



**Cynulliad Cenedlaethol Cymru
The National Assembly for Wales**

**Y Pwyllgor Menter a Dysgu
The Enterprise and Learning Committee**

**Dydd Mercher, 7 Mai 2008
Wednesday, 7 May 2008**

Cynnwys
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Cofnodir y trafodion hyn yn yr iaith y llefarwyd hwy ynddi yn y pwyllgor. Yn ogystal,
cynhwysir cyfieithiad Saesneg o gyfraniadau yn y Gymraeg.

These proceedings are reported in the language in which they were spoken in the committee.
In addition, an English translation of Welsh speeches is included.

Aelodau'r pwyllgor yn bresennol
Committee members in attendance

Alun Cairns	Ceidwadwyr Cymreig Welsh Conservatives
Christine Chapman	Llafur Labour
Jeff Cuthbert	Llafur Labour
Gareth Jones	Plaid Cymru (Cadeirydd y Pwyllgor) The Party of Wales (Committee Chair)
David Melding	Ceidwadwyr Cymreig Welsh Conservatives
Sandy Mewies	Llafur Labour
Janet Ryder	Plaid Cymru The Party of Wales
Kirsty Williams	Democratiaid Rhyddfrydol Cymru Welsh Liberal Democrats

Eraill yn bresennol
Others in attendance

Nick Bourne	Is-adran Ymchwil a Masnach, Prifysgol Caerdydd Research and Commercial Division, Cardiff University
Bob Cater	Prif Weithredwr, Cynghrair Technoleg Cymru Chief Executive, Technology Alliance Wales
Stuart Gall	Cyfarwyddwr Masnachol, Biofusion Commercial Director, Biofusion
Simon Lovell-Jones	Cyfarwyddwr Rhanbarthol (Cymru), Ffederasiwn Cenedlaethol yr Adeiladwyr Regional Director (Wales), National Federation of Builders
Michael Macphail	Cyfarwyddwr Peirianeg ac Effeithiolrwydd, Grŵp Corus Director of Engineering and Organisational Effectiveness, Corus Group

Swyddogion Gwasanaeth Seneddol y Cynulliad yn bresennol
Assembly Parliamentary Service officials in attendance

Dan Collier	Dirprwy Glerc Deputy Clerk
Dr Kathryn Jenkins	Clerc Clerk
Ben Stokes	Gwasanaeth Ymchwil yr Aelodau Members' Research Service

Dechreuodd y cyfarfod am 9.01 a.m.
The meeting began at 9.01 a.m.

Cyflwyniad ac Ymddiheuriadau
Introduction and Apologies

[1] **Gareth Jones:** Croeso i'r cyfarfod **Gareth Jones:** Welcome to this meeting of hwn o'r Pwyllgor Menter a Dysgu. Estynnaf the Enterprise and Learning Committee. I

groeso i'r Aelodau, y tystion, ac i bawb arall sy'n dilyn y cyfarfod yn oriel y cyhoedd.

welcome Members, witnesses, and everyone who is following the meeting in the public gallery.

[2] Fe'ch atgoffaf i ddiffodd eich ffonau symudol ac unrhyw ddyfais electronig arall. Credaf y bydd Alun Cairns yn ymuno â ni yn hwyrach. Er gwybodaeth—ac nid wyf yn enwi Alun—mae Alun Cairns yn rhan o gynllun peilot i ddarparu gwasanaeth technoleg gwybodaeth diwifr i Aelodau wrth eu gwaith yn y Senedd. Felly, yr wyf wedi rhoi caniatâd iddo ddefnyddio gliniadur yn ystod y cyfnod peilot, a byddaf yn rhoi adborth i'r awdurdodau priodol ar ran y pwyllgor. Felly, os gwelwch Alun gyda'i liniadur, byddwch yn gwybod ei fod yn rhan o'r cynllun peilot i weld sut y gallwn symud ymlaen gyda'r dechnoleg honno.

I remind you to switch off mobile phones and any other electronic devices. I believe that Alun Cairns will be joining us later. For information—and I am not singling Alun out—Alun Cairns is part of a pilot programme to provide a wireless information technology service to Members while working in the Senedd. I have given him permission to use a laptop during the pilot phase, and I will provide feedback to the relevant authorities on behalf of the committee. Therefore, if you see Alun with his laptop, you will know that he is part of a pilot programme to see how we can move forward with that technology.

[3] Ni fydd angen i chi gyffwrdd â'ch meicroffonau. Nid ydym yn disgwyl ymarfer tân, felly os bydd rhybudd, rhaid i ni adael yr adeilad dan gyfarwyddiadau'r tywyswyr. Mae'r cyfarfod yn ddwyieithog, ac mae clustffonau ar gael i glywed y gwasanaeth cyfieithu ar y pryd o'r Gymraeg i'r Saesneg ac i chwyddleisio'r sain. Bydd cofnod o'r cyfan a ddywedir yn gyhoeddus.

You do not need to touch your microphones. We are not expecting a fire drill, so if a warning sounds, we will have to leave the building and follow the instructions of the ushers. The meeting is bilingual, and headsets are available to hear the simultaneous interpretation service from Welsh to English and to amplify the sound. There will be a record of everything that is said in public.

[4] Derbyniwyd ymddiheuriadau ar ran Huw Lewis, er y deallaf y bydd un neu ddau Aelod yn ymuno â ni yn hwyrach.

Apologies have been received from Huw Lewis, but I understand that one or two Members will join us later.

9.03 a.m.

Tystiolaeth i Ymchwiliad y Pwyllgor i Gyfraniad Economaidd Addysg Uwch Evidence to the Committee Inquiry into the Economic Contribution of Higher Education

[5] **Gareth Jones:** Am yr hanner awr nesaf, cawn gyfle i wrando ar ac i drafod â chynrychiolydd grŵp Corus UK. Estynnaf groeso cynnes iawn i Michael Macphail, sef cyfarwyddwr peirianeg ac effeithiolrwydd gweithredol Corus UK. Yr ydym eisoes wedi cael eich papur, ac yr ydym yn ddiolchgar ichi am y dystiolaeth ysgrifenedig bwysig honno. Gofynnwn ichi roi cyflwyniad o ryw bum munud am y pwyntiau yr ystyriwch eu bod yn bwysig i ni. Yna, cawn gyfle, yn Aelodau, i ofyn cwestiynau.

Gareth Jones: For the next half an hour, we will have the opportunity to listen to and discuss with a representative of Corus UK. I extend a very warm welcome to Michael Macphail, director of engineering and operational effectiveness for Corus UK. We have already received your paper and we are grateful to you for that important written evidence. We now ask you to give a presentation lasting some five minutes on the points that you consider to be important to us. We will then have the opportunity, as Members, to ask questions.

[6] **Mr Macphail:** Thank you very much, Chair. I thank the Enterprise and Learning Committee for inviting us here as witnesses. I will give a little introduction about myself, and how I fit into Corus. I have some 40 years' experience in the steel industry, but some 18 of those were spent in the industry in Wales.

[7] As the Chair has already said, I am the director of engineering for Corus Strip Products UK, but I am also currently acting as the director of organisational effectiveness, which you would probably understand as being human resources. This latter role covers HR, which includes recruitment, training and development, health and safety, occupational health, and the areas of continuous improvement, change management and communication. That gives me an interesting advantage and a bit of a unique position, as I span both the technical side of engineering and the softer, interpersonal side of managing people. I live in south Wales, and I have two children who were educated in Wales, at school and university level, and who now work in Wales.

[8] About Corus and the business, we are proud to have been named Wales's No. 1 company again in the KPMG's Business in Wales top 300 companies. In Wales, Corus has an estimated turnover of around £2.5 billion. It has many sites in north and south Wales, and we have around 8,000 employees in the country. The company is divided into various businesses. I represent the largest in Wales, Corus Strip Products UK, which is the integrated steel maker, which has its headquarters in Port Talbot and has sites at Llanwern and Pontarddulais. The business employs around 5,400 people. Our head count has grown by around 700 in the past five years. Taking account of leavers and new roles, we have recruited around 400 people per year. Some 100 of these are graduates, apprentices and functional trainees. Another 40 are student placements on year-long internships, and, today, we have 425 people in the workforce who are under the age of 25.

[9] Our budget for recruitment is more than £700,000 a year. In addition, the budget for training and development is some £2.9 million. We need a steady stream of qualified scientists, engineers and professional people, and capable operators, team members, craftsmen, apprentices and trainees. In the written evidence that we submitted to the committee, we have outlined the nature of our relationship with key higher education institutions in Wales and described our doctorate, graduate, apprenticeship and training schemes.

[10] There is a skills shortage in technical and engineering areas in a highly competitive market. We experience difficulties in attracting and retaining people with appropriate interpersonal technical skills and competencies. Our salaries and benefits are above average in the area, and we do not believe that further improvements in salaries or benefits will substantially increase the number of high-quality applications that we receive.

[11] An important area for focus is young people post 12 years of age in schools. We conduct many school visits and we host visits by schools to the steelworks. In fact, there is an almost insatiable demand from schools for educational tours. Yet, we seem to fail to convert that enthusiasm into demand to work in technical areas in the plant. The fact that young people may find some technical subjects uncool is well known. However, it is also true that there is an expectation that most bright young people will pursue a higher education in the purer academic environment, where there are also fulfilling options for further development, including further qualifications within the workplace.

[12] Ironically, we are aware that our sites are located near areas of relatively low economic activity and high unemployment or benefits dependency. We support the consensus of opinion that encouraging inquisitiveness and ambition through the development of practical and valuable skills is an appropriate route to meet that challenge. We would welcome efforts, therefore, in raising the levels of selected desirable transferable skills, which

meet the challenges of economic inactivity and our recruitment needs.

[13] Local people may make up a large proportion of our recruitment intake, but we seek recruits from outside Wales, too. Despite the many advantages of living in Wales, it is seemingly difficult to attract people of working age to relocate to Wales from other parts of the UK. There is clearly an opportunity for the Government to look into that and to address it.

9.10 a.m.

[14] In thanking the committee for the opportunity to participate in this inquiry, I conclude by summarising our observations and recommendations in the written evidence. We continue to perceive a low interest in relevant science subjects in secondary-school-aged children. We believe that a stronger insight into science and technology should be encouraged. Bright children tend to be directed away from technical and vocational subjects, which are seen as a second-best route to the traditional path to university, and not as another part of the educational journey.

[15] We would welcome the opportunity to take part in a debate that focuses on the educational budget in Wales, specifically the part of it that is focused on pre GCSE education. We would welcome the opportunity to gain a closer understanding of the European structural funds to release relevant resources, which will improve the volume and quality of applications for employment within Corus Strip Products UK. There is a skills shortage in technical and engineering areas in a highly competitive market. We do not discriminate by age and we welcome applications for employment from mature, experienced and talented men and women. We welcome facilities that further encourage and enable adult learners to change career course or pursue flexible learning opportunities, but we would question whether sufficient part-time courses are available in technical subjects.

[16] It is challenging for us to attract people to relocate to Wales, as it appears to be challenging to attract young people to Welsh universities for relevant subjects. One way to confront the many challenges may be to create a Welsh engineering and science training centre or academy. We would welcome the provision of further specialist options in relevant degree courses and support in transforming high-level academic qualifications into site-based practical capability.

[17] **Gareth Jones:** I think that there is something wrong with the sound.

[18] **Mr Macphail:** I have nearly finished anyway.

[19] **Jeff Cuthbert:** It is important for the verbatim record; we can hear you clearly.

[20] **Gareth Jones:** We will wait a minute while it is checked.

[21] Everything is fine now; over to you, Mr Macphail.

[22] **Mr Macphail:** I just had one last point. We would welcome the opportunity to work more closely with the sector skills council to provide more relevant training, which is closely associated with business needs.

[23] **Gareth Jones:** Thank you. Christine has the first question.

[24] **Christine Chapman:** Thank you for the paper. You mention that there are a large number of young people who you recruit to your company. I know that you said something about older people, but, as far as the demographics in higher education are concerned, we have many more mature students going into higher education and I wondered whether you

thought that there were any issues for your company in that regard and whether you have had any discussions with higher education institutions about this.

[25] **Mr Macphail:** We have had some discussions. I would say that the natural approach is through university graduates and apprenticeships, but we have, as I said in the paper, taken in 700 people over the last few years, and we have advertised, searched and looked around. We have brought technical people of mature years back from elsewhere into the organisation. Those people have been technically qualified, so they have brought with them experience and technical information. Without being ageist, we have brought back in people who are over the age of 60 because they have the skills and the knowledge. So, we have done that. It is not a lot of people, because not many are around, but, if they have the skills, there are plenty of opportunities with us in the technical area.

[26] **Christine Chapman:** May I ask about the graduate side of that? Although these new people could be older, they could be relatively inexperienced at this.

[27] **Mr Macphail:** We have more mature graduates. There are fewer of them, but we have some, and there is no reason why they cannot come in either. Sometimes, more mature graduates bring with them different life skills and can move more easily into work. So, it is not an issue, if they have the right balance of skills, education and interpersonal skills.

[28] **Sandy Mewies:** That was very interesting. I am glad to see that you have identified the problems, but also suggested answers to us, which is always appreciated. We have already heard in previous evidence that there is too much emphasis on the difference between vocational and academic training and that there is an inclination—you said it yourself—to push bright students down one road fairly early on, pre-GCSE. I do not know whether you were suggesting that the choices should be laid out clearly before them much sooner. Should we be making it easier for people to value vocational training at an earlier stage, and how can we do this? My only other question, and I am quite concerned about this, is to do with the wording. Perhaps it is just semantics, but you talked about structural funds and your company's reluctance to approach the Welsh Assembly Government—I assume that you are thinking about competition rules—but why is that? Even if the answer is 'no', I would hope that you would be able to meet with officials and hammer out exactly what you are entitled to do and what you are not.

[29] **Mr Macphail:** To pick up the last point first, because of the history of steel and of the coal and steel community, and the legal requirements about what you can and cannot do, I do not think that we have been inventive enough between us in terms of looking at what is allowed and what is not allowed. Other parts of Europe have been much better at doing that and at getting funds for things that are not disallowed. I believe that we can work together to do more in the training area and in the development of people than we are doing at the moment.

[30] **Sandy Mewies:** I will come back on that point, because it is important. When you say 'we', do you mean you as a company, or that, as a Government, we are not being proactive enough?

[31] **Mr Macphail:** It is both. We have to push, but the Welsh Assembly Government has to be knowledgeable about what it can do and what it cannot. It is not good enough to say that it is too difficult. We must go and dig into the detail and understand it.

[32] **Gareth Jones:** To pursue that point, the essence of our inquiry is to take it a stage further, beyond WAG. The Government is obviously important, but we are talking about higher education. Can you establish some kind of relationship and explain to us how European funding would impact upon any build-up or relationship with the higher education

sector?

[33] **Mr Macphail:** I cannot answer the question in detail, but there are opportunities to fund courses. We are doing something now with Cardiff University on combustion, because combustion is a problem for us and we do not have enough knowledge on it, so we are working with Cardiff to put together a course. There are funds available to support this kind of work, if you can search properly and find them, but it needs that kind of effort.

[34] I did not pick up Sandy's first question.

[35] **Sandy Mewies:** It was on vocational training.

[36] **Mr Macphail:** Yes. I am on an employers' panel for the Institute of Mechanical Engineers in London, and we have been looking at the same issue from an engineering point of view, so I will pick it up from there first. We have come to the conclusion that we need to create an interest among young children—how young 'young' is, I am not too sure—and get them to feel a passion for science, engineering and technical issues.

9.20 a.m.

[37] That is not naturally delivered in schools, because most people in schools do not have that understanding or feeling, so being able to describe it is quite difficult. We have something that we do in our Dutch plant, whereby we take children in at quite a young age and give them an experience of coke to Coke. We tell them, 'Well, here is coal and we turn it into coke'. We show them how coke goes into blast furnaces, to iron, to steel, is cast to slabs and then the slabs rolled into—without going through the whole process—cold-rolled products. It is then coated with tin and formed into a can and you get a Coke can. If you can excite children about going from coke to Coke in that way, they can start understanding how exciting technical subjects can be. We must adopt that kind of approach at an earlier age, because once children come to do their GCSEs, assuming they have sufficient maths and science, if they do not have an understanding or a vision of what this world might be like, they will do what everyone has been telling them about—go and get these kind of qualifications; go and get a good degree, or go and do media studies or something like that. Whatever it is, you have to create the passion and interest early enough in the children.

[38] **Sandy Mewies:** I am smiling because, when a primary school child, I was taken to see Brymbo Steelworks as an example of science, and also geography. However, I still became a journalist. [*Laughter.*]

[39] **David Melding:** You talk a lot in your paper about skills and the fact that your company backs the Leitch agenda. The Leitch review states that by 2020 we need a revolution in skills, and one of its specific recommendations is that the intermediate level of skills should be raised from level 2 to level 3. In your view, does the Welsh economy need that in that sort of timescale?

[40] **Mr Macphail:** Absolutely. If the skills level does not increase, we will not be able to compete in such a difficult world where innovation and technical excellence is at the basis of improvement. We talk a lot about continuous improvement, but people only know what they know, and unless you have created the skill and understanding to create a direction for the future, you will stay at the level you are at. So, yes, absolutely.

[41] **David Melding:** Thank you for that very clear answer. When I went through secondary school in the late seventies and early 1980s, a lot of children at A-level—I was not one of them, I must say—did do the technical subjects. They were very popular; the sixth form was chopped in half; half did science and technical subjects and others did social

sciences and arts. They did so with the clear intention of going to the likes of Brunel University and pursuing technical degrees. It was part of the culture that you would want to go into high-value manufacturing and that was very much part of our world. I am not quite sure that I have heard why we have lost that. One suggestion is that we need to bring it back and it needs to be less pure and more applied in the way that things are taught. You mentioned less emphasis on qualifications—although you mean only very slightly, I think—and much more on looking at the skills output. The qualification is important, but it cannot be satisfactory unless you have also produced the skills. Looking at your apprenticeship schemes, I assume they are very popular and over-subscribed in terms of applicants. That kind of works at the level where students are also pursuing further education and have decided not to go into university, at least in the first instance. That is because there is a financial incentive there to some extent, I think—this is my contention—and we have also seen from your paper that some of the highly specialist graduates link up with your company. There is an incentive there, because you give them bursaries and internships. To take this approach one step further, should we not just be upfront and give bursaries to A-level students and then degree students, going into technical and scientific subjects, or is that too clumsy an approach? I am wondering how we send the signals and turn some of this culture around, as well as presumably making these subjects more related to the workplace.

[42] **Mr Macphail:** It is all of these things. As a company, we have to encourage people, by encouraging those in the technical area where we have the most difficulty, by giving rewards, bursaries, placements, and so on. However, technical courses at universities are the much more expensive courses to run. Therefore, if the funding is not balanced in a way that gives sufficient funds for the courses that are more expensive and that is equalized out overall, what will universities do? They will manage their funds as best they can to sort their issue—they will not give more money to a growing technical area. Therefore, it is all of these things; I do not believe that there is any one answer, or, if there is, I am not aware of it.

[43] **David Melding:** I ask this question as a non-scientist, writ large; when you get to university, is it less expensive to run pure science, as opposed to applied science—is that part of the issue? It gets applied into the workplace, so does that come at an extra cost?

[44] **Mr Macphail:** Yes, because all the equipment is required, depending on the technical issues.

[45] **David Melding:** That is interesting.

[46] **Jeff Cuthbert:** Thank you for your written paper and your oral presentation; I am pleased to see you here. I can happily say that I am an applied engineer—I did mining engineering at university.

[47] On the European structural funds, which I am particularly interested in, have you had any dialogue with the Welsh European Funding Office about involvement, and, if so, what type of discussion have you had with it? If you have not had any dialogue with WEFO, I urge you as a company to do so, because I believe that we would be interested in working with you in terms of spending on the convergence programme.

[48] My main question relates to the point that Sandy raised, on the first three points in your summary of conclusions. I agree that we have a problem in terms of the perception of science and engineering among schoolchildren, and I believe that, in part at least, that is what we are trying to address through the 14 to 19 learning pathways, to give that richer experience to children. Therefore, what involvement, if any, do you have with the educational establishment at this stage, in a structured way, in terms of the collaborative agenda? This involves schools, further education colleges, work-based learning providers, and employers in offering the right mix of opportunities for young people of that age to develop interests. I may

be something of an old-fashioned idealist, but I believe that the true strength of any country's economy lies in its manufacturing and engineering base. Therefore, on the 14 to 19 pathways, what involvement, if any, do you have with the educational establishment?

[49] **Mr Macphail:** We have had some conversations with WEFO, but I am not sure whether those have come to any conclusion; I do not know the detail of that.

[50] On the 14 to 19 pathways, we have close relationships—if we go backwards from the universities—with Swansea and Cardiff and others. You will have seen in our paper that we mention the engineering doctorate scheme that we run with Swansea University. We have talked about putting a specialist course on at Cardiff University. On the colleges, again, we have a close relationship with Bridgend College. It does the apprentice training, and we are talking to it about whether there are other ways of funding things, to make better use of the college, our demands, and what it might require externally. Therefore, we are having those conversations, and I was recently at Bridgend discussing that.

[51] Regarding schools, it is less structured. We go into schools and support the programmes of young people in the fifth year and the sixth year who want to do engineering or science; they get involved in support at the works, and they do modules. Therefore, there is work going on with some schools, but I would not say that it is structured.

9.30 a.m.

[52] I take you back to my earlier point; unless the will and passion to understand where it might lead exist at an earlier age, by the time you get to the ages of 14 to 19, you might be too late because people's paths are already set. They have in their mind the role models around them, whether they are family members or friends or whoever. So, we have to get in even before the 14 to 19 ages, if we are to achieve real change going forward.

[53] **Jeff Cuthbert:** I have a quick request. You mentioned the experience of Dutch schoolchildren. Is it possible to let the committee have details of that scheme?

[54] **Mr Macphail:** Yes, I could find something out on what happens in Holland. I would be pleased to do that.

[55] **Janet Ryder:** My question follows on from what Jeff said. I know that we are looking at the impact of higher education, but if you are not getting the recruits to higher education, I agree that we need to look much lower down in the school system. You may feel that you have covered this, but how do you think that we can involve industry? We do not currently involve industry in primary schools because it has always been seen as a bit of a no-no and something that should not be happening in primary schools. We have to change that attitude. With science and technical subjects in particular, interest can be generated by saying that they are practical subjects. For example, you can do things in a primary school classroom with balloons and water and so on and there are things that you can see being done in big industries. Do you have any thoughts on how we can involve the more technical side of business to engender that interest?

[56] Secondly, at the other end of the scale, some of the English universities from which we have taken evidence said that their major interface with industry has been in human resources development and in professional development courses. Could you say something on the interaction that you have with your older professionals to increase their professional knowledge through universities and whether anything needs to change?

[57] **Mr Macphail:** To start with the latter, there are people in Corus generally who are champions on these matters and have links with specific universities. So, we might have an

engineer somewhere who has a link with Brunel University or another who has a link with Oxford or Durham or Strathclyde—I do not know if we have a link with Strathclyde anymore. However, we do not have links only with the blue chip universities, but with those that provide a range of people. Through those, we have that connection. In Wales, we have a much better connection with Swansea and Cardiff because they are on our doorstep and it is practicably easier to have that. So, the relationships are there at that level.

[58] On primary schools, I think that this is quite a difficult issue. Locally, in Port Talbot, we have links with local schools, but that is probably as far as it goes. On our ability to resource or provide those kinds of things, it is quite difficult. We have come through a period in the steel industry in south Wales that has been quite difficult when we have reduced numbers and restructured and done all sorts of things. We have now turned ourselves around to be quite a different company, particularly since we have been taken over by Tata. It has a vision that is all about value creation, but also corporate citizenship. So, it supports connections with the community in a stronger way. We will have to grow on that in many areas as we go forward. We can look at getting primary schools to be interested in what we do, but it is not easy for us to do that because we are not set up to do so.

[59] You asked about human resource graduates—they are easier to get. You can find a greater range of men and women in that field. So, when we go for graduates, we have a better choice of people in personnel and HR. It is easier to find them. When you go out for science and technology you end up, as we did this year, with a great many graduates who are not from Wales, the UK, or even the European Union—many of them come from outside the EU. They are good people, but we should be able to find people locally. We are giving jobs to people from other parts of the world that we could be giving to local people, if they were available.

[60] **Janet Ryder:** Is that because, as you said before, local people are not applying for those courses, or because the universities are not putting them on? If the universities are not putting them on, to what extent do you work with universities to develop the degree courses that you need?

[61] **Mr Macphail:** We work with them in London, with Imperial College, and in Wales with Swansea University and Cardiff University. Metallurgy is not offered anywhere other than the University of Sheffield, so if you want a qualification in metallurgy to suit the steel industry, you have to go to there—we do not have that locally.

[62] **David Melding:** Swansea used to lead the field.

[63] **Mr Macphail:** Yes, but metallurgy is available only in Sheffield now. We work as much as we can with universities to encourage students to study these subjects. There are two issues. First, for some reason, Wales is not seen as attractive. Eighteen years ago I moved from Scotland to Wales, because I knew that I could not stay in Scotland and have a career in steel; my perception then was that I knew Teeside, and I even knew Scunthorpe, and I could have gone there, but I was not sure about Wales. Then we came to Wales and suddenly realised that it was a marvellous place. So, we do not sell Wales to students very well at all. *Torchwood* is helping more than anything else, but most of the time Wales is not represented in the way that we would like, and we do not communicate what we want to do for students, universities, employees and so on. If there is anything that this committee can help with, it is to try to create a more realistic perception of Wales—what a good quality of life there is, what great opportunities there are, and what a marvellous place it is to be.

[64] **Gareth Jones:** We are running out of time, but Kirsty has the final question.

[65] **Kirsty Williams:** That is precisely the point that I wanted to make—anecdotally, I have heard the same things from other companies. They find it difficult to recruit because

people have a certain perception of life in Wales. One gave an example of the adverts that we put out suggesting that people should come to Wales on holiday because their mobile phone will not work—it may be a good reason to come to Wales for a holiday, but would you really want to move to a country where your mobile phone will not work? Some of the images that we are putting across could be improved. Another company's managing director moved to Wales and said that he had no idea that it was so nice, because he had had a different image of Wales in his mind. What do you think is the basis of our image problem? In the feedback that you have had, when you have tried to persuade people to come here, what has been the problem?

[66] **Mr Macphail:** You are taking me into areas where I probably do not want to go.

[67] **Kirsty Williams:** That is the problem—because we do not want to go there, we have not addressed the issue.

[68] **Mr Macphail:** I will put it in a positive way. I am Scottish. Are you not fed up hearing Scottish voices everywhere? There is a lot of confidence in Scotland, but there is insufficient confidence in Wales, and that is wrong. That is the way that I would put it, looking at it in a positive way. How do you inject some confidence into the persona of Wales—confidence about itself, about the place that it is, about its good things, and the opportunities that it offers? When you do that, Wales will become attractive to people. My younger son, who is now a solicitor in Cardiff—he did not go into engineering, but there you are—likes surfing and snowboarding, and he can do those things in Wales. Wales is a marvellous place for the quality of life, and we have to be much better at selling that outside Wales. We have to find a way to do that that is not insular or small-minded in approach, but broad and realistic.

[69] **Gareth Jones:** On behalf of the committee, can I thank you—

[70] **Sandy Mewies:** Chair, I have two tiny points, if I may.

[71] **Gareth Jones:** Fine.

[72] **Sandy Mewies:** First, on your point about the Dutch scheme, which you said you could come back to us on, would you be able to find out how it fits into the Dutch curriculum? Perhaps the clerk could find out if you cannot. One of the problems here would be fitting that into the curriculum—that is a difficulty at primary level.

[73] On your point about work permits, is that because the BRIC countries are using us as a nursery?

[74] 9.40 a.m.

[75] **Mr Macphail:** We will see, will we not? We have always been an attractive company in terms of our graduate programme. We train people well in that programme, and we give them the opportunity to undertake professional qualifications that are accredited by the institutes. So, they can become chartered engineers and so on. We are, therefore, attractive from that point of view, but there is the question of whether they stay. The good thing about steel is that people get a passion for it, so they stay. However, we will see what happens, as this is relatively new for us.

[76] **Sandy Mewies:** Is that where many of them come from?

[77] **Mr Macphail:** From China and India, and other non-European countries.

[78] **Gareth Jones:** I thank you, Mr Macphail, on behalf of the committee for your interesting and helpful contribution to the work of this committee. I also note with great interest what you have written on page 8, that you would welcome the opportunity to work in partnership with the Government and others to create an engineering science academy. The Welsh Assembly Government has a science policy and I would think that that very important aspect will, in some way or another, be fed into the objectives pertaining to that policy. Thank you for your contribution, your time, and your attendance here this morning. Diolch yn fawr.

[79] Symudwn ymlaen i ail ran y sesiwn graffu. Croesawn gynrychiolwyr o Biofusion, sydd eisoes wedi cyflwyno papur—paper 2; yr ydym yn hynod ddiolchgar am y dystiolaeth ysgrifenedig bwysig honno, sydd eisoes wedi ei dosbarthu i Aelodau. Estynnaf groeso cynnes i Stuart Gall, cyfarwyddwr masnachol Biofusion, ac i Nick Bourne arall, o is-adran ymchwil a masnach Prifysgol Caerdydd. Croeso cynnes i'r ddau ohonoch. Deallaf nad oes gennym gynrychiolaeth o GTW Developments. Felly, y ddau ohonoch sydd yma ar ran Biofusion. Yr ydym yn ddiolchgar ichi am ddod atom. A wnewch chi roi cyflwyniad byr, am rhyw bum munud, o'r prif bwyntiau? Yna bydd cyfle i Aelodau ofyn cwestiynau.

We will move on to the second part of the scrutiny session. We welcome representatives from Biofusion, who have already presented a paper to us—paper 2; we are extremely grateful for that important written evidence, which has already been distributed to Members. I extend a warm welcome to Stuart Gall, commercial director of Biofusion, and to another Nick Bourne, from the research and commercial division of Cardiff University. A warm welcome to you both. I understand that we have no representatives from GTW Developments. Therefore, you are the two representatives of Biofusion. We are grateful to you for coming to us. Will you give a short presentation, of around five minutes, of your main points? There will then be an opportunity for Members to ask questions.

[80] **Mr Gall:** Thank you. It is a pleasure to be here. I thought that I would recap on what Biofusion does and the way in which we work with Cardiff University. Biofusion works in partnership with leading universities in the UK to help them to commercialise their world-class research. We were founded in 2005 and are currently listed on AIM. We have agreements with two of the UK's leading universities. The first was with Sheffield University and, last year, we signed an agreement with Cardiff University. These agreements give Biofusion a 10-year exclusive first-look option at intellectual property that comes out of the university and, in effect, the right to put that IP into a company and set up a spin-out company. In return for that option, the university takes a major shareholding in us. In our view, we allow the university to concentrate on doing what it is good at—namely creating IP—and then we come in and work with their technology transfer teams to commercialise the ideas that have the potential to be a business. Only a small number have that potential, but that is where we come in: to work closely with the academics and the technology transfer team and hopefully turn blue-sky research into a world-class business.

[81] The most important thing is that we get very close to working with the academic team right at the start. Not all IP will have commercial applications, so we work closely with Nick's team to look at all of the ideas that come out of the university and try to rank them in terms of ideas that have the most chance of being a successful business, that will have a market, and that have clear IP—either patented or in the process of being patented—to give them a market advantage. We help to build a clear business plan right at the start, involving the academic, and then we present it to our investment kitty to start a business. When we start that business, we put the intellectual property into the company and then we give 40 per cent shareholdings to the academics to keep them involved. We put money into the company—we raised a fund of £8 million for Cardiff University ideas, and that money is ring-fenced, so it only goes to ideas that come out of Cardiff University. We then, typically, put £200,000 to £300,000 into a start-up business to get it going in its first year of operation, during which it

will start to hit its milestones to become, hopefully, a stand-alone business in its own right. More often than not, that money actually goes back into the university and funds research staff, who then work on, and validate, the science.

[82] We work closely with local investment groups—we have a very good relationship with Finance Wales. We cannot provide all the money; we are there to provide the start-up money and to fund the start-up know-how—our experience is of building businesses virtually from the start. We work closely with organisations such as Finance Wales, which fund those businesses as they grow, because all businesses will need more money until they can stand alone and, hopefully, become a business in their own right. That company then steps away and takes its own course.

[83] To date, we have 23 companies. We have invested in five companies in Cardiff—we have just recently done one called Demasq Ltd, which we think is one of the most exciting ideas to come out of Cardiff University for quite a while. It has the potential to quickly become a very successful business. We put just under £500,000 into that. We spent the last six months developing the business plan, working with the academic, and that company has just launched. We are now heavily involved in taking that to market in the next year.

[84] That is a quick summary of what we do. I am happy to answer any questions.

[85] **Gareth Jones:** Diolch. Daw'r **Gareth Jones:** Thank you. The first question cwestiwn cyntaf gan David Melding. is from David Melding.

[86] **David Melding:** It is an interesting model. Your presentation covered quite a lot of issues that have been raised with us. I will put a specific issue to you. We have heard that part of the problem with intellectual property is that the actual application is not always anticipated by the people who have the idea. They see it narrowly, perhaps, and getting any idea to market is obviously a difficult process, and many good ideas, for no particular reason, do not get there, because some other idea, due to a combination of factors—serendipity or whatever—beats you to it. Sometimes, however, they just do not see where the idea could be applied, so quite a dramatic lateral shift has to occur before you see where a particular innovation could be applied in the marketplace.

[87] Is your involvement at that creative stage of looking at IP and then really thinking, 'Where can this be applied?', or is it a bit more lineal, in that you take ideas that already have a certain direction and bring them to the marketplace?

[88] **Mr Gall:** There are two paths. The first, clearly, as you just said, is that we work as closely as we can with Nick's team to try to foster an environment that encourages people to think about the research that they are working on and whether it has a commercial application. In that regard, you are very much relying on the academic to talk to the team and say, 'Look, I have this idea that I think is quite good. What do you think?'. Sometimes, that could be quite a clear path, and sometimes it might be a convoluted path that involves discussion and, as you do the research and write the business plan, you realise that, actually, the application is going to move maybe in a different direction, or maybe not become a business at all.

[89] The second path involves clear areas where there are cleantech energy-related issues. At the moment, intellectual property is clearly of interest, and there are big opportunities to work in this area, because there is a lot of money being invested in new clean technology, and that is where we can say to departments, 'Look, this is where you specialise. Is there anything that has the potential in this space?'. So, you are trying to be more proactive in generating ideas in particular areas.

[90] I would say that the focus at the moment has been on the first one, but we are definitely trying to foster an approach in which we can pinpoint areas in which we can perhaps be more successful. The big-hitting academics are working in particular areas, and we say to them, 'Actually, this could be really exciting. Have you thought about this particular space?'. So, there is a bit of a combination.

9.50 a.m.

[91] **David Melding:** On your side, what sort of expertise do you bring? Is it more from the business/entrepreneur angle or is there also a lot of technical and scientific expertise among the people whom you employ?

[92] **Mr Gall:** We have a combination. We cannot be everything. Our focus is on the business side and spotting an opportunity and where we can take it. Start-up businesses are quite hard to run; they have very small teams that have to run very hard and have clearly identified goals. We have good experience of that, and we are quite good at doing that stage of business development. Where there are gaps, we work with a network of people to pull that research and expertise in. So, although we have specialist science and engineering support within the business, we pull in, as required, where we see that there are holes. We work with whoever is going to be able to meet that demand.

[93] **Mr Bourne:** Just to add to that, I think that Stuart covers the area very well. It is all based on a very close working relationship with Cardiff. Biofusion has offices in Cardiff and we talk with people there every day. We have full-time commercial managers in Cardiff, and they work very closely with us. In turn, we have a very close working relationship with our own academic staff, and that is where it is key to identify things at quite an early stage. In fact, one of the advantages of the Biofusion model is that the chief operations officer did his undergraduate and postgraduate degrees in bioscience here, so there is already a link, as it were. It is all about having a close working relationship.

[94] **Sandy Mewies:** The way in which you operate is very interesting. I am not clear how many companies of your type are operating in this way. Do you know of any others? You will have heard of the Gibson review, which, in some ways, does not mirror what you are doing but has people scouting for good ideas within academic establishments. Do you honestly think that that will work and is there a place for that? Would it work within the system that you are operating?

[95] You made the point about spin-outs—you are obviously very good at spotting these ideas, getting the money for them and starting them off. However, if they are successful, they need to move on. We have had some evidence to suggest that the techniums are becoming very much property-based rather than a facility to move through. Do you have a view on that?

[96] **Mr Gall:** Your first question was about who else is in this space. There are a number of players in this space. However, I think that we are the only one with a model whereby the university is so closely aligned with the company. We give a shareholding back to the university so, in effect, we ensure that all parties win. The academics have a shareholding in the spin-out company, and the university has a shareholding, which is significant. At the moment, Sheffield and Cardiff universities control Biofusion—nothing happens with Biofusion unless the two universities say that they want it to happen. We see that model potentially expanding to one other university.

[97] Our competition tends to do more standard investment agreements, tying the university in for a specific period of time and putting a fund in. It is very similar, but it does not give a shareholding to the university. The biggest company is called the IP Group plc—it used to be called IP2IPO—which is fully listed on the London stock exchange and is very

successful.

[98] In terms of creating spin-outs, our goal is to create value from the spin-outs and to have more successes than failures or to break even. Ultimately, it is about how you can exit those companies, put value back into the company, invest more money and find more potential spin-out companies.

[99] On techniums, ideally, in the life of a business, you will have a clear early stage whereby it is very much virtual, and we could probably operate that from our own offices or from within the university, because it tends to be only two or three people during the first few years. Certainly in biotech, it is all about research, and that is being done in the university and the academics are supervising it on a part-contract from the company. So, they tend to be within the university and, if they need any space, they can operate in our office, which has space for seven or eight people. Being in a technium is great; it is fantastic. However, you want to get a company to move on to the next stage after that, and it can be very difficult to make a company do that, because it can get quite comfortable in the space that it is in. However, it should have a business plan to follow that takes it along a path that will keep it growing, and you would then expect it to outgrow the technium. I can understand why a technium is quite a nice environment to be in, and why a company can end up staying there for quite a long time. However, if a company is successful, it would normally outgrow a technium. It is very difficult to give a recipe for that, or put a timeline on it. If you say that a company can be in the technium for only two years, you might find that it was the third year that would have been the most important, but you have just moved them out. Stability for a business at that early stage is quite important.

[100] **Mr Bourne:** It might be useful to underline Cardiff's strategy for doing this deal. We were rather sceptical in the early days about such models, but it is really about being serious about creating high-growth, high-tech companies, based on the outcomes of our research. We have a strong research base, but building a large company in Cardiff, in Wales, is only part of the equation. What the Biofusion model does for us is bring in management and finance, and those are two key elements in exploiting the research base. We went through quite a long review process, with external and internal advisers, before eventually going with the Biofusion model.

[101] As regards the question on the Gibson review, I think that it really depends on the institution and how well established it is. We have less need for external people to help us to unearth the opportunities; where we needed expertise was the sort of thing that Stuart talked about. We could identify the opportunity and protect it, but we then needed to build a business around that. Those were key areas in which we did not have strong in-house capabilities. I have forgotten what the last question was.

[102] **Sandy Mewies:** It was about techniums.

[103] **Mr Bourne:** Anything that we can do in the local community to help to support these companies, because they clearly need somewhere to work and to grow, would be an advantage.

[104] **Mr Gall:** On the Gibson report, we very much agree that the issue is about getting in close to the academic at the early stage, and not expecting them to be an entrepreneur straight away by just saying, 'Here is some money; go off and create a business'. Our model is very much based on saying that we should get in, support them and help them to build it, and then they can concentrate on what they are good at, which is the science. We help them to make that business successful, so we take that pressure off and allow them to stay being academics. That has worked very well, here and in Sheffield.

[105] **Jeff Cuthbert:** My question follows on from the last point that you made about entrepreneurship. On the development of an idea and whether it has commercial applicability, to what extent do you involve graduates and postgraduates as a learning exercise to see how viable that business will be, and then take it further to learn about the pitfalls and the successes? Is that part of the process?

[106] **Mr Gall:** To be honest, no. Our remit is to identify intellectual property that has a chance of being commercially successful and then to build a business from that. We do not tend to use it as a training exercise for other people within the university. We work very closely with the university, so its commercial team is heavily involved with us, but we treat the creation of each business on a stand-alone basis, and it then either succeeds or fails. A number of them do not make it to the investment stage, because all parties agree that it is not going any further. However, no other people are seconded in to work with us through that process.

[107] **Jeff Cuthbert:** Thank you for that; that was very clear. Nick, do you feel that there is perhaps scope for such a development, in helping to develop entrepreneurial skills and attitudes?

[108] **Mr Bourne:** It does happen within the university, but, as Stuart says, it is not part of the Biofusion model. Nevertheless, if the spin-out was a graduate spin-out, or if it involved postgraduates and they were looking for funding, they would certainly be eligible for consideration under the Biofusion model. It is just that Biofusion tends to concentrate on high-tech, high-growth opportunities, and they are relatively few and far between. They may or may not involve graduates, but, to answer your question, we deal with that elsewhere in the university: in the student enterprise unit, which is based in the students' union. That is all about graduate start-ups, entrepreneurship skills and so on.

10.00 a.m.

[109] **Jeff Cuthbert:** I am sorry. Is the student enterprise unit part of the students' union or part of the university?

[110] **Mr Bourne:** It is part of my team, but the students' union is the best place for it to be located.

[111] **Alun Cairns:** I am quite excited by this model, and I cannot think of a better situation than a private sector company seeking to develop spin-out opportunities. The private sector will exploit this far better than a public sector Government department would, because of the real-world experience found in the sector and the disciplines that that brings. Having said that, I want to test this further and ask you about the exclusivity agreements that you might have. I will play devil's advocate. Who is to say that there is not another company out there called Biofusion 2, for example, that can spot the opportunities in your department, which you might have an exclusivity agreement for now? Is one agreement with one company restricted to the university or to the students, albeit that that agreement would take the idea to a level that it might not otherwise have reached? How can we push the model further to get a little competition between Biofusion and Biofusion 2 so that the university, the students' work, and the opportunity are exploited to a greater degree?

[112] **Mr Gall:** Ultimately, the reason we paid £16 million in equity to the university was to get that exclusivity. If we did not have that, it would have been a completely different deal. So, that is why we paid so much. We do not tie up everything, because we cannot; we cannot invest in 100 companies. So, inevitably, there is a lot of IP that, when it comes to us and we review it, we say, 'We cannot do anything with that; we do not think that it has the same commercial potential as the five, six, seven or 10 other projects that we are working on'. So,

there is always the opportunity for other people to come in to work on that.

[113] If an academic does not want to work with us, we cannot force them to do so, so they are exclusive to the extent that we cannot force someone to do something. If the IP is already tied up because there is a third-party agreement, and GlaxoSmithKline has come in and said, 'We want to fund some research', the IP must remain in place. However, it is not blanket exclusivity where no-one can touch anything; we just say that, where the university would have had a shareholding in this, we stand in its shoes. If that means having to work with another university because the IP was owned jointly, or someone else was saying 'Look, we would really like to do this' and it was a good proposition, we would still look at it. However, generally, we want to find the best ideas and turn them into successful businesses because everyone wins from that, including the university. If we turn Demasq into a business worth £100 million, the university wins, because our share price goes up. So, we think that everyone wins from the model, and there is enough around the edges to keep people happy.

[114] **Alun Cairns:** Do you want to add to that, Mr Bourne?

[115] **Mr Bourne:** Those are the sorts of concerns that we would have faced as a university. Our ability to raise research income is unfettered; it does not impact on that whatsoever. As Stuart says, Biofusion only has rights where the university would have rights. Clearly, we have to offer a certain degree of first choice, as it were, to raise the money to take this venture forward, but this model is based very much on those high-growth opportunities, and we will probably do only three, four or five a year. Everything else would fall under our normal tech-transfer activities, where we might grant licences to companies, look for other ventures and so on. If Biofusion elects to take an opportunity forward, it can do so only after it has invested a prerequisite amount of money, so you cannot stockpile lots of IP.

[116] **Alun Cairns:** This is probably an obvious supplementary question, but I will address it to Mr Gall from Biofusion in the first instance. I assume that you were attracted to Cardiff University because of its excellence rating and the high standards of research that were already there. If someone from the private sector, rather than the higher education sector, was looking at opportunities in any university, anywhere in the United Kingdom or even in Europe or elsewhere, and wanted to maintain that excellence, would funding to higher education play a role? Do you see a difference between Wales and England, because of what is reported to be the difference in funding to higher education institutions in England and Wales? Whether or not that is true is another issue, and I do not want to go down that route. However, does that determine whether Cardiff or Bristol is the most attractive to you?

[117] **Mr Gall:** Funding is clearly important. Cardiff is right up there. Cardiff is a top 10 university, so it was one of our target universities that we wanted to work with, and it took about a year to reach an agreement. It was the same with Sheffield, which is another top 10 university. Both are very similar universities in relation to funding and their focus on research, but the appeal is in having high-quality research coming out of the different departments, and funding makes a difference because it means that you have good academics doing good research. Ultimately, that is what fills our pipeline. Without funding, the best academics go to other universities and your IP pipeline starts to dry up.

[118] **Mr Bourne:** Clearly, strong, well-funded research places are a better offer for this kind of activity, and Cardiff has done quite well at attaining external funding in recent years. Another important area, which is a prerequisite of commercial success, is the proof-of-concept funds and the funds that go towards protecting intellectual property. Cardiff is in quite a beneficial position at the moment, because it has had some success and it can recycle some of that money, but protecting intellectual property through patents is an expensive process. The proof-of-concept work means turning the initial idea into something that makes it investment-ready, and that is a key aspect of this funding process.

[119] **Mr Gall:** That is an important point. In the early stages of an idea, it is vital that it does not die because it needs a little money to take the research further forward, perhaps by having someone come in to look at it and identify where there will be a market for it. That is done at the really early stage, and, generally, that proof-of-concept money has been successful, given how we have worked with it. We go in, spend a lot of time on the idea, fund more research, put money in to start a company, and then we access the development money later through organisations such as Finance Wales. If the company grows and needs to relocate, it is possible to access more funds, and it is noticeable that, in Cardiff, it is a very good circle, while in Sheffield there are more holes, so it is slightly harder for us to get proof-of-concept money or access to it. So, the experience is great in Cardiff at the moment, and it is a good model.

[120] **Janet Ryder:** It seems that we are seeing two models emerging. The model that we looked at of the White Rose University Consortium in England—or the universities that make up the White Rose cluster—and in America means that the business support works on the university campus, at the heart of the university, and is integral to the whole university, not just to the business section of it. By bringing the consummate mass of intellect at the university together, regardless of what department it is from, you spur off the innovative ideas. Those people are then encouraged and supported to develop their ideas and to spin that off. In America, we saw that they were equipping their young people with the ability to make connections, so that, when they did take that big step into entrepreneurship, which seems to be more or less expected of people in America, they knew what kind of business team they needed to put together to make their companies work. They had the confidence to do that, because they had been brought up in that culture.

[121] It seems that the model that we are presented with today involves looking at the university and cherry-picking the ideas that will make the best spin-off projects. I would think that both models have valid reasons for doing things in that way, but why have you chosen to go down this route—or do you also pick from the other route and support young students? You have talked about support through the students' union, but is it better to divorce the development of entrepreneurship from the development of intellectual ideas?

10.10 a.m.

[122] Going back to the issue that Alun picked up on funding, in America, their big gain by spinning off all of these companies is through their alumni, whereby money comes back in to the university through people who are grateful to the university. We do not have that culture here, but it is something that all of the higher education institutions need to look at. How much have you seen that happening from the point of view of the companies and the ideas that you have currently spun off?

[123] **Mr Gall:** Ultimately, everyone is cherry-picking if they decide to create a business, because there is no point in putting money into a business that you think does not have any chance of success. So, there is cherry-picking in whatever model you are looking at because you are all basing it on whether a certain stand-alone business is going to work. In the past, perhaps too many companies were created, just because the model was to create companies. It is easy to create a company, but it is much harder to make that company a success. So our model is to try to only pick the ones that we believe have the greatest chance of success. That means that we are filtering more at the start, but that is not a bad thing, because if people disagree with us they can go and do it themselves and the money will be out there if they believe it. So we definitely cherry-pick, and most businesses do cherry-pick if they decide to start a company.

[124] The University of Sheffield is part of the White Rose University Consortium, and we

are very much part of that whole operation. We work with the White Rose technology seedcorn fund, whose representatives come in to support businesses. However, again, they very much decide which ones they want to support and which ones they do not. Creating the atmosphere to come up with ideas is the most important thing; ensuring that there is an opportunity for people to talk about those ideas and how they can get them developed is important at the start. You want to foster that spirit of coming up with ideas, thinking outside of the box and thinking whether you can make a business out of an idea, and then we all help to see whether you can. So, the most important thing is to try to create that positive atmosphere about thinking how ideas could have commercial application.

[125] In terms of whether the companies come back to help to support universities, I would hope that they would. Most of the companies that we are involved with are early or mid-stage companies, and have not yet turned into successful, profitable companies, in which case the founders would, hopefully, come back to say that they had benefited from this and would like to give something back to the university. That is something that will, hopefully, develop over time, because it is good to support the university that you were part of, especially if it has helped you to be successful and to make a lot of money.

[126] **Mr Bourne:** As we have mentioned, Biofusion is aimed at one part of our activities. The advantage, if they are successful, is that they will create more models that many people would wish to emulate. The difference between the culture in the US and the UK at the moment is that we do not have as many role models and examples to follow, but we do work with students on things such as the Graduating to Enterprise programme and bringing in mentors, and so on, and if they did have a business idea or opportunity that was eligible for investment, we could take it forward through Biofusion.

[127] **Gareth Jones:** I thank you both for your attendance here and for sharing your views with us.

[128] You have clearly identified a model that is working. Biofusion is a company that is quoted on AIM and so on, so it is private in that sense, and, from listening to you this morning, I believe that you have combined management, finance, IP and academic property, which has led on to commercialisation and which is, again, the essence of what we are about, because that adds value to the economic development. That is excellent and I am grateful that you have shared that information with us. However, surely, in implementing that model, you have come up against specific challenges and difficulties. You already mentioned the fact that Cardiff University is a top 10 university and that research and solid funding would create assets in that sense, but we are about looking at the whole picture for Wales and there are other universities and institutions. Through identifying this value added, and it is a success story in that sense, would you honestly say that there is potential for Wales to go down the road that you have gone down? Admittedly, you are involved with a fine university—I am not saying that the others are not up to standard, but we are talking about potential. I think that Jeff touched on the point, on the challenges that you come up against, that it is the entrepreneurship within the establishment that is the essence, and the ethos and the culture. Do you have any suggestions as to how this model could be applied or expanded throughout Wales in terms of whatever potential that you feel exists? I know that I have gone around and around there, but that crossed my mind, listening to you.

[129] **Mr Gall:** That is a fair point. We are very Cardiff-centric, but there are clearly other universities in Wales—I went to Aberystwyth, so I have a soft spot for it. I do not think that our model would work for the smaller universities, but there is potential for a variant of it, and we have had some talks with the other universities, which are outside what I would call the top 10, and which could not justify an exciting investment company coming in to put in a big fund for them on their own, because the scale and number of ideas coming out of those universities is much smaller. However, that does not stop us from potentially working

together on collaborations or working with departments where there is a clear synergy and to have a looser agreement where there is potential to support each other in particular areas. We can continue to look at that. The other idea is to pull all four universities together and bundle them into one, and try to do something similar on a slightly smaller scale, and that idea has potential as well. That is a flexible, open picture, and you could go down that path, but it is all about talking with them, and we have been talking to other universities.

[130] **Gareth Jones:** Our concern—this is the final point—is that the thrust for development, the need and urgency to develop comes from outside. You have come from outside into the university, but we will, hopefully, change the culture to one that has the urgency from inside to expand outside and to create that element of commercialisation and value added. However, I have taken up enough of your time. I am very grateful to you, and I am sure that I speak on behalf of all the Members when I say that your contribution was both valuable and helpful. We know that you are busy people, but thank you for your attendance here this morning; we wish you all the best as a company and in doing your bit for Wales.

[131] **Gareth Jones:** Symudwn ymlaen. Yr ydym ychydig bach ar ei hôl hi ond nid llawer. Estynnaf groeso am yr hanner awr nesaf i Mr Bob Cater, prif weithredwr Cynghrais Technoleg Cymru. Croeso cynnes i chi a diolch yn fawr am y dystiolaeth ysgrifenedig yr ydym eisoes wedi ei derbyn. Yr wyf yn falch i'ch gweld chi yma, Mr Cater. Cawsom sgwrs fer ychydig wythnosau yn ôl, pan fu inni gyfeirio at y posibilrwydd y byddech yn medru rhoi tystiolaeth inni i'r ymchwiliad hwn i addysg uwch a datblygu'r economi. Gofynnaf i chi wneud cyflwyniad byr o ryw pum munud, gan ein bod eisoes wedi darllen y papur hynod o ddifyr a ydych wedi ei gyflwyno inni. Wedyn cawn gyfle, fel Aelodau, i ofyn cwestiynau.

Gareth Jones: We will move on. We are slightly behind schedule, but not by much. I extend a welcome for the next half hour to Mr Bob Cater, the chief executive of Technology Alliance Wales. A warm welcome to you and thank you for your written evidence, which we have already received. I am pleased to see you here, Mr Cater. We had a brief chat a few weeks ago, when we alluded to the possibility of your coming and giving evidence to this inquiry into higher education and economic development. I ask you to make a brief presentation of approximately five minutes, bearing in mind that we have already read the exceptionally interesting paper that you submitted. We as Members will then have an opportunity to ask questions.

10.20 a.m.

[132] **Mr Cater:** Good morning. Thank you for the opportunity to come here to talk to you. Briefly, my background is that I taught in secondary schools for around 18 years and ended up as head of faculty for technology-related subjects. I then did some missionary work, some would say, in the north-east of England and went into higher education as a senior lecturer in teacher training and came back to the promised land as an education adviser/inspector. Technology Alliance Wales, as I said, was set up about four years ago. Like-minded people thought there was a need in Wales for a body that would look at co-ordinating activities and perhaps improving the quality of technology engineering education across Wales and the links with industry. As such, the organisation was set up, and I was asked to be chief executive; I did not realise how easy it was to become a chief executive; it sounds grand, but there we are. I am based at Waterton. It is very interesting because, as some of you will know, being an Assembly building, as it were, it is populated by the industry fora—the automotive forum, the aerospace forum, the sector skills council for science, engineering and manufacturing technologies and the Manufacturing Advisory Service Cymru, and I work closely with those. It has been very interesting working with people such as that and looking at the education perspective and the industry perspective.

[133] Some of you will have witnessed the F1 in Schools Technology Challenge, which we

put on display here. The winning school, Ynysawdre, went to Kuala Lumpur this year to represent Wales and is also the UK champion this year. It is a year behind, so it will go wherever the international final will be next year—it has not been decided yet—as the UK champion, and not only represent Wales. That activity manifests my belief in what education should be about, in that if you give children interesting, contextualised activities, they want to learn. We have had experience of pupils who had switched off from education finding this very exciting and interesting; Ynysawdre is a case in point. A few years ago, some pupils did everything right except the presentation to the judges. So, they went away and trained with the drama department to improve. Those pupils would not have done that otherwise, but they were interested in improving themselves and their presentation. We have found that that activity is wonderful, not only in terms of the context, which is centred around computer-aided design and manufacturing, which is central to our future as a nation in terms of our manufacturing engineering base, but also in that it develops personal skills, inter-personal skills and obviously key skills in a context, and pupils want to learn and improve and we find that very exciting.

[134] Another organisation I am linked with, which some of you will know, is the engineering education scheme, which looks at bright sixth-formers working with industry on real engineering problems. That is also incredibly motivating; pupils want to learn. We have wonderful case studies, where bright, young minds have tackled problems in industry and come up with solutions that have saved industry in Wales millions of pounds, if you put these activities together. Again, it is a wonderful opportunity and a wonderful example of how pupils can be innovative, creative and entrepreneurial, given the right context. The problem for me is that all these activities, which seem to lead to interesting learning and motivation, are all extra-curricular and we struggle to keep them going. Both the activities I have outlined are on a knife edge; they could finish within a month because it is so difficult to keep them going.

[135] **Gareth Jones:** Thank you for that statement. I turn now to Christine Chapman.

[136] **Christine Chapman:** Thank you very much for your statement; I very much enjoyed it. We heard from Corus earlier, who said that it had difficulty in recruiting graduates in engineering and manufacturing from within Wales. I have read your paper and I wonder what your views are on this. What are the barriers? The engineering education scheme and others have been going for many years; they are well-established and do excellent work, but we still seem to be hitting the same problems that we have always had. There is lots of interest with younger people, but the problems arise in the transition to higher and further education. What do you think the barriers are? Do you see it as just a barrier to education, or do you see that there are other barriers within the sector itself?

[137] I was also interested in your comment about most formal education at school level stifling creativity, so I would welcome your elaborating further on that. You said that 14 to 19 leaders are not interested in supporting this highly relevant learning pathway across Wales. You talked about securing free software of the highest calibre for our schools. Could you say some more about that?

[138] **Mr Cater:** The recruitment of pupils into engineering is complex—I do not believe that there is an easy answer to that. I listened to the Corus presentation, and I believe that we feel exactly the same. The manufacturing industry is important to the economy of Wales and the UK. Recent events in the City to do with laundering money, or shuffling money around, show that that is not the way to survive—you must have a manufacturing base, and it still makes a significant contribution to the country's wealth. However, those subjects that are related to technology have a low status in schools, and pupils are often advised not to do them. We still have a divide between vocational and academic subjects. It is strange, because when I was at school, a vocation usually meant becoming a doctor, a teacher, a dentist or

whatever. We seem to have changed the definition of vocation in education to being a second-class dirty thing that bright, clever children do not do. Therefore, that is an issue for us.

[139] There is also an issue with the perception of engineering in the country in the future. There are good jobs in engineering, and it has an interesting, high-profile future, which will need bright minds. However, I believe that it is still seen as a second-class vocation. There is also a tremendous drop-out rate of engineers, who are being persuaded into the City, where they are apparently valued for their thinking and problem-solving skills and their breadth of understanding. Therefore, that is a complex question, which involves many issues, but we could start addressing it at school level—because that is where the seedcorn is—to persuade young people into engineering, including addressing the perceptions of engineering and manufacturing.

[140] **Christine Chapman:** To pick up on that point, I worked for many years in the careers service. I did all that I could to encourage young people into manufacturing, and I encouraged young women to think in those terms. Everything was fine at that level. However, the perception of parents, and sometimes the message from companies, was of this culture that we are talking about that, sometimes, these sorts of jobs are insecure. That was a big message, whether it was true or not, and it is difficult sometimes to break those barriers down. Do you feel that things have moved on? Those young people were getting clear messages, and they would come back to me and say that they had decided not to apply for something because their parents thought that the jobs were insecure. If that is the case now, we need to ponder on that.

[141] **Mr Cater:** You are right. A great deal of that is down to the press, because the press seems to think that the only news is bad news and that that is the only thing that people want to hear. You hear a great deal about closures, but you do not hear about the success stories; we have a lot of successful industry in Wales, and a lot of growth in that industry. It is a different industry. Neither Wales nor the UK will ever be mass-producing manufacturing nations, but there are other things taking its place—high-tech, interesting jobs, and there is growth in that, which we need to nurture.

[142] **Christine Chapman:** Do you not believe that there is a role here for the sector as well?

[143] **Mr Cater:** Yes, and we need more publicity for the success stories, rather than the sad stories.

[144] On your point on CAD/CAM, I was disappointed in that, because we had done a lot of work on it. One thing that Technology Alliance believes in is joined-up thinking. We have tried to link the Assembly's Credit and Qualifications Framework for Wales initiative with CAD qualifications, and with things such as the F1 challenge and the engineering education scheme, in order to join them up. One thing that we have had a great deal of success with is getting free software into schools in Wales, and we are continuing to do that, but without support, which is unfortunate because it is one of the areas that motivates pupils and will lead to entrepreneurship and innovation, and there are job opportunities in that field. I have tried hard with the 14 to 19 leaders, the consortia, and have got nowhere in terms of support for this initiative nationally. It would be an exciting initiative for Wales.

[145] **Jeff Cuthbert:** I am sorry to interrupt, but whom do you mean by 'leaders'?

[146] **Mr Cater:** The people who are leading the 14 to 19 from the administrative point of view.

[147] **Jeff Cuthbert:** Do you mean in local education authorities?

[148] **Mr Cater:** No, in the Assembly. It is difficult to get through to 22 local educational networks.

10.30 a.m.

[149] In fact, we were at a stage where—and we were recognised as such in the UK—Wales could have been a leading nation in CAD and CAM because, due to an earlier Assembly initiative, we trained a teacher in every school with some top quality industry-standard computer-aided design, and it was the envy of the UK because we did it in 18 months.

[150] **Gareth Jones:** Again, this is the essence of our inquiry at this level, and I ask Members to reflect on what we have read and heard. It is then our task to address this issue if we see it as a problem, and I think that we do. We need to refer this concern to the right people. You mentioned the leaders, but we have to think about that and possibly make further enquiries at a later stage. However, we all agree that you make a valid point. We need to consider it carefully, and, if we can make progress on it in any way, we will consider that carefully also. So, we can leave that point, but it is an important one in terms of how it has been presented orally and in written form.

[151] **Sandy Mewies:** In that case, you may not be too happy with my line of questioning, because one of the issues that this inquiry has thrown up—and I said this at the very beginning—is that career pathways are often decided in primary schools; I do not think that there is a cut-off date, and I have been quite clear about that. The point was made by Corus about pre-GCSE and the primary school level and that young people should be encouraged to see that there are alternatives.

[152] It is probably fair to say that we operate a fairly narrow curriculum in the UK. It is not always easy for schools to deviate from that, and this is where your point about extra-curricular activities comes in. For example, Young Enterprise, in my experience, was used for bright and enthusiastic young people, but was sometimes used for those who were not enthusiastic about school. In fact, as a school inspector, I have seen children be told, ‘You go up to that room there and you can take part in this.’. That approach may well have changed enormously by now. However, the point is the extra-curricular part of this. How can that be embedded in the curriculum, because you say that we must embed it and that people have to grow up with it and be grabbed early on? Some might say that they want to be an engineer at age 9 and change their minds when they are older, but we need to expose them to some of these great ideas early on.

[153] We have heard Corus talk about a Dutch scheme where young people go to see Coke being put into a Coke can. I recall that, when I was a child, I visited my local steelworks and we studied geography and looked at the ores and so on. You make the point strongly that seeing how science is applied makes it exciting. I could not see the point of algebra and geometry for years. Do you have examples to show young people what they can do and what they require to do it?

[154] **Mr Cater:** I think that you are right, and you will see in the paper that we did a trial with the F1 challenge in three primary schools. I would like to extend that in Wales; it was so successful that I am sure the headteachers in those schools would be glad to talk about it. They found it so motivating because children found a context for learning. They were using their mathematics, and their ICT was at a level that astounded me. For example, I watched these children operating with industry-standard computer-aided design; albeit it was with a limited set of instructions, they were nevertheless coping with it. There are then opportunities to go out into the world, to talk to people—present to judges. It was a wonderful opportunity.

[155] You are right in that it exemplifies the sort of activities that should not be extra-curricular and for only a handful of pupils. I know that one headteacher is thinking of embedding this into year 5 activities so that all pupils engage with it. You are right that formal education, as stated in here, has historically been counter to creativity and innovation. In fact, I read a book recently that said that if Leonardo da Vinci were in a school today, he would be in a special needs class for his behavioural difficulties, because I think that most things are formulaic now—there is a certain way of doing things and a certain answer. Thank goodness that the scholastic aptitude tests have gone; I know that my children spent a year practising SATs, and the rest of education got perhaps an afternoon a week. So, you are right—but we have to find a way of breaking the stranglehold of formal education to give children interesting contextual ways of learning.

[156] **Jeff Cuthbert:** Much of what I wanted to raise has been dealt with, so I will confine myself to a brief question. There is a sentence about halfway down the second page:

[157] ‘Education and industry largely exist in parallel universes.’

[158] What drive is coming from industry to better engage with education?

[159] **Mr Cater:** Individual companies such as Corus and some of the other major companies make the best of the situation, and their engagement is often localised. There are a number of companies that I have visited around Wales that try hard to work with their local further education institutions and schools. Very few do anything nationally, and one of the concerns that we had when we set up Technology Alliance Wales was that we counted something like 32 initiatives across Wales to improve engineering and manufacturing, but there was no focus to them—they were very localised, and sometimes they were competing with one another, attempting to do the same thing. So, industry tries to do something at a local level with its local institutions, but there is no national drive in this direction.

[160] I find, being based in Waterton, that there are interesting events going on with the fora, including meetings of industry, and often they would benefit if managers from education were present. As I said in my paper, I am not aware that there has ever been a national debate on the skills agenda involving the captains of industry and the leaders of education, although I am trying to encourage that. The two are discussing the issue separately. There is a great deal of criticism from industry about the skills gap, but when I ask what it is, and what we can do, I do not get an answer. It is complex, and the only thing that has clarified it for me is the notion that there is perhaps a set of generic skills that we could improve on, but we need industry to tell us about that and to help us. Then there are specific skills that I think will have to be dealt with locally, with industry working with the local further education institutions and schools.

[161] **Kirsty Williams:** I was wondering whether you keep any records of students that have participated in any of the schemes that you are involved in. Perhaps it is too early, because you have been there for only a short time, but does it actually work? I appreciate that there is value in the students participating, but is there any evidence that exposure to your schemes leads to someone pursuing that kind of career? Do you keep records of what happens to students after they have been through your schemes?

[162] **Mr Cater:** It is difficult. The F1 project in schools has been running for about four years, and we have no records except that we know that students have expressed a desire to go into engineering. However, there is no formal evidence, and similarly with the engineering and education scheme, we are aware that we need to provide evidence, but it is difficult to track pupils once they leave school.

[163] **Kirsty Williams:** However, you would know if they were applying to do a further education course or to study at university, because they would still be in school when they were applying to take up those places. I appreciate that you cannot track them after they have gone to university. I wonder because you want us to invest in your programmes, because you believe that they are a way of tackling some of the issues that we have, but we need to see some evidence that involvement in your programmes results in students making those career choices. Yes, we acknowledge that the children enjoy what they are doing at the time, but there no empirical evidence that your giving them this opportunity leads to their taking a certain course in a further education institution or university.

[164] **Mr Cater:** We are very aware of that. We have tried to find external funding for that research, because the engineering and education scheme involves something like 450 students a year. It is a lot of work to track them, find out where they are going, and follow their career paths. However, at this time, we have no funds, and it would require someone to sit down and look at this—there is a lot of work there.

10.40 a.m.

[165] **Gareth Jones:** Thank you, Mr Cater. I will just add to the general discussion. You have, quite rightly, raised a number of issues and questions with us. That is why your contribution is important. I was given to understand that there had been a redesigning of the curriculum in schools, not in terms of subjects, but in the design of the curriculum: that it would be based far more on problem solving and decision making. I believe that the Welsh baccalaureate has also incorporated high-level generic skills. Members may wish to reflect on that—as I said earlier—and consider the input from Estyn and the Assembly Government's Department for Children, Education, Lifelong Learning and Skills, for us to be appraised on the extent to which we have gone down the road of the curriculum redesign. I accept Sandy's point that it appears to be limited, but my understanding was that, within the curriculum and its presentation in schools, there was scope for decision making and the use of ideas for problem solving and so on. It appears that we are not making sufficient headway. I make that point in passing, and I hope that it will fit in with our remit.

[166] **Mr Cater:** Interestingly, problem solving is one of the extended key skills. However, as a school inspector, I have been in many schools, but have never seen a policy relating to improving problem solving. You see policies for numeracy, literacy, and information technology, but I have never seen a school consider how to improve problem solving skills with pupils. It is something that people think will happen if you give opportunities for problem solving. However, there is more to it than that if you want to make people better problem solvers; there are strategies and techniques.

[167] **Gareth Jones:** That is a valid point, and was well made.

[168] Diolch yn fawr, Mr Cater, am eich amser a'ch cyfraniad. Dymunwn y gorau ichi yn y gwaith pwysig yr ydych yn ei wneud gyda'r prosiectau hyn. Mae'r hyn yr ydym wedi'i glywed yn werthfawr i ni fel pwyllgor. Diolch yn fawr iawn. Thank you, Mr Cater, for your time and for your contribution. We wish you well in your important work on these projects. What we have heard is valuable to us as a committee. Thank you.

[169] Yr ydym wedi dod at ran olaf y sesiwn graffu. Estynnaf groeso cynnes iawn i Simon Lovell-Jones, cyfarwyddwr rhanbarthol Cymru ar ran Ffederasiwn Cenedlaethol yr Adeiladwyr. Yr ydym yn hynod ddiolchgar i chi am eich cyflwyniad We have reached the last part of this scrutiny session. I extend a very warm welcome to Simon Lovell-Jones, Wales's regional director for the National Federation of Builders. We are extremely grateful to you for your written submission and look forward

ysgrifenedig ac edrychwn ymlaen at to a short oral presentation of around five
gyflwyniad llafar byr o ryw bum munud. minutes. There will then be an opportunity
Yna, bydd cyfle i'r Aelodau ofyn cwestiynau. for Members to ask questions.

[170] **Mr Lovell-Jones:** Thank you, Chair. I come from the National Federation of Builders, which is the oldest established trade federation for the construction industry. It is about companies that want to show themselves to be the best in their field. No-one has to join; those companies that want to prove that they are of the highest quality go through a series of rigorous checks on their background and are then admitted into membership on the basis of the president's view. Companies vary from Wynne Construction in north Wales, Henry Jones Ltd in Criccieth, to Atkins here in Cardiff bay. So, there is a wide range of companies across Wales.

[171] Part of the process of becoming one of the best companies in our view involves a commitment to personal development and to training. Our federation is the only one of the construction industry federations to offer a comprehensive training package. I come here with a tremendous respect for higher education institutions in Wales; having recently completed my Master of Business Administration in Cardiff Business School, I would hardly do anything else. At the same time, I am aware of problems of town and gown that stretch back many years and which, indeed, seem to have been reiterated here this morning.

[172] This inquiry is taking place in the context of a major change in the way in which society works and operates. We are talking about cellular societies, for example. I am told that, in days gone by, children had only one packet of corn flakes to choose in the mornings. Nowadays, I am told that families have different packets of cereals for every child in it. In the same way, the idea of having solutions that offer one quick fix for all are long gone. It is much more about individualism, enterprise and the power of people to recognise their own potential. At the same time, and at the risk of plugging the BBC, I gather that a programme that I can commend to the panel will be shown this evening. In it, Robert Winston will talk about the fact that boys nowadays do not want to be clever. I think that it might be interesting, especially in the context of the Confederation of British Industry survey that identified, unfortunately, that 48 per cent of people who apply for jobs lack the necessary business awareness, 26 per cent lack literacy skills and 27 per cent did not have generic skills that would go towards being in a company. That is a huge challenge for us all.

[173] I work closely with ConstructionSkills Wales, and I can report and endorse, from the paper that I presented to you, the fact that I have not yet had a negative comment about ConstructionSkills from any of my member companies. Indeed, it is found to be initiating conversations, to be accommodating and so on. That is not to say that I agree with everything that it does, and I am pleased to note that where I have criticisms, such as, for example, the lack of engagement with the Urdd and with the eisteddfodau, it has taken that on board and set up working groups to try to organise that.

[174] I would note that the ideas of funding particular skills sectors according to their industry every two to three years is probably not very helpful in that it takes two to three years to get a good initiative going. Then you get that problem of funding, having started, suddenly disappearing; companies and particular sectors would then be in trouble.

[175] The paper is about minding the gap, is it not? I mentioned town and gown earlier, but there is a kind of gap between the HE sector and the companies that I work with. To a man and to a lady, they have said that communication has been initiated by them, and not by the HEIs. At the same time, the construction industry is very challenging—there are many small companies, and some 80 per cent of the industry is involved with micro SMEs. I appreciate that it is hugely challenging to organise communication to deal with those, but some of the gaps have really been quite extraordinary, in that a company can contact HEIs in the summer

and not receive any information about a course of relevance to its employees.

[176] I would note that, in my conversations with other companies since completing the paper, one particularly fine one in Llangollen was saying how the local college there had supplied courses, but again, it was entirely due to the initiative of the company. Communication and consultation was sorely lacking about the progress of company employees who had been placed with that college. There is a clear need for such dialogue. It may be a matter of being able to integrate better with society—we are back to town and gown—and ways of doing that would be welcome, and we are certainly willing to play a role in any issues that may come forward.

[177] Perhaps the biggest issue is that of procurement. I know, Gareth, from our previous discussions, that one of the functions of universities is in their major real estate, and there may well be opportunities through the procurement portfolio to be able to develop smaller Welsh companies. Unfortunately, at the moment, in public sector procurement generally, the methods of dealing with paperwork and so on, and the lack of customer relationship management, has meant that the requirements for SMEs are out of proportion with their capacity as businesses, and therefore many major contracts are being lost to major companies from across the River Severn. This is of huge concern to us in particular and, I imagine, to this committee. The implication is that skills in those companies will leak out into England, until, in the event of a future upturn in the economy, the companies will no longer have the skills base to be able to take advantage of those opportunities. Conversations with certain Assembly Members have not been helpful in terms of raising awareness of these problems. This is a major problem for the construction industry in Wales, and there is a significant opportunity for assistance to be given.

[178] To close, one local authority issued three tenders in the same week. Again, one would ask whether that really is good planning. The information supplied about those tenders included 10 bound copies of every submission. The tenders had financial information, accreditation and so on in common, but they were not allowed to transfer this information between the different tender documents and they could not be submitted electronically. In what age do we live, when a small company is supposed to be operating on this kind of level? It is wasteful, inappropriate and entirely unmindful of the success of small businesses in Wales.

10.50 a.m.

[179] On that rather grim note, I thank you for the invitation to be here this morning. I do appreciate that without such invitations, the chance to air such grievances would not arise and it is out of respect for this institution and the ability of Members around the table to be able to effect change that I have remained more than willing to come.

[180] **Gareth Jones:** Thank you, Simon. In this committee, we do take on board all messages—positive and negative. That is the very reason for our existence and we intend to make changes for the better as best we can. We appreciate what you have told us this morning and we certainly take note of your written evidence as well. We understand that there are challenges out there. Let us turn now to individual Members, starting with Jeff Cuthbert.

[181] **Jeff Cuthbert:** Thank you for the written material and for the oral presentation that you just gave. I noted that you pointed out that a number of the instances of poor practice that you have put down here are anecdotal; nevertheless, it is worrying to hear what you have said. I note that the construction industry is very important, in that it makes up 14 per cent of our gross domestic product. You made that point to us. The industry is a key player in terms of the Welsh economy. My question relates to section 2.2 of your paper, on the skills gap, and the first paragraph, where you refer to the standards of architects. Architecture is obviously

very important to the construction industry. It is surprising to read that the

[182] ‘qualifications obtained by students appear regularly to be too narrow...for them to be of any use on site’.

[183] That suggests to me, although you might disagree, that the industry is not engaging properly with higher education institutions in terms of the design of the specification of courses. Why should that be the case? Is it that the HEI schools of architecture, for example, have just had the same courses historically and have not sought to update them? Is there, as you mentioned in section 2.1, a clear communications gap here? What is the industry doing about it?

[184] **Mr Lovell-Jones:** Those are excellent questions and I wish that we had the whole day to talk about them. I will start on a slightly frivolous note. If anybody working in the Assembly were to bump into Lord Rogers outside this building, would they recognise him? If anybody working in the Wales Millennium Centre were to bump into Jonathan Adams outside that building, would they recognise him? One of the issues that we have is to do with celebrity culture—I appreciate that I am straying into cliché—and one of the questions is about how we define celebrities. I am very aware that there is more that could be done to celebrate the fact that one man’s mind dreamt up this extraordinary building in which we are now sitting.

[185] To address the specifics of your question, I greatly support ConstructionSkills’ view that there needs to be more work-based learning and more integration between HEIs and the business community. Ideally, I think that you are absolutely right that there should be a greater degree of effort and engagement by local companies with the courses on offer in particular HEIs. There are issues around courses being more expensive to run that may be more relevant to a given industry: I think that I mentioned scaffolding appreciation as one course that you have to travel a long way to get. That is the kind of issue that some sort of large, full-scale solution in the form of a major construction college in Bridgend might provide an answer for.

[186] On a rather depressing note, I am afraid that if you have a small business based near a HEI and that HEI is not answering the problems of that business, it is going to go elsewhere. One problem that a number of institutions reported to me lay in getting small businesses to sit on employer-liaison panels, for example. For that person to attend that panel, it means giving up x amount of work and there will be all sorts of things for that person to pick up on when they get back, and there is also the money that they could have been making and so on. Unless there is a very solid outcome at the end of it, the kind of people that you are going to get on those committees will be from larger companies, rather than the micro SMEs. One of the themes that have developed this morning is about engaging with children at the earliest age: it takes a village to bring up a child.

[187] One small business owner was saying to me that the previous headmistress used to invite him, an established builder in the area, to her school to talk to young people about the construction industry and to inspire them. That does not happen any more. Should he pick up the phone or should the school? The issue is to do with the communication gap. We certainly need to look at ways of encouraging businesses to get in touch, but we also need to look at ways of encouraging institutions to get in touch. I will give an example from personal history. I did a module—and I say this in the context of having the highest regard for what is going on in Cardiff Business School—in tourism and, although we had some of the most exciting tourism developments in the whole of Europe going on in Cardiff bay at the time, there was not a single field trip to Cardiff bay or an invitation to the people behind the developments in Cardiff bay to come to speak to the students.

[188] **Jeff Cuthbert:** Thank you for that. I do not think that it has cleared things up for me completely on this point, because the employers, whether they are firms of architects or construction firms, want any training that is being done in higher education institutions to be as relevant as possible to their needs. We are dealing with big players, although I appreciate that there are also lots of small builders and small firms of architects. Is there not a clear message from employers to the HE institutions about the curriculum that is being offered and the course standards and specifications? If those are not relevant, surely employers have conveyed that message loud and clear—or have they not? Communication goes two ways.

[189] **Mr Lovell-Jones:** The body that looks at the skills distribution requirements of the industry is ConstructionSkills Wales. It produces regular reports about building skills in Wales, which are fed into HEIs. HEIs have their limitations, which are mainly financial, on the kinds of courses that they can put on, but you are absolutely right that it is crucial that that happens.

[190] **Jeff Cuthbert:** Am I drawing the right conclusion, then? The message is being conveyed—although it could always be conveyed more effectively—but higher education institutions are not responding to it.

[191] **Mr Lovell-Jones:** In a nutshell, there is not a great enough appreciation on the industry side of the sheer scale of the resource that is available in places like Cardiff Business School. I will give you another story about a major player, a multi-billion-pound industry in Cardiff bay. It had simple process-engineering issues and there was a lack of analysis of the data available, but involvement with anybody at the Lean Enterprise Research Group at Cardiff University could have sorted those out in a very short time. There was a chance meeting and discussion with Construct Wales and it was able to point out the differences. It is difficult to convince people that the potential for business improvements and for producing the right skills and so on are there, but facilitating that communication is not strong enough at present, in my view.

[192] **Christine Chapman:** Your paper suggests that you perceive difficulties in recruiting or attracting more people, younger and older, to Wales.

[193] **Mr Lovell-Jones:** Absolutely.

[194] **Christine Chapman:** What sort of initiatives is your sector undertaking to recruit young women, for example? I know that there has been a lot of discussion on this for many years. Is the sector having any discussions with higher and further education on this?

[195] **Mr Lovell-Jones:** The authority on that would be ConstructionSkills Wales, which has targets for recruiting young ladies as apprentices—sorry, and older ladies, too. So, it has those targets with relation to women apprentices and it also engages with ethnic minority people, to involve them. Those are the two targets on which it has performed the weakest. Clearly, there is a need there to think more widely. I suggest that the answers lie in the appreciation of the industry, and so efforts such as that which I mentioned about engaging with the eisteddfodau to paint a more realistic picture of what it means to be a part of the industry and of the potential and rewards that it offers will apply across genders and ethnic backgrounds.

[196] **Christine Chapman:** What more can be done from the education side or the sector's side? We have been having these discussions for many years, but the statistics are still pretty poor, in the main.

11.00 a.m.

[197] **Mr Lovell-Jones:** They are very poor; you are right. For example, on the National Eisteddfod field, if you were to take the particular tent of one higher education establishment, could you pick out the opportunities of going down a particular line? The conversations that I have had with ConstructionSkills have been about celebrating construction. There are some fantastic initiatives out there, which would inspire young women, indeed, all people about the bridges built and the projects taken around Wales. They are fantastic and are a real chance to engage, and to be able to locate what it is to be a creative mind in respect of the built environment. You see these things and you think, ‘That is like magic—it does not have any bearing on what I do normally’, but many people are doing that. There is the old story about the three workmen working on the same project—the first says that he is laying bricks, the second says that he is building a wall, and the third says that he is building a cathedral. The ability to link those different levels of aspiration together is huge.

[198] There is also a change in society. The emphasis in the media has been on instant gratification and celebrity, and, although it may be a little old fashioned, as has already been mentioned this morning, the idea of service to the community is missing. Perhaps the key statistic that is worrying is that from the Confederation of British Industry about people arriving at work without the general skills required to run a business: turning up on time, being keen, being aware, working as a team, communication, and so on. That is the area that really needs to be addressed, in my view.

[199] **David Melding:** I wonder whether I can shift the emphasis a bit and talk about the fact that construction accounts for 14 to 15 per cent of the economy. There are some remarkable public policies in place on making homes more sustainable and improving the standard of homes, which could be huge generators for economic development and for meeting the targets of other strategies, such as that on reducing poverty. What innovation is going on to develop new building techniques and new materials? How far does that involve small and medium-sized enterprises and local firms, as opposed to the larger players? Is it only the big construction companies that are sweeping up these contracts? While they also innovate, it is part of a UK picture rather than a matter of our thinking what more we could do for the Welsh economy, by linking up to our HE institutions on material science, engineering, or whatever.

[200] **Mr Lovell-Jones:** The question is pertinent and raises a huge area of potential for the industry in Wales. There is a reference in the paper to the development of new materials to try to encourage more sustainable building. Unfortunately, the engagement with the employers came at the end of the development process rather than at the beginning, and it is a shame that there could not have been more communication and collaboration at an earlier stage of the process. I think that the potential is huge. It is well said that all sorts of development could and should be taking place here, but we are losing out to England and to northern Europe, particularly Germany, where they are a long way ahead of us on developing sustainable construction techniques.

[201] The response from the smaller builders about sustainable construction tends to be, ‘We could get that kind of paint, but it is more expensive, so we will not’. There are ways to incentivise companies to invest in the use of more sustainable products, through favourable taxation regimes, or whatever, and that could encourage more to engage with that agenda. There are also some problems, for example, with housing associations and public sector housing. Often, the grants work in such a way that means that the crucial stages of the design and build of a new project have to be rushed. For example—and this is a genuine case—the grant comes through on a Friday and the work must be started on a Monday, which does not leave time for an ecological survey or for reasonable consideration by a specialist design team, with a view to ensuring that the building is suitably sustainable. So, there are matters that could be addressed on the public sector side of things, which could improve sustainability and encourage builders to use sustainable techniques.

[202] However, in the broader private sector, I think that you are right; there is huge potential for construction companies in Wales to get involved with our centres of expertise in material science and in engineering. We have some very big players who are experts on prefabricated and off-site construction, such as Atkins in Cardiff bay, which I mentioned earlier. It is really well placed to get together with the university and the inspirational example of bioscience that we heard about this morning to take Wales forward.

[203] **Gareth Jones:** Diolch yn fawr am eich cyflwyniad ac am eich atebion i'r cwestiynau, Simon. Yr ydych wedi cyfeirio at agweddau hollbwysig sy'n berthnasol i'r ymholiad yr ydym yn ei gynnal i gyfraniad sefydliadau addysg uwch i ddatblygu economi Cymru. Byddwn yn cyfeirio at elfennau eraill, yn enwedig yr elfen gaffael, a rhaid inni ddwyn y rheiny at sylw'r Dirprwy Brif Weinidog. Yr ydym yn ymwybodol o rai elfennau eraill, ond rhaid i'r rheiny gael eu hystyried gan adrannau penodol y Llywodraeth.

Gareth Jones: Thank you, Simon, for your presentation and for responding to the questions. You have referred to important aspects that are relevant to the inquiry that we are carrying out into the contribution of higher education institutions to economic development in Wales. There are also other elements that we will refer to, especially that of procurement, and we must draw those to the attention of the Deputy First Minister. We are aware of some other elements, but those will have to be considered by specific Government departments.

[204] Rhaid inni gymryd sylw o'r hyn a alwyd gennych yn fwllch cyfathrebu rhwng y busnesau a'r sefydliadau addysg uwch, a chawn weld sut y gallwn ymdrin â hwnnw yng nghorff yr adroddiad. Cyfeiriasoch hefyd at bethau pwysig eraill a fydd yn bwydo i mewn i'r ymchwiliad.

We need to take note of what you referred to as 'the communication gap' between businesses and higher education institutions, and we will see how we can deal with that in the body of the report. You also referred to other important matters, which will feed into our inquiry.

[205] Diolchaf ichi ar ran yr Aelodau am eich amser ac am eich cyfraniad. Er bod elfen besimistaidd, efallai, yr ydych hefyd wedi cyfeirio at bethau da sy'n digwydd, ac yr ydym yn ymwybodol o'r her sydd o'n blaenau. Diolch am ein hatgoffa nad yw popeth yr hyn y dylai fod, a mawr obeithiaf y gall yr adroddiad hwn, ar ei ffurf derfynol, ein cynorthwyo i symud pethau ymlaen er gwell ac er budd pobl Cymru. Dyna ddiwedd y cyfarfod.

I thank you on behalf of Members for your time and your contribution. Although there was perhaps a pessimistic element, you also referred to the good things that are happening, although we are aware of the challenge facing us. Thank you for reminding us that everything is not as it should be, and we very much hope that this report in its final form will help us to improve things for the better and for the benefit of the people of Wales. That concludes the meeting.

*Daeth y cyfarfod i ben am 11.07 a.m.
The meeting ended at 11.07 a.m.*