocker MBE, Representative of the UK Science Park Association (UKSPA) and Chief Executive of BioCity Nottingham Ltd; Dr Iain Thomas, Head of Life Sciences, Cambridge Enterprise; Dr Sally Ann Forsyth, Chief Executive Officer, Norwich Research Park.

USE OF THE TRANSCRIPT

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

Examination of witnesses

Dr Glenn Crocker MBE, Dr Iain Thomas and Dr Sally Ann Forsyth.

Q135 **The Chairman:** Good afternoon, lady and gentlemen. Thank you for coming today to help us with this evidence session. You represent the innovative clusters, and we want to explore with you how clusters may form the way towards developing industrial strategy. You feature quite a lot in John Bell's life sciences industrial strategy, so that is the issue we want to explore with you. Before we do so, if you do not mind, please introduce yourselves. If you wish to make a comment when you introduce yourself, please feel free to do so. Otherwise, we will move on to the questions.

Dr Glenn Crocker: I am chief executive of BioCity Group, which is the largest bioscience incubator business in the UK. I have been chief executive for the last 14 years, prior to which I was head of the biotech practice for Ernst & Young. We create new companies in the life science sector, invest in them, and grow them in our four centres across the UK, so we are embedded in the ecosystem of growing new life science companies and developing existing ones.

Dr Iain Thomas: I am head of the life science team at the University of Cambridge's commercialisation company. Our responsibility is to help our academics with all sorts of technologies—in the life sciences, but obviously we think more broadly—and commercialise them through any route that is appropriate. As a result, though, we inevitably do a lot of work with the formation of companies, spinning them out and supporting them for some time after they have left our shores. It is pretty fair to say that we are lucky enough to be in the centre of an incredible life science cluster in Cambridge, arguably the third in the world, certainly the best in Europe. It is something to which Cambridge University and our activity has been a significant contributor, but very far from the sole contributor. We like to see ourselves as part of a bigger activity and a bigger set of networks.

Dr Sally Ann Forsyth: Good afternoon. I am chief executive of Norwich Research Park, which is a cluster of four world-class institutes based around the life sciences, the University of East Anglia and the Norfolk and Norwich University Hospital, one of the largest hospitals in the UK. We have around 12,000 employees on the campus. Since we started in 2012, we have started up, attracted and grown 80 companies; that is about one a month. They are located in three innovation centres, plus elsewhere on the park, and we provide a supportive environment for them, with growth along the innovation supply chain, from the academic institutes right the way through to businesses and hospitals.

Prior to this role, I was director of the Harwell Campus in Oxford, and converted it from a research campus into the science park, with a clear focus on the space area, including attracting a catapult, the Satellite Applications Catapult, and the European Space Agency. I am also a member of the UK Science Park Association board.

The Chairman: Thank you very much. When you say your clusters are involved with life science, are you talking purely about biomedical life sciences?

Dr Glenn Crocker: No, not necessarily. There is industrial bioscience. We have ag-bio companies on BioCity sites. We have environmental biotech companies and medical technologies. It covers a broad remit.

The Chairman: Does that apply to you two?

Dr Sally Ann Forsyth: In Norwich, we have the world-famous John Innes Centre and the Sainsbury Laboratory which have an agritech focus. We have Earlham Institute for genomics, specialising in microbial and plant genomics, sister to the Sanger. We also have the new Quadram Institute, which brings together food health and the microbiome, so it is a broad range of life sciences.

Dr Iain Thomas: Although Cambridge's life science is substantially for biomedical purposes, like my colleagues we have quite a lot going on in agritech activities right now. We see ourselves as an important, but not a leading, player in that. That is where are looking, and we work actively with colleagues in Norwich and with the NIAB, for example, which is a different organisation in Cambridge. It is broader than biomedical and human health.

Q136 **The Chairman:** Our inquiry focuses mainly on the life sciences as they relate to biomedical life sciences and particularly John Bell's industrial strategy document, which you are all familiar with. To start off, we would like your comments on what you think about the life sciences industrial strategy and John Bell's document. What are the main challenges in it?

Dr Iain Thomas: On first reading, it is a rather good document. In some respects, it is quite inspiring to those of us who sit within this kind of activity and know it well. I am not sure how it would be seen by those who are outside it. Inspiration is something that I am sure the three of us collectively would like to touch on a little later. Broadly, it is pretty exciting. One of the things I am very pleased to see in there is a significant push at various points to talk about the relevance of the NHS. He starts to highlight some of the challenges that we collectively need to address and get on with to capitalise on what is a very significant national asset. In that respect, it is a quite demanding but very reasonable and somewhat inspiring document.

As with all documents of this kind, there are some interesting and very good specific challenges. You may question the specific numbers, where he says, "We need a number of industries of this scale; we need a number of companies of that scale". That is not for me to comment on, but the fact that they are there and could be tailored is good.

This is not necessarily within its remit, but it is quite short on tactics and implementation. It talks about a number of things that you will bring up in your questions, but the implementation of those points is where we—meaning our entire sector, colleagues and whatever—can be successful or fail. The guidance about managing that activity is a missing part, not to

say that it could be in here, but it needs some very significant work so we can capitalise on the NHS, whatever that means, and on our regional strengths. We can talk about everything from diagnostics in Northern Ireland to the direct pharmaceutical therapeutics activities that Cambridge is well known for. How do we connect all those? It is a great idea to connect them, but it is lacking there. Overall, it is a very good piece of work and I am glad that we have it.

Dr Sally Ann Forsyth: As you commented earlier, the focus is very much on the pharmaceutical sector, and we realise there is a much wider life sciences excellence in the UK. Many of the proposals and suggestions in this document would also apply to that, but may need some refinement for those specific areas. The approach is very sensible, with a focus on the strengths of UK science—clearly the UK punches above its weight in the science sector; growth through innovation; links to the US; the NHS and leveraging that asset; big data; and lifelong skills. Those are all very sensible.

Where we come into play, as the science cluster area, is the notion of Place. There are some real cross-cutting themes. There are three main ones. Connectivity, as we said, is a really important asset, particularly for the UK. We are quite a small country, but if we can leverage our assets through connectivity that makes a huge difference. Place, multidisciplinary approach and convergence are, again, things we can support through our clusters. The third area is supporting the innovation supply chain, right from the academic base, leveraging the excellent science we have, getting it up through that innovation supply chain and out to the end market. We can help with that connectivity.

Given the relevance of place, start-ups, scale-ups and the development of entrepreneurial skills, we have a big role to play in the cluster development and support for those.

Dr Glenn Crocker: It is a really important document, if it is implemented. I have been around the block enough times now to have seen these strategies come and go. I do not want to be at all sceptical about it either, so I am going with, "Yes, let us go and implement this". I like the fact that there are ambitious strategic goals in this. I like the reference to the word "moonshot". We need these inspiring goals, and they could have been better elaborated on within the document. We have to identify the key challenges within the NHS and set them as the moonshoots that we galvanise our resources within the country to resolve, whether that is cardiac disease or whatever it is that costs the NHS a large amount of money to put resources into; that are really inspiring; and that will make a transformational difference to the life of the people in the UK.

Q137 **Baroness Neville-Jones:** Can I pursue for one moment a further angle on the question you have just been dealing with? Do you believe that the scope of Sir John Bell's strategy is correct? Has he included everything that you would like to see in something called a life sciences strategy?

My other question is this. He lays a lot of importance on clusters, which

have just been mentioned. Do you attach equal importance to the existence of clusters as a way of pushing forward what we all want to see, by way of good science turning into innovation and commercial products? In relation to science parks, what is the key dynamo element in a science park that makes a cluster, if there is one there, work? I realise there are two sets of questions there.

Dr Iain Thomas: The scope was probably not quite broad enough. There is no doubt that pharmaceuticals and human health are hugely important from a well-being perspective for our population, and in terms of commercial opportunities and where you position the UK. That is not all we do; it is not all we have strengths in. Cambridge is not, as I said before, the strongest place in ag, but we are doing a lot in it. You have to think about the ramifications of supporting and growing different sectors. Human health is one thing; it has high margins and it is all very glamourous. We can polish our halos and feel good about it, but agritech feeds people. There are all sorts of things you can do there around sustainability, which can have ramifications beyond the UK.

Baroness Neville-Jones: Are there possibly things at the interface?

Dr Iain Thomas: Of those two?

Baroness Neville-Jones: Yes.

Dr Iain Thomas: Absolutely. You have the microbiome. None of these sectors sits by itself. That is a really good example of where the scope should have been a little broader. He talks about industrial biotech as well, but the scope was, as a result, a bit limited, to answer your question directly.

Dr Sally Ann Forsyth: I could not agree more. The scopes overlap, as you say, but we would see agritech as a key strength for the UK. In industrial biotech, there is a high opportunity to leverage some of those skills. Moving along, food health and the microbiome are areas for the future. Medtech clearly comes through in this report. Underpinning that are the strengths the UK has in genomics and bioinformatics.

Baroness Neville-Jones: Might a further strategic document on these areas be useful?

Dr Sally Ann Forsyth: Yes, very useful.

Dr Glenn Crocker: From a clustering point of view, I do not believe you can develop any sector without some clustering effects coming out of that. I will give you a good example of how that has developed in Nottingham versus Newcastle, which are similar-sized, similar-quality universities. In 2000, there were about 30 life science companies based in the NG postcode, and about 30 in the Newcastle and Durham postcodes, based on the BEIS database. By 2016, there were 163 in Nottingham and 83 in the Newcastle and Durham area. The difference was that, in 2002, we had a large-scale centre, called BioCity, that was opened in the centre of Nottingham, which was able to gather those companies together.

It is all about density of businesses and the diversity of the businesses within it. It is not just about a bunch of R&D companies; it is about knowledgeable patent attorneys, accountants, lawyers and regulatory affairs consultants who all sit together, build up their knowledge base and can advise well. I was in Cambridge before I went to Nottingham, and that is done very well in Cambridge, but not so well in other parts of the country. It has to be developed over time.

By bringing these companies together and concentrating them in a relatively small space, they tend to spark off each other and you get collaborations. You get lots of communication between them. Then the sector grows and grows. Now we have moved from one building in Nottingham to five buildings. We have 1,000-plus people employed just at our sites in Nottingham. If you catalyse it correctly, you can get that cluster effect and really build on it. If there is no basis for that, as at Newcastle—although there will be one soon—you do not get it.

Baroness Neville-Jones: Should a science park not provide similar density?

Dr Sally Ann Forsyth: I can say a little about the characteristics of science parks and clusters in general. There are a large number of elements to a successful science park. There are locational aspects for all the businesses. There are some specifically scientific areas of support. Then there is the entrepreneurial piece. Successful science parks or clusters, if we are looking at larger clusters such as Cambridge, are usually focused around a centre of excellence of some sort. It may be a skill base—as at BioCity Nottingham—universities as at Cambridge, institutes, hospital and UEA at Norwich or commercial R&D, such as Stevenage GSK. They often have a sector focus for example life sciences or specialist subsectors. They are not all broead life sciences per se; they usually have a sub-focus within that. It has been helpful to look at the different life science subsectors through the science and innovation audit.

The very best clusters provide support for the innovation supply chain, bringing together academics, clinicians, entrepreneurs and larger businesses. I am sure we will come to this later, but they help businesses with access to facilities, financing, entrepreneurship training, mentoring and so on. The best ones create that supportive environment and the network to bring people together.

Q138 **Baroness Neville-Jones:** Can I ask you what kind of financing? We have just had a session with people who are in the field of financing early activity, which is more difficult to get off the ground. Do you simply call in a bigger company and say, "Are you interested in this?" or do you try to get start-up financing or what would traditionally have been called venture capital financing?

Dr Iain Thomas: I live in the world of very early stage. Our approach is always to recognise that there are two outcomes. One is to do it yourself, which is starting a venture, and the other is to get someone to help you, which is doing a licence. Both of those are investors in a sense. To focus on the start-up bit, we find we have to go and look for investors who

have the right kind of outlook. They have to understand the timeframes and the risks involved. When you have a cluster like Cambridge, we are quite mature and we have a good set of investors around who have quite a mature outlook, so we go to those people.

Baroness Neville-Jones: Are these people white knights or corporate organisations?

Dr Iain Thomas: Most of them are investors, although, of course, there are corporations that have their own investment arms. They are normally straight venture investors. The issue is then what timeframe they have for returns and how long they will stay invested in the business. That is a challenge for us. For lots of early-stage technology, the route between here and market is not two years; it is considerably longer, and getting investors who understand and can work with that timeframe is one of the most important challenges that we have. I think we do it quite well. We have a pretty fair portfolio of things, but it is not easy to do and it has taken a long time to get established.

Baroness Neville-Jones: Even in Cambridge, it poses challenges.

Dr Iain Thomas: Sometimes it is easy, but sometimes it is still very hard to get the right kind of investor. We have a good infrastructure, yes.

Dr Sally Ann Forsyth: Within a science park setting, we do not invest directly in the companies. We do not see that as our remit. We support them as much as we can by providing access to facilities and training and signposting them to sources of finance. It depends what stage of development they are at. If they are just in the ideas phase, it is more the mentoring skills support. The finance piece is grant signposting, so we work with the growth hubs and other government organisations to signpost what already exists.

Then as they grow they tend to move up the scale to the angel investors. We have a healthy and very lively bunch of angel investors in Norwich, about 21 of them, who help to nurture those companies through. When grow to the next stage, they tend to move on to funding by the venture capital organisations. There is therefore a finance escalator, as the companies grow. Parallel to that is the skills mentoring escalator, which we support their needs as they develop from ideas phase to mature company. Quite often, it is not the same person who started the company who ends up at the head of the company; they may take a separate role in the company. We try to run that twin-track approach.

How do we get funding for that? We gain ERDF funding for our skills mentoring, for example, because our little companies have no time and no money. Once we realise that, any facilities and financing we can provide for them is very important to their survival and growth.

Baroness Neville-Jones: Do you get money from LEPs?

Dr Sally Ann Forsyth: The LEP is very supportive, and we are working closely with them regarding the Enterprise Zone but not at any significant level so far.

Dr Glenn Crocker: One of the key challenges across the UK is investment outside the Oxford-Cambridge-London area. At BioCity, we produce an annual report on life science start-ups, so looking at all companies within the first five years of life. Some of the previous reports were quoted in this document. We look at where the company has come from, what it does and the investment it has raised. In the latest report, 86% of all investment in life science start-ups has gone into companies in London, the south-east and the east, and 14% into the rest of the UK. This is not to detract from the quality of the opportunities in the south-east and the east. In fact, it is a great thing. It is to be praised, because now we are seeing the levels of investment in early-stage companies that you can see in the US, and companies are being well-funded.

The challenge is that all the big-pocketed investors are based in London and the south-east, and they act perfectly rationally and invest on their own doorstep. That cycle will not be broken until there is something else that enables companies to get larger-scale investing.

Q139 **Baroness Morgan of Huyton:** I am jumping to my question, because it fits in with that. You have mentioned geographical spread and the importance of place. Can you help us to understand? Is there a responsibility to seek out where there are centres of excellence and then build on those? Do they exist outside the golden triangle in a serious way? Are they not supported properly where they exist? What is the balance between making sure we get a greater spread of investment and not losing excellence?

Dr Glenn Crocker: There are a number of centres of excellence. I do not think every city should be putting its hand up and saying, "We are in the biotech sector". There is hard data, again from the BEIS database, where you can look at the number of companies in different postcodes and select the top eight or so centres across the UK. Arguably London is not really a cluster in its own right; it has lots of little clusters and does not have the characteristics of connectivity that exist elsewhere. Oxford and Cambridge are definitely the leading centres in the UK, but there are others, such as Manchester, Edinburgh, Glasgow, Nottingham, Birmingham in certain areas, and Bristol. You can measure that with research excellence or by the number of companies. We should be looking at those, identifying them and putting a flag in front of them, because it is very difficult for people to identify them. Where it worked well was the core cities. Somebody said, "You are a core city", and therefore they self-organised.

Baroness Morgan of Huyton: When you say, "We should do that", who is the "we" in that context? Who says, "You should go to Bristol if you want"—whatever? Who puts the flag there?

Dr Glenn Crocker: You should not say, "You should go to Bristol". The Government need to say, "We have looked on an empirical basis and these are the places at the moment that have sufficient critical mass to become a significant part of the infrastructure in the UK for life sciences". That is not to say that other things cannot emerge over time, but we

cannot be all things to all people. At some point, we have to draw a line in the sand and say, "This is where we are at the moment, and this is where resources are going to go".

Baroness Morgan of Huyton: What sort of resources would they be? I completely understand that you cannot instruct people to go there. Governments in the past have happily said, "This place is good for X". Nothing very much has happened on the back of that, so what should happen differently, as a result of this strategy?

Dr Glenn Crocker: It is making sure the government agencies that are relevant for life sciences are based in those different clusters. If the DIT life science people, Innovate UK and so forth have a presence there, they can be integrated into those clusters. If you were looking at the development of commercial activities—the catapults or whatever catapults evolve into—you would look at where those 10, eight or five centres are and direct your resources accordingly. I think they will get on with it anyway. As we have discussed previously, none of us is advocating any sort of command-type economy, where the Government say, "You are successful and therefore you have a factory", but a little more joining-up could be achieved.

Q140 **Lord Mair:** Following up on the questions that Baroness Morgan has been putting to you, we all get the point about the value of clusters. Clusters are a very good thing, and all three of you have reinforced that. The question really is down to the detail. The strategy includes recommendations to support the growth of clusters. The question is who should do that. Who should take responsibility for that? We all get the point that clusters are a very good thing and involve lots of different types of organisation. If the strategy is really to be successful and support new clusters or the growth of existing clusters, who should be responsible for that?

Dr Sally Ann Forsyth: This is a tricky question. We have mulled this over as a group. Clearly, we already have a matrix structure here. We have DIT, LEPs, Innovate UK and the Smart Specialisation Hub. There is a signposting piece, which is all about where the scientific or technology strengths are. For example, the Smart Specialisation Hub has been looking at the Science and Innovation Audit which should highlight those strengths. In parallel to this the LEPs will be setting out their strengths in their brochures on a geographic regional basis. As we have said, we cannot really impose, top down, where an organisation ought to go, but they can be signposted on scientific and/or regional strength by existing organisations.

It is not just the science, or the region but how a company integrates with the network. There are also often financial incentives for a company to go to a specific location and a whole host of other considerations such as transport and connectivity that have a local basis. To bring together all of these factors requires a matrix structure that leverages the information from the existing resources and brings those elements together.

Lord Mair: To repeat my question, in something involving so many

organisations it is very easy for us all to appreciate the importance of clusters and to support their growth, but who is actually going to say, "This is what needs to be done", rather than making obvious statements about clusters being a good thing?

Dr Iain Thomas: There are many different elements, but a lot of it is not necessarily what needs to be done, but guidance as to what not to do. What do I mean by that? I will make a point later about how, even in Cambridge, I should be thinking not about the Cambridge cluster, but about the UK. In that light, and to Glenn's point, we suffer occasionally from lots of different places saying, "We want to have a biotech cluster, because life science is cool. We all see where it is going. It is globally important". I cannot tell you how many potential cluster events I have been invited to across this country by geography. I am not from Cambridge; I am from another part of the country, so I see it broadly. There is a certain lack of realism about some of them.

That guidance to say, "Do you really think you can support a cluster when we have other places that are so successful?" would help people realise that life science cannot be the solution to everything. That guidance should possibly come from government. You cannot tell people not to, but they should recognise that, once you have nucleated something and things are nucleating, those things take off more. It is that support to say, "Do not do that" in particular places. It is not for me to say, "Do not do one in X" or "Do not do one in Y", but we cannot have as many clusters as there are current aspirants. California tried to do three: San Francisco Bay Area, San Diego and Los Angeles. Only two of them survived, and it is pretty hard to say they are not quite good at these things.

Our world is very different. Our geography is very different. San Francisco to San Jose is the same as the golden triangle, but we should be helping people back off and saying, "Do not do that". Once you start the cluster, it starts to become clear what kind of physical infrastructure you may or may not need. There is an infrastructure problem between Oxford and Cambridge. This is an example; it is not to say I am lobbying for this. It is 66 miles and takes two and a half hours. It is ridiculous. That is about infrastructure and roads, and has implications beyond this cluster.

Dr Sally Ann Forsyth: Another thing that has been raised recently is the proposal by the research councils, led by STFC and BBSRC, to consider identifying national-level campuses. That is not taking regional clusters in their entirety, but identifying individual campuses with significant potential for growth supporting those campuses.

Lord Mair: If you were to make a single recommendation, what would it be, as far as implementing the strategy to support the growth of clusters?

Dr Glenn Crocker: I would go back to my point about identifying where the clusters are. Once you have done that, they can self-organise, get together, co-ordinate and develop their own strategy. Until people know whether they are in or out of the club, they cannot organise themselves well. It happens in other areas, but somebody—again, it will have to be

the Government, as the independent arbiter—is going to say, "You, you and you are one of our life science clusters. Therefore, get together and plan what you are going to do about it".

Baroness Morgan of Huyton: Is it not more likely to have to be at arm's length from the Government? I do not know; I may be cynical. I cannot quite imagine a Government—any Government, by the way—ruling out parts of the country sufficiently, as you are describing. It seems we have a very clear message that we should not do too many of them but do them very well. I take your point that somebody needs to define it. If some Minister has to stand up and say, "By the way, you lot are not getting anything", it may be a bit more challenging.

Dr Glenn Crocker: I accept that. That is always the challenge. You end up distributing the largesse evenly, and it does not achieve anything.

Dr Sally Ann Forsyth: Some work is being done through the Science and Innovation audit, so they are already looking at the sector strengths of clusters. There is the Smart Specialisation Hub, which is reviewing the relative strengths of these regional clusters throughout the UK identifying the hotspots for key technologies. There are therefore some systems already in place, which could be built upon, rather than starting again.

Baroness Neville-Jones: There is the hub-and-spoke model too. Rather than simply saying it is only the clusters that ought to be able to form a hub, it seems to me they ought to be able to pick up specialist, although possibly small, centres of expertise and excellence in other areas and link them. I hope we could be fairly flexible about it.

Dr Sally Ann Forsyth: The catapults work very well for that—for example, the Satellite Application Catapult in Harwell. We reached out to the smaller and medium-sized organisations, and it worked very well. That is a great example of a hub reaching out to and support others to grow the overall industry in the UK. It is connectivity between organisations that will help to leverage our UK assets.

Q141 **Lord Renfrew of Kaimsthorn:** I would like to take up again this point of infrastructure. How important is a sound infrastructure for a cluster or a science park? How in practice is it funded, or how should it be funded?

Dr Sally Ann Forsyth: I can comment on funding of clusters, because I have worked in the public and private sectors looking at science parks. Quite often, science parks are built around an academic base. On the commercial aspect, innovation centres, you may have noticed, are often publicly funded. That is because it is commercially very difficult to get them to break even financially. Often, the day after they are built, they are valued at half the cost of building them. Innovation centres take a long time to fill up; they commonly take three to five years. At that time, you may be paying business rates on unoccupied space, so there is an outgoing cost compared to a single let of a building to a single occupier on day one. Business rates are round about 50% of rental value. Occupiers in innovation centres also have very short leases, which are seen as risky and therefore of less value in the commercial property world. Added on to that, if it is lab space, that is particularly expensive to

build and may be more specialist so has a more limited market and therefore less attractive commercially.

If you look at the larger science park, you quite often have land around, for example, an academic base, which is bare land with no infrastructure in it. It is very expensive to put in utilities, road infrastructure and so forth. Therefore, the commercial balance can be quite difficult in areas for which a high rental value cannot be requested. They may not be commercially so easy to justify. That pump-priming, of which substantial amounts have gone to many campuses, including Babraham, Harwell and Norwich Research Park, has been vital for us to build on the academic base that was there.

Lord Renfrew of Kaimsthorn: Who provides the finance for the pump-priming?

Dr Sally Ann Forsyth: For those particular cases, a substantial proportion of grant funding was provided by government. I have also been involved in joint ventures, where we have brought together commercial and public sector funding to invest and take them forward. Harwell is an example of that.

Dr Glenn Crocker: We have taken a slightly different approach, in that we have scavenged redundant pharmaceutical company buildings. We bought the Merck facility just outside Glasgow for a pound from Merck. It has 20 acres and 150,000 square feet of labs. It has cost a lot to maintain it and bring it up to profitability, but there are these facilities around in the UK, and there will be more as we go through increasing consolidation and restructuring in the pharma industry. That is one.

In Nottingham, we have also entered into a collaboration with the city council, whereby the city council has used its prudential borrowing to build a building. We have then leased it from the council for 30 years, so we have the financial commitment, but the council can borrow at a much lower rate than we can over a long period, so there are other ways of financing those opportunities. Unless you have the physical infrastructure, as shown by the difference between Nottingham and Newcastle, you will not get the concentration and clustering effect of the companies, whether it is an incubator environment or a science park environment.

Dr Iain Thomas: Once you get that critical mass, you get places like the Babraham campus. It can fill its buildings as quickly as it puts them up, because it has a model that is sympathetic to the needs of what helps build the cluster and early-stage businesses. It is within an environment where there is a significant flow of opportunities and people with experience who want to do this. They feel comfortable with the risks involved. Although you are right that it takes a long time to get there—and I do not represent Babraham; I do not know its finances—it is quite clearly thriving. We love that kind of infrastructure because it usually helps our activities and it is a self-fulfilling prophecy.

Dr Sally Ann Forsyth: It is also in the centre of a cluster where there is a catchment of companies. That goes back to our cluster point:

sometimes it takes a little while to generate that cluster in less commercially developed locations.

Q142 **The Chairman:** One of the recommendations in John Bell's report is that the clusters should act as a "single front door". What is your comment about that recommendation and what does he mean by "single front door"?

Dr Glenn Crocker: That is a good question.

Dr Iain Thomas: What does that mean?

Dr Sally Ann Forsyth: If we think about how companies locate on science parks, in 2015, the UK Science Park Association looked at the composition of clusters in our science parks: 15% were direct spin-outs from the research base or institutes; 65% were from within a 25-mile radius, going back to the Cambridge point; and 20% were national and international inward investment. This is a wide range of routes to attract companies which may be difficult to manage through a single front door. When we promote the campus for inward investment, we work with not only property agents but also public sector, inward investment organisations within government—Innovate UK, DIT and so on—and trade bodies. We also rely on our ambassadors, who are our 12,000 employees on the campus to spread the world regarding the strengths of the location. In summary there is a whole plethora of routes through which we advertise and attract organisations to the campus and not one size fits all.

Baroness Neville-Jones: Nor a single front door.

Dr Sally Ann Forsyth: Nor a single front door.

Dr Iain Thomas: It depends what is meant by "single front door". It comes down to do whether we have a series of clusters, regions or organisations that are solely fighting for their own agenda. Are they thinking, "Of course I have to make my endeavour work, but I have to think about this in a bigger context"? Encouraging these organisations, which are either directly government, or to some degree but only partially public sector, to have a rather more consistent single message would make me feel comfortable, when I meet the people at the big biotech business conferences, to say, "The best place to go and do this is not Cambridge. I know you have heard of Cambridge. It is dead cool and wonderful, but you may want to consider other things". It is much more a front door by encouraging a single message with an open mind. If you do that, you will be very welcoming and people will see that they are getting help with where they are being pointed, so you are not seen to be fighting your own agenda.

Dr Sally Ann Forsyth: Again, this is where the Smart Specialisation and Science and Innovation Audit work comes in. Within the life sciences, using validated data from this work, it should be possible to signpost campuses or clusters that have strengths in particular sectors.

Dr Glenn Crocker: A single front door is attractive because it is neat, but if it constitutes another portal that sits over the top of things and is not sufficiently promoted it will be quite a bit of effort for not much reward. If that concept is going to be developed, it needs to have resources going into promoting it well. A single front door is only of use if people walk in through it. People have to know it is there in the first place, and you have to signpost people to it. Where these initiatives have failed in the past, they have just sat out there and not signposted people accordingly.

The Chairman: From what you say, the recommendation does not make it quite clear what a single front door means.

Dr Glenn Crocker: Absolutely, yes.

Dr Iain Thomas: Yes.

Dr Sally Ann Forsyth: Yes.

The Chairman: You do not understand what it means.

Dr Sally Ann Forsyth: No.

Dr Iain Thomas: No.

Dr Glenn Crocker: No.

The Chairman: If I can give you an example, to side-track slightly, an American company recently tried to get in here to try out gene-editing technology, because it thought that the access to the NHS would be better. In our evidence from one of the catapults, we heard that it is exploring gene-editing and it feels it is strong, but it turns out that it is not as strong as this American company, which has the venture capital money but wants to come here because it thinks it will be better able to explore its technology in the NHS. The technology was well-reported in one of our own newspapers, and it is a fantastic technology. Where do I go, if I have the money and the technology, and I now need assistance to commercialise this?

Dr Glenn Crocker: Is that not in part what DIT is supposed to be doing?

The Chairman: It may be.

Dr Sally Ann Forsyth: The Science and Innovation Audit aims to identify which areas in the country are the strongest for particular aspects of science. The smart specialisation hub collates this and other data to benchmark regions and identify locations of strength. Catapult Centres also represent particular areas of technology strength and provide a hub-and-spoke model for information. Both the smart specialisation hub and Catapult Centres represent routes for inward investment.

The Chairman: Thank you very much for coming today. We appreciate it very much. It has been a most interesting session. Thank you. You will be key players in the future.