



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

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

**Dydd Mercher, 9 Ebrill 2008  
Wednesday, 9 April 2008**

**Cynnwys**  
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Cofnodir y trafodion hyn yn yr iaith y llefarwyd hwy ynndi 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
Jeff Cuthbert	Llafur Labour
Gareth Jones	Plaid Cymru (Cadeirydd y Pwyllgor) The Party of Wales (Committee Chair)
Huw Lewis	Llafur Labour
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**

Mark Barry	Prif Swyddog Gweithredol, Q-Chip Chief Executive Officer, Q-Chip
Yr Athro/Professor Ken Board	Cadeirydd UWS Ventures, Sylfaenydd a Chyfarwyddwr Anweithredol, Enfys Cyf. Chairman UWS Ventures, Founder and Non-executive Director, Enfys Ltd
Ian Courtney	Prif Swyddog Gweithredol, TM Communications and Media Ltd Chief Executive Officer, TM Communications and Media Ltd
Simon Gibson	Prif Weithredwr, Wesley Clover Corporation Chief Executive, Wesley Clover Corporation
Simon Lander	Ysgrifennydd Mygedol, Sefydliad y Peirianwyr Sifil yng Nghymru Honorary Secretary, the Institution of Civil Engineers in Wales

**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:** Bore da. Estynnaf groeso cynnes i'r tystion, i'r Aelodau ac i'r cyhoedd i gyfarfod cyntaf y tymor hwn. **Gareth Jones:** Good morning. I extend a warm welcome to the witnesses, to Members and to the public to the first meeting of this term.
- [2] Fe'ch atgoffaf i ddiffodd ffonau symudol ac unrhyw ddyfais electronig arall. Ni fydd angen cyffwrdd â'r meicroffonau. Nid ydym yn disgwyl ymarfer tân, felly, os oes larwm, rhaid inni ddilyn cyfarwyddiadau'r tywysydd a gadael yr adeilad cyn gynted â phosibl. I remind you to switch off mobile phones and any other electronic device. There is no need to touch the microphones. We are not expecting a fire drill, so, if the alarm sounds, we will have to follow the ushers' instructions and leave the building as soon as possible.
- [3] Mae'r pwyllgor yn gweithredu'n ddwyieithog. Mae clustffonau ar gael i gael y gwasanaeth cyfieithu ar y pryd o'r Gymraeg i'r Saesneg, a hefyd i chwyddleisio'r sain, sy'n ddefnyddiol ar adegau. Bydd cofnod o'r cyfan a ddywedir yn gyhoeddus yn cael ei gyhoeddi. The committee operates bilingually. Headsets are available for you to receive the simultaneous interpretation service from Welsh to English, and also to amplify the sound, which can be useful at times. A record of all that is said publicly will be published.
- [4] Mae Chris Chapman wedi anfon ymddiheuriad, ond ni fydd unrhyw un yn dirprwyo, hyd y gwn i. Deallaf y bydd Janet Ryder yn ymuno â ni ychydig yn hwyrach. An apology has been received from Chris Chapman, but no substitute will be present, as far as I am aware. I understand that Janet Ryder will join us a little later.

9.02 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:** Mae dau bapur wedi'u paratoi ar gyfer yr eitem hon, ond yn y rhan hon o'r sesiwn, papur 1 yn benodol sydd o dan sylw. Am yr awr nesaf byddwn yn craffu ar adolygiad Gibson, 'Masnacheiddio yng Nghymru', sef adroddiad gan y grŵp gorchwyl a gorffen annibynnol. Diolchaf i'r tystion am eu presenoldeb a hefyd am eu hadroddiad a'u tystiolaeth ysgrifenedig, sydd eisoes wedi'u dosbarthu. **Gareth Jones:** Two papers have been prepared for this item, but in this part of the session, we will concentrate specifically on paper 1. For the next hour, we will be scrutinising the Gibson review, 'Commercialisation in Wales', which is a report by the independent task and finish group. I thank the witnesses for their attendance and also for their report and written evidence, which have already been distributed.
- [6] Croesawn awduron yr adroddiad hwn, sef Simon Gibson, prif weithredwr Wesley Clover Corporation a chadeirydd yr adolygiad, yr Athro Ken Board, cadeirydd UWS Ventures a sylfaenydd a chyfarwyddwr anweithredol Enfys Cyf., Mark Barry, prif swyddog gweithredol Q-Chip, ac Ian We welcome the authors of this report, namely Simon Gibson, the chief executive of Wesley Clover Corporation and chair of the review, Professor Ken Board, chair of UWS Ventures and non-executive director of Enfys Ltd, Mark Barry, the chief executive officer of Q-Chip, and Ian Courtney, the chief

Courtney, prif swyddog gweithredol TM Communications and Media Cyf. Croeso cynnes ichi; yr ydym yn ddiolchgar eich bod yma gyda ni. Yr ydym yn ymwybodol o'r gwaith ardderchog a wnaed yn hwyr yn yr ail Gynulliad—yn 2006, os cofiaf yn iawn. Mae'n hollbwysig ein bod yn cael cyfle heddiw i wrando ar eich cyflwyniad, a deallaf mai Simon Gibson fydd yn cyflwyno prif bwyntiau'r adroddiad a sut yr ydych yn gweld pethau ar hyn o bryd. Hefyd, ein prif nod yw rhoi cyfle i'r Aelodau ofyn cwestiynau ynghylch yr adolygiad a'r adroddiad fel y'i cyflwynwyd i'r Cynulliad.

executive officer of TM Communications and Media Ltd. A warm welcome to you; we are pleased to have you here with us. We are aware of the excellent work that was undertaken late in the second Assembly—in 2006, if I remember rightly. It is crucial that we have an opportunity this morning to listen to your presentation, and I understand that Simon Gibson will be presenting the main points of the report and your views on the current situation. Also, our main aim is for Members to be able to question you on the review and the report as it was presented to the Assembly.

[7] Felly, Simon, gofynnaf ichi wneud cyflwyniad byr o ryw bump i 10 munud, ac wedyn fe fydd cwestiynau gan Aelodau.

So, Simon, I invite you to make a short presentation of some five to 10 minutes, after which Members will ask questions.

[8] **Mr Gibson:** Thank you. It will take less than 10 minutes, you will be pleased to know, because the value of this session is that it is interactive.

[9] The purpose of the review, originally commissioned by Andrew Davies as Minister for Enterprise, Innovation and Networks, was to assess the effectiveness of publicly funded programmes for the commercialisation of intellectual property created within higher education and, where appropriate, to make recommendations to improve its performance. We concentrated on the creation of sustainable value-creating companies, such as spin-outs, rather than on licensing, which is the other favoured route for exploiting intellectual property. There is a legitimate debate to be had about the advantages of these two alternative approaches, but we felt that the differences were not significant to the review's work.

[10] One member of the group engaged on a lengthy programme of interviews. The people interviewed consisted of Welsh Assembly Government civil servants with responsibility for policy and the management of commercialisation programmes, and senior representatives of individual higher education institutions in Wales. Representatives of Higher Education Wales and the Higher Education Funding Council for Wales were also interviewed. Finally, we spoke to representatives of Welsh-based business organisations and members of the investment community in Wales and in London. Additionally, we sought information from the civil service about research inputs on commercialisation and outcomes.

[11] With regard to resources, we specifically asked for the spending figures for individual programmes with relevance to commercialisation. We sought data expressed at outturn prices of the three financial years, 2004-05, 2005-06, and 2006-07, distinguishing between grant in aid and other types of spending, such as structural funding. We also asked for information on the number of employees directly and indirectly involved in these programmes. With regard to the outcomes of this activity, we had the full co-operation of HEFCW, which circulated a questionnaire to individual institutions, asking for information about the company value created as a consequence of the commercialisation.

[12] You will see from the group's written evidence that the data did not give a totally clear picture of the situation. This is partially explained by the fact that WAG programmes are not monitored and reported on the basis of an alignment with the group's commercialisation remit—we can talk about that in a moment. We therefore made a number of estimates of spending. Our evidence indicates that Assembly officials identify 249 people, excluding those involved in NHS knowledge transfer programmes, as professionals. On outcomes, the

information supplied by HEFCW was neither completely consistent nor comprehensive.

[13] Applying our own experience to this evidence, plus the results of the interview programme, we found some positives. Importantly, there was near-unanimous agreement on the importance that the Assembly attaches to the relationship between higher education and the delivery of its economic development agenda, which is something that this group strongly echoes. We also believe that a number of individual programmes have some merit. However, our view is that a number of structural flaws remain in the execution of policy, many of which stem from, we believe, a misunderstanding of how good ideas are developed into economic value. These flaws in approach, combined with weakness in experience of developing successful start-ups among the majority of people involved in the commercialisation process, result in the activity failing to reach its true potential. To correct this, as you can see from the report, we offer 10 recommendations that we feel would make an immediate and far-reaching, positive impact. The balance of the recommendations is equally directed towards internal action, where the majority responsibility lies with the Assembly Government, and actions aimed generally at higher education. In fact, you will notice that the first four in the report are actually focused on the Assembly Government.

[14] We are very happy to discuss any aspect of the group's work with you, including individual recommendations. I would like it made clear that when we were invited to join the group, we made it clear that this was on the condition that, so long as our recommendations were acceptable, we would be delighted to continue our participation in helping to develop and implement a programme of what we believe are splendid opportunities to create value to the benefit of the individual institutions, their staff and the wider Welsh economy.

[15] I would go on to say that, as a group, we are prepared to help in any way we can. If someone else has a better set of ideas—which is a challenge that we throw down—or if people think that these are not the right interventions, let them come forward with better ones and we will support those.

9.10 a.m.

[16] That is the written statement. We were all, unanimously, impressed with the wealth of good ideas and intellectual property that resided in our institutions. We would have an appalling problem if we had done this work and found that there was no value in our universities; in fact, it is just the opposite. I talked to Dr David Grant of Cardiff University, which, generating more than £100 million in commercial revenue, most of it in licences, you could say that it is doing okay but could do better. However, I went to four or five of the centres of excellence in Cardiff and found that they were stuffed with good ideas that were rotting on the vine. The same was true of Swansea—and Ken can offer some situations—and even Newport, where I have spent some time, and which specialises in television and film, was stuffed with a fantastic, unexploited back catalogue in media terms. So, that is the good news.

[17] The bad news is that we are not exploiting it, and we are leaving it too long before those who have commercial and financial expertise get involved in the creation of the idea. Much of how we fix this is aligned with getting people with the relevant expertise, either financially or commercially, to see the idea. That is important because most academics are not judged on third-mission activity; they are judged on publications, and they invent something that they think is really interesting. What then happens is that that idea is just put to rest. It takes someone to come in who might look at the idea and say, 'Well, actually, it has nothing to do with what you are creating here; the application is actually there'.

[18] We have made an investment in a company that span out of Swansea University. Originally, the idea was to use light to treat dermatological conditions, particularly acne. That

company is not in that business at all anymore; that business is creating the world's most sophisticated solid-state light engine. In other words, it is getting rid of incandescent light bulbs and replacing them with solid-state devices, which are programmable, have a pallet of 4 billion colours, and can be controlled in software. They can be used to illuminate buildings, to light up homes, and they have been used for all sorts of industrial applications, none of which has anything to do with skin. However, the academics were focused on the fact that there was a great opportunity to treat acne. That is okay, but the world needs the light, energy conservation and efficiency that you achieve through solid-state lighting. So, the company is now a publicly listed company on the London markets, with its expertise in industrial and agricultural lighting. That is a great example of an academic seeing one idea and commercial people coming in and seeing something quite different. The academic who was involved in the early days of that was, in fact, Ken, and he is still connected with the company, and advises it and provides input. Hopefully, Ken, you are worth a few bob more than you were when you started out.

[19] **Professor Board:** Who knows? [*Laughter.*]

[20] **Gareth Jones:** Thank you very much for that, Simon. For me to be absolutely clear, you were invited to undertake this review back in December 2006, were you?

[21] **Mr Courtney:** No. It was September 2006.

[22] **Gareth Jones:** So, over a period of how many months did you undertake the review, interviews and so on? Was it six months?

[23] **Mr Courtney:** The programme commenced in September 2006 and our report was submitted in the summer of 2007—from memory, I think it was in June 2007. I should add that we originally anticipated submitting our report late in 2006 or early in 2007. There was some delay for a few reasons. One was that it was at a time post the Assembly elections, where there was uncertainty about the formation of an administration in the Assembly. We also suffered some delay as a consequence of the late arrival of information that we had requested from the Executive.

[24] **Mr Gibson:** I think that Ian is being very polite.

[25] **Gareth Jones:** I think that it is certainly a point that we need to take on board, as to when the work was undertaken. It is still fresh—that is the point that I am trying to make.

[26] **Mr Gibson:** If I may be candid, I will tell you that I met the Minister and said, 'Unless the data are released, I may have to use the Freedom of Information Act 2000 to ask for it'. I did not want to be put in that position, just to ask for simple data to come from the Welsh Assembly Government. Clearly, some people did not want to release the data, which caused delays in the publication of the report. It has to be said that, once the report was published, it kind of fell into a big vacuum.

[27] **Gareth Jones:** That is why we have invited you back to join us. We appreciate and respect all the comments that you have made hitherto, and I am sure that there will be more to come. I will turn to the questions now, and the first is from David Melding.

[28] **David Melding:** I have to say that this is one of the most challenging, succinct and constructively critical reports I have read for a long time, not only in its implications for the Government, but some of my own assumptions have been quite fundamentally challenged. A few of us have already said that we should copy the model in California, or other examples from around the world, in applying ideas, and that somehow that would provide if not a quick fix, a sort of short to medium-term transformation, but your report says that that is just not the

real world. This is an important area, but we are looking at the medium to the longer term, and at cultural issues.

[29] The first point that I want to raise is one that you led on to, right at the end. I think that most of us would have been guilty of this: our idea of commercialising academic research is to have innovation, which gets worked up, a patent is registered, and then all that is needed is to take that innovation to the marketplace, where you would need the skills of entrepreneurs. However, what you are saying is that it just does not work like that at all. The innovation or the idea may not be remotely similar to the actual commercial application. I think that that is a very important point. If I have read the report correctly, you are saying that you want us to move away from a linear model of innovation. Is what you are suggesting sometimes referred to as ‘open innovation’? Do I have the terminology right or is that completely different?

[30] **Mr Gibson:** Let me give you an example. If you read what could be known as ‘commercialisation 101’, it would tell you to exploit technology in the way that you described: you create it, you patent it, you protect it and then you launch it. When Sir Terry Matthews and I started Newbridge Networks, we knew that the name of the game was to run fast. To give you some idea, I can tell you that, in that first year, we did \$17 million in sales, \$67 million in the second year, and \$121 million in the third year. It ended up being a company with sales of billions of dollars. When we sold the company, we sold it for \$8.6 billion. Now ask me how many patents we held.

[31] **David Melding:** How many patents did you hold?

[32] **Mr Gibson:** One. It was registered about seven years into the business. It is almost like harvesting fruit. That is the time cycle that you have in some technology companies. If you are wasting your time trying to absorb yourself, trying to protect your technology when you should be selling it, you will find that, by the time the patent is issued, the whole company will have been churned and the market will have changed. That is the reality of the business. In bioscience, it is slightly different, and I think that Mark should comment on that.

[33] **Mr Barry:** Simon makes a good point. In that sector, patents are important and timescales are longer—you are working with the pharmaceutical industry, regulation, and clinical trials. Intellectual property is important for securing investment, but I will mirror the point that Simon made: things change and it is not a linear process. The most important things in my experience are good ideas—knowledge and IP, if needs be—access to entrepreneurial expertise and networks of support from people who have empathy with the commercialisation process, and access to capital. Simply, they are the three most important things.

9.20 a.m.

[34] I think that, in Wales, there is access to knowledge and IP, but my experience tells me—because I have gone through the process of taking a piece of early-stage technology through from university, which is probably halfway along the journey to being successful—that there is not enough of a culture or community of entrepreneurs, risk-takers and people who have access to venture-capital organisations and good IP attorneys. We lack that kind of cultural and support infrastructure. With the best will in the world, the public sector cannot replace that, and it would be naive to think that it can. So, we could be nurturing the creation of ideas and IP while building the conditions under which access to capital and expertise is made easier; we need to build bridges.

[35] **Mr Gibson:** The sister location of our business, Wesley Clover, is Kanata just outside Ottawa in Canada. It is a good comparison, because Ottawa is around the same size as Cardiff as a capital city, so it is not like comparing it to San Francisco. In 1978, Kanata did



not exist. I suppose that it is the equivalent of a new town in British thinking. There are currently 88,000 people working in technology in that town. It did not exist in 1978, yet it has generated billions of dollars of wealth for the local community.

[36] The interesting thing about the situation in Kanata is that in 1999-2000 there was a boom. Money was pouring into the technology in the town from the US. There were venture capitalists awash with cash, throwing money at everything. Post 2001, there was the bubble that burst. The money fled, and there was nothing left. Looking at the statistics for that area, what would you expect business start-ups to have done? You would expect the number of start-ups to plummet because the money had gone. However, that number increased, because the support did not come from institutional venture capitalists, but from business angels and professional people in the town who had culturally and habitually learned that you could make more wealth from investing in these companies than from buying a villa in Tuscany, perhaps. I remember speaking to Cardiff business club, and asking the 250 people or so in the room—who were supposedly the great and good of our capital—how many had invested in local companies; the response was not a pretty sight.

[37] **David Melding:** I think that you have got to the heart of the matter, because I feel that I understand a bit of the system that you describe. Part of your solution is to get more entrepreneurs involved at a departmental level with these panels. That is still a bit of a structural approach. Why do you think that that would be different? I can see that it is different from having a commercialisation committee at university level, which meets quarterly and is detached from discussing the ideas in departments, but is that enough? Will that get us our cultural shift?

[38] My second question is on a different area. You criticised the technium developments in a polite but still quite pointed way, because they have tended to overemphasise the premises rather than the critical business support, which you say is not being delivered, in some places, by well qualified consultants. That is quite a striking thing to say, really. Will you confirm what your views are on that and how, at that level, we could get better business support from people who have had experience in the market of developing ideas into products?

[39] **Mr Gibson:** First, on the boards and advisory panels, please do not think that we recommend that those panels be applied to every department; we do not. We think that it is completely appropriate to scale that implementation depending on the institution. Following the discussions that I had with Newport—which, I am pleased to say, is already implementing some of these recommendations—this is done at a school level, because that is appropriate to that institution. At Cardiff, you would not want a commercialisation panel for the whole university, because it would be buried. It is more appropriate for Cardiff to do it at a departmental level, but it is not for us to prescribe to each institution how they do that. I think that they have more than enough brains and capacity to figure that out for themselves. The main thing is getting that enterprise and financial expertise as close as possible to the genesis of the idea. That is what we are recommending.

[40] **Mr Courtney:** I will be brief. The purpose of the panels is to emulate some of the principles that you see in some of the most successful regional economies across this planet, where spin-outs are de rigueur. Emulating the principles consists of intensifying the relationship at an appropriate scale between individual academics, perhaps their departments, and seasoned businessmen and businesswomen who probably have experience with start-ups—and Mark will have something to say on that. That provides access to two forms of capital: human capital and finance capital. Both are equally important when you are in a start-up situation.

[41] **Mr Barry:** If I may come in just to give an example from Q-Chip as I know all about

it and very little about anything else because I have been so engrossed with it. Before I started Q-Chip, after many years working overseas and in London, I spent a short period at the Welsh Development Agency in a technology and commercialisation role. What I was trying to suggest was a model from the PA Consulting Group; if someone came across a good idea, PA Consulting would back the person, let them run a company, give them equity, and fund and support the company to see whether it could make the grade.

[42] PA Consulting Group created a company called Meridica, which was sold for \$130 million to Pfizer about three years ago, so that was my mindset at the WDA. We carried out a scouting exercise in universities and there were many opportunities at Cardiff and Swansea. They were just ideas; they had good academics, potential markets and potential applications, but no-one was saying, 'I am going to give myself wholeheartedly and full of passion to this opportunity and drive it.' With one opportunity at Cardiff Jo, my business partner, and I said, 'We are going to do this with or without the support of the WDA because we believe that there is something in this.' We did not know exactly what, but we could see that the technology had potential and many applications. So we just dived in full bodied with 100 per cent passion, gave our jobs up and drove really hard to try to raise money and to build a business. It was that kind of drive, passion and enthusiasm, plus the fact that the IP was there waiting to be taken by someone, that made it happen.

[43] If you can put the opportunities within people's reach, they will jump at them as I did four years ago; they will let go of the safety net and go for it. Some will fail, but if you create the right conditions for people who want to build businesses, be entrepreneurial and take the risk—who want to show everyone that they can do this—things will happen. If those doors are closed or if there is too big a gap, you will have many clever ideas withering on the vine. That is what is happening now. Certain conditions need to be created, and the panels are a way of doing that, so that you are bringing expertise—not necessarily from around here, but from wherever in the world—closer to the IP. The biggest challenge within the universities themselves, are in the departments, on the laboratory benches. Confidence needs to be created by building networks with leading academics, heads of departments and the bright PhD students who are doing the work, and by building the links between those people and the access to capital and expertise. It is about trust, confidence, relationships, time and also having people in there who have empathy with the process.

[44] **Mr Gibson:** That is why they are called advisory panels, and why we avoided the word 'board', because 'board' has the connotation of governance—

[45] **Mr Barry:** Structure and formality—

[46] **Mr Gibson:** Yes, structure. These guys should be friends and advisers to these students, looking around and picking them out.

[47] **Yr Athro Board:** Diolch yn fawr, **Professor Board:** Thank you, Chair, for your Gadeirydd, am y geiriau. Dysgwyr ydwyf i, words. I am a learner, so I do not speak felly nid wyf yn siarad yn ddigon da yn y Welsh fluently enough to continue. Gymraeg i barhau.

[48] We have tried this panel thing briefly, and I am 100 per cent behind the panels, but it is a very hard process. We assembled one of the highest profile teams of four people, including the head of Corus tinplate and John Thyne, and they got nowhere. I am poacher turned gamekeeper in many ways because I was on the research side of the university until about 10 years ago when I looked at outcomes rather than at incomes. It was a hard process for two reasons. The first is that the university makes an automatic assumption that its IP is worth near infinity; it overvalues it extraordinarily and takes a long time to make decisions about it. We almost lost the investment in Enfyf two or three times because of that. Secondly,

the focus of academics is elsewhere.

9.30 a.m.

[49] ‘Target-driven’ is a common phrase but I am afraid that 99 per cent of what drives them—with 1 per cent being the teaching—is the research assessment exercise: ‘Get money in, do not care too much what comes out, publish papers, and then we will give you a 5\* rating.’ That approach brings money in. So the focus of academics is elsewhere. It is not easy to break down that barrier, however good these panels are, so that situation needs to be addressed.

[50] **Mr Gibson:** Another simple thing that could be done is for universities that have good business schools to better align those with the departments themselves. It is interesting that people create business schools but physically separate them away from the rest of the campus. That said, that is not the answer, either. People come to me to pitch ideas who have MBAs as second degrees but still do not know how to pitch a proposal, because they have never been taught how. We do not teach that in business school, believe it or not. We do not teach people at business school how to raise funds.

[51] **Gareth Jones:** As Chair, I ask people to now be brief, because we seem to be really getting to the crux of the matter. Members are enthused; quite a few want to come in on this specific point pertaining to what I think David called the ‘cultural shift’. With your understanding, Members, I am allowing this line to continue as it represents a major part of our work, and we need to understand what is ongoing in this regard. It may be that the general course of questions will have to be limited, because we have a good half an hour to go. However, on the understanding that others want to come in on this specific point, which is vital to our review, David, do you want to follow anything up?

[52] **David Melding:** No; I have had a fair crack at it.

[53] **Mr Gibson:** Chair, would you like us to have a quick crack at techniums?

[54] **Gareth Jones:** That would be fine. That is the other side. So, we will just deal with the techniums first, and we will then follow up with the other questions.

[55] **Mr Gibson:** I would like Ken to talk about the techniums, because he was one of the guys who came up with the idea originally. We are not critical of the original concept of techniums; to align those support services in a state-of-the-art facility with the outflow of ideas and intellectual property from a university, we think, was an absolutely worthy idea. It somehow got lost somewhere along the line, and it became a property play as opposed to an intellectual property play. That is where we are coming from. Ken, would you like to say something?

[56] **Professor Board:** For my sins, I was one of the instigators. We presented the ideas with the WDA, as was, and we then put the case to Andrew Davies and the First Minister. From that came the programme. The original idea was not in any way a property initiative. The idea was that we would link a university with resources, such as research and, above all, clever students who, for me, are the best resource we have—not the research—with the WDA, which was extremely good. Our experience at Enfys is that the WDA provided resources, grants, business support and premises; we have tapped into them all, and I cannot fault them. Then, there is the private sector element to form a partnership to provide the environment for companies to start and to grow. So, on the one side, you have the infrastructure support, which the agency was to provide, and on the other side, you have the deal flow. That was the original idea, and what you need is a balance between the two. If anything, the accent should be on deal flow, because we would prefer to have 10 thrusting

young companies with nowhere to go, because you guys will find room for them—local authorities will find the space if they are demand-driven—than to have 10 empty rooms with no-one to occupy them.

[57] However, it became a property initiative. Without wanting to castigate my own organisation, in a sense, the university's focus was elsewhere at that time. If you asked, 'What about deal flow?' it was not an issue for the university. I would be told, 'It's not part of our brief.' So, there are isolated examples of success in the technium programme. Let me tell you what the demand really was. It was not a matter of filling 10 centres with, say, 15 units in each, making 150 units. It was not just a matter of filling them—they are not filled today. Some of them are largely empty while others are quite full. The real concept was to have a flow of companies setting up in the centres, staying for two to three years, moving on into the community and becoming large, and the centres then being replenished. That is far more demanding than just filling them. So, do not criticise them just because they are not full; the real issue is whether there is a flow through. Otherwise, why have small companies occupying little units—they will not do anything for the GDP.

[58] **Mr Gibson:** One other thing that is worth saying is that you need to ask the question, 'Full of what?', and I say that in the politest possible way.

[59] **Professor Board:** The quality of the company is paramount.

[60] **Mr Gibson:** From my experience of visiting all the techniums in Wales, I have found that a good portion of them are occupied by public sector bodies.

[61] **Gareth Jones:** I invite Members now to follow up on this very important issue.

[62] **Alun Cairns:** I thank you for your paper, which presents an excellent set of clear recommendations that any government would be foolish not to adhere to and follow through. In general terms, how well has your report been received and how can we support the delivery of so many of these objectives? My second point relates to the culture and what we have been talking about. Some of us have just returned from Massachusetts where we had the opportunity of visiting a number of colleges and universities. One of the universities that impressed most upon me was Massachusetts Institute of Technology, where entrepreneurship is pretty central to its culture. However, the most important and overriding thing was technology. Technology was the be-all and end-all, but entrepreneurship was a strong element that was encouraged, supported and facilitated in addition to the technology elements. How can we better create that culture here in Wales? I am not saying that MIT needs to be rubber-stamped and created here otherwise we would be in the same situation as with the technium, which worked very well in Swansea and we then just tried to repeat it everywhere else.

[63] The other point in your recommendations relates to the advisory panels. Again, there are strong parallels with what goes on in some of the colleges that we visited in Massachusetts. Loyalty from ex-students, who are now very successful businessmen, is drawn upon in order to share and create the entrepreneurship culture that exists within the technology framework. They held a competition that, without doubt, influenced the students heavily. It is only a small thing that I do not want to overstate, but it demonstrated the way that they are constantly focusing on entrepreneurship, commercialisation and the development of products.

[64] It is a very high profile competition, whereby students—and, as long as one student was tied in to the university, there was no limit on the number of outside businesspeople involved—competed to win \$200,000, together with the complete support to develop and commercialise the concept. All of the students appeared to be in the game to win that competition. I do not want to overstate it because there was probably just one winner every

year, or every now and again; I am not saying that everyone was a winner, but it was about the culture that that kind of competition generated. Is that the kind of thing that we should be looking at? It would be something small. What else could we be looking at?

[65] **Mr Gibson:** On the timing, it was a very long time coming. The report definitely fell into a hole; I do not quite know why, but it did. However, it was picked up by James Price. We had a meeting on 23 January this year where a number of undertakings were made across the departments to take it forward. It also coincided with a meeting with the Deputy First Minister, who was very supportive of the report and we are waiting to see whether those things come into force.

[66] **Alun Cairns:** What you have said is important. Are you suggesting therefore that some Ministers or officials are not as supportive as you would like them to be?

[67] **Mr Gibson:** I would not say that it was Ministers, but perhaps officials.

[68] **Gareth Jones:** That issue is for another day. I am not disputing that it is an important issue, but I am keen on the culture aspect and others wish to come in on this specific issue. Alun has referred to the visit to the States, and we appreciate that we can get some feedback. We would welcome your views. I know that Jeff and Janet's follow-up questions are also along those lines.

9.40 a.m.

[69] **Mr Gibson:** The second issue is what you saw at MIT. MIT is what it is not just because of the institution itself; it is also about the community generally, which is engaged with the institution. If we want an MIT, we need to engage the community as a whole. There is a vibrant venture capital community in Boston. A huge number of technology companies interact with the institution and benefit from the intellectual property that flows out of it. I will just give you another example. We do a lot of work with the University of Waterloo in Ontario. Waterloo university is Canada's Massachusetts Institute of Technology, like Britain's Imperial College London. The three of them are always compared. A lot of science and wealth have been created through Waterloo university. For years, we have unashamedly top-skimmed the best students out of that institution and they have gone on to build our companies and companies such as BlackBerry—you know, the one that does the little phone device. It is a hugely successful university in terms of creating value, although it is relatively small.

[70] We came up against a problem recently in that we were no longer able to get the best students. The best students were being taken by Google and Microsoft, which had realised how good everyone was at Waterloo and were going up there offering vast amounts of money to students. An intern student, for a summer, was being paid \$58,000, plus a car, an apartment and return flights to San Francisco. You just cannot compete with that as an incentive. Terry and I sat down and we came up with an idea that was slightly different. Our variant on that is a competition, which we have done for the last three years, and I am pleased to say that we have kept it under the radar. For those three years, that experiment has been done in Wales.

[71] We took a number of students and we did a version of *The Apprentice*, with a twist. There was no publicity, no media and no job at the end, but we have a company. We would take the students on board and they were sent to Canada. Between us here I can tell you that they actually lived in Sir Terry's house for six months with him, which is real mentoring. Imagine the opportunity to live with Terry for six months. They were mentored and taught entrepreneurial skills—they were already graduates in engineering, science and technology, with the exception of a few who were business graduates. If they were successful in getting through the programme, they got a company. The first company to graduate out of that

programme, as a successful competition winner, is now based in Monmouthshire. Every year, we take a new intake of students. Last year, we took students from Canada, the US and Wales. This year, we are adding the United Arab Emirates into the mix.

[72] Is there an appetite for that type of thing? Absolutely. Imagine, every year, we create four new companies out of graduates. We mentor and nurture them, look after them, and fund them. Imagine if a whole bunch of corporations—say our top 10 corporations in Wales—were to do that. Every year, there would be 10 new companies and if they did it on a larger scale, there would be 40 new companies, all associated with universities, all being properly nurtured and mentored. We could transform the economy pretty quickly.

[73] **Professor Board:** Chairman, you mentioned cultural issues and people from MIT. There is a fundamental difference between them and us. They held a dinner last year—a member of our staff at Swansea graduated from there many years ago—and they raised \$150 million, that evening, from their alumni. That is a strong base. If you were to do that in Swansea, I guess that you would raise a few quid, if you were lucky. We do not use our alumni base to the same extent as the Americans do and that could give such a strong base because alumni are people who would like their money to be used for the very type of thing that Simon has been describing.

[74] **Mr Gibson:** Please indulge me and allow one more anecdote. A friend of mine, Dr Kim Clark, used to be the head of Harvard Business School. He came over here last summer and, when he was with me, I asked him what had brought him to Europe, apart from wanting to play golf at the Celtic Manor—he is a keen golfer. He said, ‘I am on a fundraiser; I have to raise \$500 million for a new building in downtown Boston’. I asked the usual questions, such as, ‘How are you doing?’ and ‘When did you start?’. He said, ‘I started in January’. It was then June. I asked how he was doing and he said, ‘We are done; we have raised the \$500 million and we are now raising surplus funds’. My next question was, ‘How did you do it?’. There was a one-word answer and I think that it is key to the success of what we are trying to do. They understand goodwill. His answer to the question was simply, ‘Ask’. I think that, in Britain, we are very reluctant to ask people. I know that there is a huge amount of pent-up goodwill in the business community and people who would accept those invitations if the institutions would simply ask.

[75] **Mr Courtney:** I have one further anecdote. Sorry, we are overcrowding you with anecdotes at the moment, but I hope that you find it entertaining and it may be of some value. When the research was being conducted, particularly the interview programme, we came across a guy, Stephen Allott—in fact he is referenced in the written evidence—who is a fascinating man. He had been instrumental in the development of a company called Micromuse—he had been hired in a pub in south London. Stephen Allott was an alumni of Cambridge university, so when Micromuse, the company he had helped to develop, had been sold, the university called him back to the department of computer science to help them and to access his mentoring skills. He agreed to return. He told me that he was really fascinated by what we are trying to do in Wales and when I asked him why, he said, ‘Because this has deep implications for regional economic development agendas, and do you know what? No-one has ever asked me to get involved in that sort of stuff’. I thought, well south London is not too far down the M4 to Wales.

[76] **Mr Gibson:** I have been asked to put an advisory panel together for Newport, which is creating an institute for advanced broadcasting. Of all the people whom I asked, I only received one refusal and that was because that person was swamped. I asked people such as the chief technical officer at Vodafone, and one of the chief people at News Corp, ITV. I was not just concentrating on Cardiff, but was asking, on a global basis, if people would like to get involved. There is a cachet for businesspeople to be associated with such entities, but we never ask.

[77] **Gareth Jones:** It is also a question of who to ask, is it not?

[78] **Janet Ryder:** Like Alun, we have all come back with radically different ideas from those that we went away with. However, before we went there, we went to see the White Rose University Consortium in York. What I liked about its approach, which might transfer to Wales, is that it has combined a number of universities' resources. The White Rose University Consortium brings Leeds, York and Hull universities together to share resources. In that sense, business development has been put into the university, which overcomes one of the problems that you raised earlier. Business development is at the heart of the university and is taught across every department in that university, it is not just restricted to the business school. Is it possible to develop that kind of culture here?

[79] The other aspect that struck me from America—and again, you have touched on this—was how we perhaps give our students the knowledge, but do not teach them how to use that knowledge. That teaching can only come from the networks and mentoring programmes that you talk about. We heard a presentation from a young lady who was in her second year at university. During the first year, all the students have to take part in a programme whereby they have to develop a company and provide pictures every week and develop the programmes to go with those. Are we doing anything like that in Wales and, if not, would it be a good idea to pursue that and how would we go about doing it?

[80] **Mr Gibson:** Certainly the answer to your first question is, 'Yes, it can be done here'. Is it being done? Not particularly well. One of the problems is that there is no room in a curriculum to teach entrepreneurship. It is not even being taught properly in business school, so how do you expect engineering students to do it? However, I find it curious that with the exception of a course that I think that Ken has taught at Swansea—and you might want to comment on this, Ken—you cannot study entrepreneurship and business if you are an engineer with an accredited course. So, it tends to be stuff that you can do at an entrepreneur club in the evening. For heaven's sake, I cannot believe that in three years we cannot fit in one course in entrepreneurship, because I have a son who is at university in the United States and he is being rammed with the stuff constantly as an option to study. I think that it is virtuous to do that.

[81] **Professor Board:** As part of the original point about technium and deal flow, which is where my passion is, because I think that we have the resource in the student base, in 1994, we started a course in entrepreneurship, which was a Masters, taught in a two-week module. I have taught it for 14 years and now that I am retired, I am still teaching it. I am staggered every year by the quality of students. I am talking about a course of only two weeks. On the Monday of the first week, they do not know what entrepreneurship is—they cannot even spell the word. By the end of the second Friday, they are giving business-plan pitches à la *Dragon's Den*. We have a bit of fun whereby I say that I will give them £50,000 for such and such of equity—there is nothing real at the end of it, but every year I am staggered by the quality of the ideas. These kids are up until 2 a.m. writing business plans, they are talking to their banks and they come in dressed well.

9.50 a.m.

[82] There is no follow-up at the end of the module; the Business School at Swansea and no-one else had never considered giving it, but, after 14 years, I asked the vice-chancellor whether he would like to take the module as an elective across the campus, to which he replied, 'What a good idea.' So it is belated. I was head of electrical engineering when I brought in this module, and I had the most work in the world to persuade my colleagues to have one module, because they said it would weaken the curriculum. That is the argument that you get; it is not easy to do, but if it comes from the top then it could happen.

[83] **Mr Barry:** I know that this sounds cynical, but you can train, enthuse and encourage, but not everyone can be an entrepreneur. I had to go through the experience of giving up my job, having no income, working for 60 or 70 hours a week, getting knocked back, having sleepless nights and having my family wonder what I was doing all of the time. Those are the kind of things that you need to be able to accommodate to drive something to the point of success. What we can do is create the conditions whereby those who are able are trained and have skills given to them and are brought into contact with people who are doing it and have done it in order to share that experience and to show some empathy. I have been to the University of Wales Institute Cardiff a few times to talk to a class for an hour about my experience. It is quite enthusing to get a different view, and not just about writing business plans, cash flows or marketing. They are fundamental aspects of running a business, but are not the key—the key is personal and emotional commitment, and you as an individual, and whether you have what it takes. I try to encourage them not to doubt themselves and to make the leap.

[84] On the culture, and building networks, Q-Chip is a small company, but we are commissioning work and doing projects with students at Cardiff University and we are employing people from the school of life sciences, so there is already a network building up. Students think, ‘I can go to work in Q-Chip, it is an entrepreneurial company, I might run a department there’. If there were 25 Q-Chips in 10 years’ time, all worth £10 million and with the prospects to go forward, that would be a magnificent achievement. So, I support the course and I support education, but, at the end of the day, not everyone can be an entrepreneur. We need to put entrepreneurs in touch with those who can be.

[85] We get hung up in Wales about losing our skill base and the fact that people go to England and overseas to work. Let them go to the rest of the world, let them go to work in London, in North America and in Europe, and find ways of encouraging them to come back. I left Cardiff when I was 18 and I was away for 20 years; I worked in Manchester, London, Milan and the United States. People ask me why I came back to Cardiff, to which I reply that something drew me back and that I wanted to come to do something here. I wanted to help and to demonstrate that the skills that I had picked up on the way could be used here, and so I created a company. That is what we should do.

[86] **Mr Courtney:** I would just like to make one brief observation on public policy regarding entrepreneurship in Wales. We will all have seen advertisements branded by something called the entrepreneurship action plan over the years, which, to me, seemed to set up a very false set of expectations, because they suggested that anyone could become an entrepreneur. You have to be a slightly difficult, ornery and maybe dysfunctional kind of person sometimes to be an entrepreneur.

[87] **Jeff Cuthbert:** Like politicians [*Laughter.*].

[88] **Sandy Mewies:** Quite a few of my questions have been answered, because you came to the crux of the matter in your introduction. The first thing that I wanted to say, Chair, is that we need to know where the review is. I do not know whether other people think that, but we need to know where this review is and what is happening to it, in a written response from the Minister or whatever.

[89] **Gareth Jones:** Others have alluded to this, and the Minister is attending next week—

[90] **Sandy Mewies:** He needs to know—[*Inaudible.*]

[91] **Gareth Jones:** Absolutely, so I think that we can leave that this morning, given the time constraints.



[92] **Sandy Mewies:** That is exactly what I was saying. Before I ask my questions, I wanted to know that we will have a response, but the Minister needs to know that we are going to ask about that, or he will not have the answer.

[93] **Gareth Jones:** Fine, we will do that.

[94] **Sandy Mewies:** On what you said about alumni, I am not sure how you could build up that ethos here. I was involved with Yale University in America on something that it did in an area where I was working, and it raised \$3 million in no time for a cultural tour, with no difficulty at all, and it would be great if we could replicate that here. I take your point that, unless you ask, you do not get.

[95] I also take your point that not everyone is an entrepreneur, but you can teach them to use the tools, can you not? If you have that spark inside you, you can be shown how to use the tools to make use of it. I am not sure, from what you are saying, that we are actually giving people the tools anyway, particularly in the business schools, which is surprising. I thought that you made a very good point, Professor Board, about the difference between an academic focus and what you need to do to ensure that, rather than rotting on the vine, a good idea is sent out into the market. You have come up with these very interesting advisory panels—my first thought was, ‘Why would you want to be on it?’.

[96] **Mr Gibson:** It is an honour.

[97] **Sandy Mewies:** You have given me the answer, but the first thought that came into my head was to ask why would people who are successful in business want to give up their time to be doing this.

[98] **Mr Gibson:** Do you know what? Despite what people say about businesspeople, some do have a conscience, and some want to put something back. There is no doubt about that at all.

[99] **Sandy Mewies:** I accept entirely what you say. That is what came into my head, and you came up with the answers. You are also saying that there should be some financial support and financial implications.

[100] **Mr Gibson:** I sit on the board of regents at a small college in Oxford—in fact, it is the smallest of all the colleges at Oxford, and it is only for mature students. It was pretty much bankrupt. It had about three students in the college several years ago. It is called Harris Manchester College. It is now a vibrant little college. I thought that the principal performed an act of genius in that he formed this board of regents—and American term—and he appointed 12 people to it. Two of those were from the UK, and 10 were from the US. I have sat in regents’ meetings and seen, personally, at least £3 million committed because the principal asked for money. One guy said, ‘Look; I am fed up with the state of the endowment fund. It needs to be properly funded. I will give you £1 million’, and another guy said, ‘I will give you £1 million’, and he said, ‘I’ll give you £100,000 for every year I live’. ‘As a cleric’, he said—he is a senior cleric in the Methodist faith—‘You better pray I live a long time, so I give you a lot of money’. He has injected that culture into his institution, and now he is introducing more British members to the panel, and he is perpetuating that culture.

[101] **Professor Board:** May I just say how you could incentivise that? This is a private view, so it is not in the report. The university’s focus, as I said, is elsewhere, and it is very strong. The one way of incentivising it, to get this sort of thing happening and getting the vice-chancellors focused on it, is by cutting their base level of third mission funding to 10 per cent—a very low base level—and then offer a financial incentive so that for every £1 they

create out of their intellectual property, we will match it with £1, or whatever. They will then focus on getting that, because there is a financial incentive for them to do so. The research assessment exercise works because of that. If the money comes in to the institution from its success in that regard, then no money comes in to them from this other area, and they therefore ignore it. I am sorry that I cut across you there.

[102] **Sandy Mewies:** That is okay because, somehow, all the questions that I have to ask are being answered anyway. We should just let you talk.

[103] **Mr Gibson:** I have one other point to make quickly about the culture. As I mentioned on the radio this morning, this report is not about taking brilliant academics and turning them into mediocre managers. Often, with third mission, people ask why the academics do not start businesses. That is not their job. Their job is to create the science. There is a virtuous position for an academic as a non-executive chairman or director of a company, allowing others to come in and commercialise it. I have sat with the head of engineering at Cardiff, and he desperately wanted to do it, but he knew that if he were to engage in this third mission, he would somehow be betraying his responsibilities to the university. So I sat down with him and told him, 'Forget that. Be a non-executive; it is really good. Get the other guys to do all the work, and you just encourage and nurture them, and push them forward in making sure that you help them with regard to the technology'.

[104] **Sandy Mewies:** On the advisory panels, taking on board what you said, you say that the Assembly Government should support them financially. How do you see the relationship between the Assembly Government and these panels? One of my fears—I think it is what happens now, in many ways—is that bureaucracy would smother ideas instead of encouraging them. I am interested in knowing how you see this relationship?

10.00 a.m.

[105] **Mr Courtney:** If I may, Chair, I will respond to that. There are two points to make. The first one, which is important to lay out, is that we do not anticipate these panels having any governance responsibility. Universities have a long history of independence, which is totally admirable and should be protected, and we do not see the role performed by members of the panel as having any accountability. They are there to provide advice, to interact at an individual level with departments, academics, research students, and the technical staff who work within universities, who are very often overlooked, though they often have great expertise and skills.

[106] With regard to your question on where the interaction with the Welsh Assembly Government would be, frankly, we think it would work best when there is minimal interaction, because we have drawn the conclusion that some of the most well intentioned ideas—and we all know what the road to ruin is covered with—have been executed wrongly because solutions for a problem have been sought from a top-down level. The Assembly funds the operations of these panels, and, quite frankly, we do not see that costing significant sums of money. What kind of expenditure would they fund—operational expenditure and travel expenses among other things. Then, subject to legitimate rules of accountability and transparency in the expenditure of that money, and, subject to an agreed set of deliverables to ensure that there is value for money and that the money is properly spent, they would stand back.

[107] **Mr Gibson:** Our report identified 249 people employed by the Welsh Assembly Government for the commercialisation of intellectual property in higher education. A question that I posed to the meeting of the vice-chancellors was, quite simply, this: do they feel the effect of 249 people creating value for them? You know what the answer was. You could take a fraction of that cost and support the recruitment of world-class advisory panels,

and I rather suspect that they would increase the output 10 times on the 249 people who are currently trying to do it and failing.

[108] **Mr Barry:** Just to give you one other example, Cardiff University has, over the last 18 months, engaged with Biofusion to manage its intellectual property portfolio, which is a great step in the right direction in terms of cultural change, but also in terms of access to equities and capital. So, this is not a case of one size fits all. That model is the basis of a good way for Cardiff University to progress. Four years ago, there was no access to capital at Cardiff University or access to expertise beyond the commercial office. Now you plug into a group of individuals and organisations that have access to many venture capitalists, experts and entrepreneurs who have done that, and that is now beginning to filter in to Cardiff University. The next step is to build a bridge between that organisation and what is happening on the ground in the university so that the ideas can be exposed to those who can exploit them. Before we beat ourselves up, things are happening. I have seen progress in four years in Cardiff University. It is about how we encourage that, with the panels and other initiatives, to keep that going and build a culture of environment that supports entrepreneurship.

[109] **Gareth Jones:** I remind Members that Biofusion will be before the committee on 7 May; that is a point worth making.

[110] **Mr Gibson:** However, one of the issues with Biofusion is that they are bioscientists. So, we must not think that, because Cardiff has put that association in place, it does not need to worry any more. I guarantee that Biofusion will not be doing too many deals in telecommunications, physics, solid-state lighting and other environmental areas, because it consists of bioscientists. That suits Cardiff's history, because the majority of the wealth it has created is from life sciences and bioscience.

[111] **Alun Cairns:** Bearing in mind that there would be a huge influence on their activities as well, how have the vice-chancellors accepted it?

[112] **Mr Gibson:** We presented to them in Bangor. You were there, Ian. What was your take on it?

[113] **Mr Courtney:** Vice-chancellors do not tend to get enthusiastic. It may not be in their genes. I would say, however, that they are fully supportive. If you were to talk to any of them privately, I would say that they would—

[114] **Gareth Jones:** Okay, thank you. Alun, we have to move on. Jeff has been waiting rather patiently.

[115] **Jeff Cuthbert:** Thank you for this report; it has certainly been an eye-opener. It is a shame that we did not have this report before we met with the various vice-chancellors, because, quite frankly, issues have been raised here that I would have wanted to put to them directly. Also, there are issues in this report that I would have wanted to put to the Confederation of British Industry and the Federation of Small Businesses when they came before us, because I sensed that there was not massive enthusiasm from their side either, as organisations, in terms of working with higher education. There may be a lesson for us in that, as to who we should approach to try to drive this forward. The points that you are making are highly relevant and very important.

[116] Building on the point that Janet mentioned, some of us visited the Science City in the University of York a few weeks ago and there we saw the tremendous impact of not only spin-outs, but spin-ins, from the partnership between the university, City of York Council and local businesses. They were very proactive. There is not anything like that in Wales, but there are another four or five to be developed in England, including one in Bristol, which is just

over the bridge, so it will have an impact here. I wonder if you want to comment on the Science City initiative. You may have already done so in part—I think that you probably have. There is an issue here concerning critical mass because Cardiff University is a big institution, but the rest are pretty small in comparison, certainly in terms of our English neighbours.

[117] What about the attitude from the other side? You have been critical of the HE side, which I can understand, and the Assembly Government to a degree—they were fair comments—but you are saying that businesses are ready to engage. Are you absolutely confident in that regard? For example, how many key businesspeople with the right acumen are being offered secondments into higher education to help to drive this programme forward? What we want is a partnership, so that it works and delivers for the economy of Wales and provides employment across the board.

[118] **Mr Gibson:** I have had some absolute nightmare engagements with higher education, I really have. I have been begging to do a deal with a vice-chancellor and it has taken me nine months to get it done. I think that it is down to two things: one is a fear of failure, because if you do it very rarely, when you do it, you are pretty scared about it, and when the Government is telling you that it is a really important thing, it is an issue. The other thing, in answering your question about engagement, is that for the business community to engage with the university, the university has to understand the situation. We need a cultural coming together. It is no good going to talk to a crazy academic. You do not put crazy academics in front of businesspeople because it would be a short meeting.

[119] **Professor Board:** Thank you for that compliment, Simon. [*Laughter.*]

[120] **Mr Gibson:** I also think that there is often a huge misalignment with value. An academic institution is unrealistic in terms of valuing what it has got. The bottom line is that a piece of technology is worth what someone is prepared to pay for it. A university may say, 'We will engage with you, but we want £1,000 a day for you to talk to this chap and it is worth £10 million', but it is actually only worth what someone is prepared to engage with them at. You hear the business community criticise higher education because it says that it is not realistic. Again, I think that if advisory groups are engaged in their ecosystem, they can bring that sense of reality. Okay, it might not be worth a lot, but rather than the university holding out for 70 per cent of the equity in a new company, it may be worth it for the university to say, 'Actually, we are happy with 20 per cent'. Twenty per cent of Newbridge Networks, worth \$8.6 billion when you sell it, is worth having, but 70 per cent of the winky wank company, which is worth 50p when you sell it, is not particularly worth having. That injection of reality is something that has to happen for us to properly engage together.

[121] **Gareth Jones:** The final question of this session will be from Kirsty.

10.10 a.m.

[122] **Kirsty Williams:** I do not know about nightmare meetings with higher education, Mr Gibson. I suspect that you scared the hell out of them when you did meet them. When did you present your report to the vice-chancellors?

[123] **Mr Gibson:** It was in September 2007.

[124] **Kirsty Williams:** I think it would be fair to say that, in our meetings with the vice-chancellors, none of them has raised any of the issues that came out of this report. Although they may have been enthusiastic privately, none of that was reflected when the V-Cs came to committee, since your report was presented to them.

[125] The most valuable lesson that this session has taught me is one of the culture in the Assembly, given that it has taken this long, since the publication of this report, to have it come to the surface for us to have this kind of discussion. If we are not prepared as a Government or as an institution to pick up these ideas and run with them, we have no hope of convincing anyone out there to do the same.

[126] Have you been approached by anyone from the Department of Children, Education, Lifelong Learning and Skills or the Minister for Children, Education, Lifelong Learning and Skills to talk about your work?

[127] **Mr Courtney:** We had a number of meetings with senior officials, which included the senior official in charge of higher education policy for Wales in DCELLS, so the answer is 'yes', but we had no meetings at ministerial level.

[128] **Kirsty Williams:** On Sandy's point, I think that we need to get the Minister for education to meet you.

[129] **Mr Courtney:** We have had one meeting attended by the chief executive of the Higher Education Funding Council for Wales, on 23 January.

[130] **Mr Gibson:** Are we in a situation where I can say—

[131] **Kirsty Williams:** You can say anything you like.

[132] **Mr Gibson:** Are we? Is this being broadcast?

[133] **Kirsty Williams:** Yes, and reported.

[134] **Mr Gibson:** Okay, so I cannot say anything off the record then. I will say it anyway. This process has not been a great experience for me, because it has taken a lot of time and has been frustrating, and I think that it is worth putting that on the record. I am not saying this to try to draw sympathy, but I think that it is a slightly poor showing that—how long has the report been out now?

[135] **Mr Courtney:** The report was published in July 2007.

[136] **Mr Gibson:** The report has been out nine months and no-one has even written to say thank you for compiling it. I do not need to remind you that we did this in our own time and at our expense. If I were to charge you the rates that I would expect to charge commercially, it would have cost a lot of money. So, that is a little disappointing. It is probably indicative of the fact that, for some reason, this is not popular, or it is seen as a threat or a challenge.

[137] **Kirsty Williams:** It is challenging and threatening to people whose job it is almost to maintain the status quo whatever happens in political circumstances. Their job almost always is to protect the status quo, to business as usual, and to dampen things down. That is what gets me frustrated about this blinking place, after nine years of devolution. We have not changed that culture of people who are no doubt hard-working, but there is an in-built consensus and—

[138] **Alun Cairns:** It is like *Yes Minister*.

[139] **Kirsty Williams:** Not even *Yes Minister*, because I think that the Ministers are often equally frustrated that there is that culture.

[140] **Gareth Jones:** Rhaid i mi ddod â'r **Gareth Jones:** I must bring this part of the

rhan hon o'r drafodaeth i ben.

discussion to a close.

[141] **Kirsty Williams:** But this is the most fun we have had in ages.

[142] **Mr Courtney:** I have been banging away at this stuff now for nearly 15 years, trying to effect some change, as have my colleagues, from the outside. When we are asked to do these things in our own time—and we are extremely busy and are involved in many things—do you not think that we sit down sometimes and wonder why we bother?

[143] **Gareth Jones:** Hoffwn ddod â'r rhan hon o'r sesiwn graffu i ben gyda rhai sylwadau. Yr wyf yn ymwybodol ein bod yn delio ag agweddau hollbwysig—hanfodol, o ran cyfraniad economaidd addysg uwch. Yr wyf hefyd yn ymwybodol bod sylw wedi'i roi i amseru eich adolygiad o ran faint o amser sydd wedi mynd a pha ddilyniant, os o gwbl, sydd wedi bod.

**Gareth Jones:** I would like to bring this part of the scrutiny session to a conclusion. I am aware that we are dealing with vital aspects—essential, as far as the economic contribution of higher education is concerned. I am also aware that consideration has been given to the timing of your review in terms of the time that has elapsed and what follow-up there has been, if any.

[144] Yr wyf hefyd yn ymwybodol nad y Gweinidog dros ddatblygu'r economi yn unig a ddylai fod yn rhan o'n trafodaethau, ond hefyd y Gweinidog dros addysg, a chynrychiolwyr addysgu uwch, sy'n hollbwysig, a HEFCW hefyd. Cawn y cyfle i drafod hyn gyda'r Gweinidogion, HEFCW a hefyd yr is-gangellorion, a chyfeiriodd Jeff yn sicr atynt hwy. Bydd rhaid inni eu hail wahodd i sicrhau ein bod yn medru cyflwyno'r holl bwyntiau pwysig yr ydych wedi'u tynnu at ein sylw.

I am also aware that not only should the Minister for economic development be involved in our deliberations but also the Minister for education, and representatives of higher education, which is vital, as well as HEFCW. We will have an opportunity to discuss this with the Ministers and with HEFCW. You referred, especially Jeff, to the vice-chancellors, who will also come back to us. We will have to re-invite them to ensure that we can present all the salient points that you have drawn to our attention.

[145] Derbyniaf y pwynt yr oedd Kirsty yn ei wneud o ran ei rhwystredigaeth. Mae elfen o hynny, ond hoffwn bwysleisio mai ein rôl ni, fel pwyllgor, yw ceisio newid pethau. Yr wyf yn siŵr y byddech yn cytuno ein bod yn gwyntyllu pethau sydd o bwys. Gwneir hynny yn gyhoeddus, ac mae i fyny i Lywodraeth Cymru i ymateb. Ein bwriad yw sicrhau'r ymateb mwyaf positif er lles a daioni Cymru.

I accept the point that Kirsty made about her frustration. There is an element of that, but I would emphasise that our role, as a committee, is to try to change things. I am sure that you would agree that we are giving important matters an airing. That is done in public, and it is up to the Government of Wales to respond. Our aim is to ensure the most positive of responses for the benefit and wellbeing of Wales.

[146] Simon, cyfeiriasoch at y ffaith ichi roi sylw ac amser i hyn heb gael y gydnabyddiaeth yr oeddech wedi'i disgwyl, efallai. Gallaf ddweud wrthy, o'r gadair hon, fodd bynnag, ein bod yn gwerthfawrogi'r gwaith da yr ydych wedi'i wneud—sy'n chwyldroadol, hyd y gwn i— a'r ffaith eich bod wedi dangos y ffordd ymlaen i ni, y pwyllgor. Bydd yn brawf i'r sefydliad hwn inni drosglwyddo'r hyn yr ydych wedi'i gyfleu i ni, drwy'r pwyllgor, wrth greu'r adroddiad, ac i drosglwyddo

Simon, you mentioned the time and attention that you had devoted to this, without getting the recognition that you had expected, perhaps. However, I can tell you, from this chair, at least, that we appreciate the good work that you have been done—which is revolutionary, as I understand it—and the strong lead that you have given us, as a committee. How we transfer what you have conveyed to us, through the committee, in drafting a report, and translating that into something operational in Wales will be a real

hynny yn rhywbeth gweithredol yng Nghymru. Yr ydym oll yn ymwybodol o'r her a mawr obeithiaf y gallwn ymateb i bryderon Kirsty.

test for this institution. Everyone here is aware of that challenge and I very much hope that we can respond to Kirsty's concerns.

[147] Diolchaf i chi, o'r gadair, ar ran yr Aelodau. Bu'n sesiwn llawn adloniant ac yn sesiwn ddefnyddiol, ac yr ydych wedi ein tywys tuag at rywbeth chwyldroadol. Amser a ddengys, a chawn weld pa mor barod ydym yn y Gymru ddatganoledig i ymgymryd â'r her yr ydych wedi'i rhoi gerbron. Diolchaf yn fawr i chi am eich presenoldeb, a dymunaf y gorau i chi yn y gwaith hollbwysig yr ydych yn ei wneud. Diolch hefyd am fod mor barod i rannu eich arbenigedd â ni yn y maes hwn. Gwerthfawrogwn hynny ar ran pobl Cymru.

I thank you, from the chair, on behalf of Members. It has been an entertaining and a useful session, and you have taken us towards something quite revolutionary. Time will tell, and we will see how ready we are, in devolved Wales, to accept this challenge that you have given us. I thank you for your attendance, and wish you all the best in the crucial work that you are undertaking. Thank you also for being so willing to share your expertise in this field with us. We appreciate that on behalf of the people of Wales.

*Gohiriwyd y cyfarfod rhwng 10.17 a.m. a 10.22 a.m.  
The meeting adjourned between 10.17 a.m. and 10.22 a.m.*

[148] **Gareth Jones:** Croeso i ail ran y sesiwn, sydd yr un mor bwysig i'n hadolygiad o gyfraniad economaidd addysg uwch ag oedd y rhan gyntaf. Mae'n bleser gennyf groesawu Simon Lander, ysgrifennydd mygedol i Sefydliad y Peirianwyr Sifil yng Nghymru. Croeso cynnes i chi, Simon. Diolch ichi am y dystiolaeth ysgrifenedig, sydd wedi'i dosbarthu i'r Aelodau, ac am yr adroddiad. Fe'ch gwahoddaf i wneud cyflwyniad byr o ryw bump i 10 munud, os mynnwch, a chawn ni fel Aelodau gyfle wedyn i ofyn cwestiynau.

**Gareth Jones:** Welcome to the second part of the session, which is equally important to our review of the economic contribution of higher education as was the first part. It is my pleasure to welcome Simon Lander, honorary secretary to the Institute of Civil Engineers in Wales. A warm welcome to you, Simon. Thank you for the written evidence—it has been distributed to the Members—and for the report. I invite you to make a short introduction of about five to 10 minutes, if you wish, after which we, as Members, will have the opportunity to ask questions.

[149] **Mr Lander:** Thank you, Mr Chairman, and good morning. Just to summarise the paper presented, it was actually written by my colleague, Dennis Morgan, the director for the institution in Wales. As you said, I am his secretary.

[150] With regard to your terms of reference, I note your interest in our 'State of the Nation: Capacity and Skills' report. In the evidence that we have provided, our focus was on the contribution that higher education institutions can make to the skills agenda. That was our primary focus. In our sector of industry, that contribution is a 'must', and not a 'may'. I hope to explain that in these few words.

[151] Our paper looked at the demand for civil engineers, and the same process applies to the rest of the built environment, and not just to civil engineers. By way of other data, just to support what we put in our paper, the Office of Government Commerce has forecast that the real output growth for civil engineering across the UK will be some 4.2 per cent between 2006 and 2015. Added to that is the fact that the Construction Skills Network did some work last year that predicted that infrastructure output in the UK would grow by some 5.2 per cent over the slightly shorter period of 2007 to 2011. The reason for mentioning those two is that, although Wales represents only about 10 per cent of the built environment business in the UK, the same principles apply, and these numbers underpin our evidence that suggests that, in

Wales, some 5,000 workers per annum are required for the built environment on top of the current 90,000 that we believe work in Wales. Those numbers all tie together. That suggests that the demand will be real, and it is pretty assured. Underpinning that, we are already seeing inflation in the construction sector of around 5 per cent or more, and that suggests that the demand is already here. So, that is the demand side of the sector.

[152] Looking at the supply side, we are starting from a relatively low base. Between the early 1990s and around 2004, there was a 40 per cent reduction in the higher education intake for civil engineering, so we are at a low point. Although there has been a gradual improvement since 2004, we are still far behind the position we were in some 10 or 15 years ago. Our concern is that the higher education sector does not have the capacity to cope with the demand of the industry.

[153] In addition to that, major projects have always imported engineers. The second Severn crossing imported engineers; the Millennium Stadium, for which I was project manager, also imported engineers and other people. For example, we imported Italian workers to do all of the structural steelwork to build the stadium. All major projects have been doing that for years, but we are now seeing a general trend for importing engineers and people for the run-of-the-mill base workload. Our concern with that is that the demand elsewhere in the world is growing quicker than it is here, particularly in China, and now also India. That will also put pressure on the higher education output in this country.

[154] Looking at the tail end of our professionals, we have an ageing workforce, as is the case in most sectors; around a third of our practising engineers will retire in the next 10 years. So, we have a drop-off at the far end and we need to try to capture some of that knowledge now and take it forward. To underpin the fact that there is a shortage, salaries in the engineering profession have been growing at around 6 per cent per annum for the past couple of years and we are seeing increased trends. In my business, we are seeing salaries increasing beyond that, and finding good quality people is getting harder and harder.

[155] Why is the higher education sector important to us? A report was produced ahead of our 'State of the Nation' report on civil engineering; something like 75 per cent of civil engineers have the national qualification framework level 4 or above, which is a degree status or above. Nearly 50 per cent of the technicians in civil engineering are also at that level. The industry relies upon highly qualified people, and such people can come only from the input of higher education.

[156] Our challenge is how we achieve that growth. Our institution has put a great deal of effort into starting at the grass-roots level with young people. We have the Bridge to Schools programme. We have built three model bridges that would fit the width of this room, which are transported around Wales, and they are fully booked for the next 12 months across Wales. That project is for children up to age 11. We are now adding to that a number of lessons for 12 to 14-year-olds; the idea is the same, but they should also learn some maths or physics from building the bridge. It is effectively a model of the Severn crossing. We are putting a huge amount of effort in at that level, but our concern is that the bottleneck is higher education.

[157] So, that was the real theme behind the paper we have presented and our single recommendation that there needs to be some incentivisation in order to start to fill that gap. That is the primary driver behind the paper. Unless something is done, the economic contribution from higher education institutions will fail in the construction sector, despite its being the cornerstone of everything else we do in Wales, whether that is driving, travelling, drinking, eating, or using power—everything that we have—because the built environment is vital to the wealth of Wales. Unless something is done in the higher education sector, we fear that it will be the bottleneck and we will not achieve the growth that we think we need.



[158] The draft report from the Regeneration Skills Collective suggested that growth of around 30 per cent in output from higher education in Wales is needed to deal with the demand. That is taking into account the demographics issues and the fact that a huge number of students are overseas students who will be going back to their countries because of the growth that is happening there. That is the cornerstone to our paper.

[159] **Gareth Jones:** Thank you, Simon, for referring to important key issues for us. It is now over to questions from Members, starting with Jeff Cuthbert.

10.30 a.m.

[160] **Jeff Cuthbert:** Thank you, Simon, for what you have just said and the papers—your manifesto, as you call it, and quite rightly so. This is a matter of particular interest to me. I was a member of the Institution of Civil Engineers for a while: I did engineering in university. Mining engineering was my discipline, but it embraced a number of civil engineering aspects. I agree very much that the built environment is crucial to us all and, quite clearly, if we are not making adequate provision for ongoing training, training new engineers and the retraining of existing engineers as part of lifelong learning, we are going to build up massive problems for ourselves. I take your point about importing engineers. Whether we are talking about professional engineers, carpenters or plumbers—the whole range of engineering—it is critical that we provide the opportunities for young people specifically to access higher education to take such vocational degrees.

[161] In your paper, you refer to the changes in the school curriculum with the Welsh baccalaureate and the diploma in construction. I appreciate that they are at the early stages, as are the 14-19 learning pathways. I refer to this, Chair, because this is about getting young people ready for higher education. Has the institution done any analysis of the way in which the 14-19 pathways in particular may assist in the recruitment of new engineers by developing a better attitude towards construction and engineering skills before people enter higher education? Later on, young adults may have an opportunity through the modern apprenticeship programme, which will get them an NVQ up to level 3, to go on to take vocational degrees in engineering and the various disciplines, if they are motivated to do so by their employers. What do you feel about that? How enthusiastic are engineering and construction employers to ensure that training is carried out to the highest level possible?

[162] **Mr Lander:** In terms of a formal analysis, it is not an area on which I can answer. However, informally, the problem with the built environment sector is that profitability has been suppressed for many years and investment in training has been very low. Now, because of the demand, the intelligent contractor or employer in the marketplace sees the need to invest. The 14-to-19 age group is the key sector to capture to ensure sustainable businesses. Attitudes have changed in the sector; there used to be a boom-and-bust cycle and short-term profits were always the thing to pursue. I think that the whole industry has now recognised that that does not make for sustainable business, and there is now a much more balanced approach to realistic returns over a longer period of time. The intelligent customer, helped by reports from Sir John Egan and Sir Michael Latham on the construction sector in the 1990s, has recognised that companies need to make sensible profits. Where we are seeing enlightened customers and enlightened contractors, consultants and other people employed in industry, we are seeing that they are taking opportunities to invest in training.

[163] The procurement methods that are being used—and this is where things such as Value Wales will come in to help—are looking at longer term procurement arrangements. So, we are no longer looking at one-off projects where you have a mini boom and bust, in that when a contractor has a project, he needs resources and then, two years later, he no longer needs those resources because the project has finished. That is ending. In the industry, we are

seeing a much longer procurement period where companies are engaged for five, 10 or 15 years. Doing more of that will allow those companies to invest in safety and training. I think that getting procurement right is the key to allowing the sort of things that you have mentioned to happen. Without it, you have that short-termism, with companies just having a project. They can have a number of them, but they are all short term and it is all hand-to-mouth living. The key to underpinning the education aspect is to have procurement strategies that provide that long-term opportunity for companies, namely a sustainable future. If a company can see a 15-year contract, it will invest to ensure that that 15-year contract is successful, and that investment is about people.

[164] **Jeff Cuthbert:** May I follow up briefly?

[165] **Gareth Jones:** Yes.

[166] **Jeff Cuthbert:** Procurement is an important and interesting issue, and I accept your point about the length of time that projects will run for—we must be realistic about that. However, in the case of long-term projects, and take the Assembly Government as a possible commissioner of those projects, would it be a good idea for the contract to include a clause requiring the contractor, the industry, the employer to ensure that they engage in training opportunities and recruitment and that they have a development plan, which could include the longer term vocational degrees in engineering, as part of the deal?

[167] My other point is on the 14-19 learning pathways. I appreciate that you are a professional institution and that you do not represent employers in that sense, but they are your members, so you have a feel for it. Clearly, that type of approach to generating more interest in vocational education will not work if employers, construction in this case, are not fully engaged and working with educationalists at all levels to ensure that their needs are at the forefront. Do you feel that that is happening in construction?

[168] **Mr Lander:** The easy answer is ‘no’. The Assembly has recognised the issues. It has recently formed the Forum for the Built Environment, which was inaugurated last year. I sit on that committee, which has only just started; it had its first meeting in February 2008. The aim of that group is to bring some focus to the disparate nature of our construction industry. That will help, but the answer is ‘no’.

[169] Picking up on your point about procurement, provided that the intelligent customer recognises that there is a price to pay, clauses in contracts or a requirement, during the selection process, for companies to demonstrate that they will invest in local communities, in training and in developing people—and not just for a project, but for their longer term careers—could be a vital part of the procurement process.

[170] The latest vogue in the construction sector is corporate social responsibility. It has become a cornerstone of tendering processes, certainly the more progressive procurement processes, and we are spending time enquiring about companies’ approach to exactly the subjects that you raise. For example, we ask what they will do to improve the local community, to invest back into the community, to train people and give local people employment opportunities. I was involved in the Assembly’s relocation strategy and its development in Aberystwyth. Part of that contract is to engage local people, but the issue then is whether local people want to be engaged.

[171] **Gareth Jones:** Before I invite Alun to come in on the important issue of procurement, I understand the views that you present and I concur with them, but to what extent will European regulations in the role of procurement enable your vision to happen? Such regulations have an input and influence in terms of the development of procurement—certainly, in my experience, at local government level.

[172] **Mr Lander:** We must ensure that anything we do complies with European legislation, and that is about making it fair for everyone. However, if we are talking about what an organisation will do for a local community with regard to training and investing in people, whether that company comes from Europe or from Wales should not matter. So, it can be done properly and without breaking the rules.

10.40 a.m.

[173] **Alun Cairns:** Two of my questions relate directly to your paper and one is based on evidence that we have heard to date. You rightly highlight concerns about mathematics and physics in schools, and those concerns are central to your evidence. So, how do you think we can stem the growing problem? I am playing devil's advocate, to an extent, in asking you. I know that we should be coming up with the answers, but we must base it on evidence. If we do not act upon some of your recommendations, what longer-term problem do you foresee? My second question relates to a statement in the fourth paragraph on page 2 of your paper:

[174] 'With the commercialisation of universities, courses that are expensive to put on, comparatively, have suffered.'

[175] I would have thought that, with the commercialisation of universities, they are missing an opportunity because of the potential gains. Clearly, the spend and investment in infrastructure over the last 10 or 20 years has been huge and the projections are that it will continue to grow. There are links with how quickly the economy grows, but in terms of energy and construction and environmental drivers, which civil engineering would have a huge part in, are the universities not missing a trick? Should they not be thinking 'Hang on a minute, there is a potential demand here that we are missing out on' and investing in those kinds of courses? Commercialisation, therefore, offers the opportunity to be far more flexible to respond. My third point relates to the evidence that we have received up to now. A view is emerging that entrepreneurship needs to be more central to the activities of harder courses. What I mean by that is courses such as engineering and civil engineering, where there should be an opportunity for modules of entrepreneurship. I can see Kirsty laughing at me, but I do not mean hard as in difficult. I mean a hard subject, as it were, such as engineering and physics, rather than the softer courses that are available. How would your aspiring members or current members or lecturers who are members of your organisation react to having entrepreneurship as an encouraged option to take while studying civil engineering courses?

[176] **Mr Lander:** I will answer in reverse order. Listening to the debate earlier on the entrepreneurship side, the cornerstones to start with are fairly basic; they are around good management skills and good leadership skills. I do not think that we teach either of those particularly in university courses, forgetting the higher end and the aspiration to be entrepreneurs. I think that we need to start with ensuring that the courses have good management elements to them and good leadership. There are some distinct differences between them and very few people understand those differences. What we see all the while in our industry are highly capable technical people being promoted to managerial and leadership positions and not succeeding because they have not been educated, either in university or college, or subsequently in their businesses. That is a business failing—they have not taken people and given them a rounded experience. Those people are technically good, and they stay being technically good until they are managers and then they do not succeed. There is a lifelong issue there that starts with universities. I think that they would welcome more emphasis on creating people who are better for industry. If they could create a better product, more people are going to want that product.

[177] **Alun Cairns:** How would members of your organisation who are lecturers at universities take to this committee, and, potentially, the Minister, insisting on the need for

certain elements in their courses, bearing in mind the way that academics react to being told how to teach?

[178] **Mr Lander:** You are putting me on the spot. I am not the expert, but I would say that they would not have a choice but to accept it. Like it or not, the industry should demand greater emphasis on general management skills and general leadership capability, leading to entrepreneurs in all sectors. Whether they like it or not, it is a 'must do'. I have not fully answered your question, but with the skill that I have, that is the situation that they must face up to. Next year's chairman in Wales is the chair of civil engineering in Cardiff, and I would imagine, if he was sitting here, he would support my view.

[179] That was the third point. In terms of universities missing opportunities with the comparatively expensive courses, as they tend to be in engineering. Who do they go to? Do they go to the contractors and the consultants, the general employers in the industry, who still have a short-term future and who may not want to invest in a four or five-year programme when they have only a two or three-year contract? Okay, there are multiple contracts, but the future, generally, is short term. Or do they go to the employers? That is the dilemma: where do they aim to get that revenue from? There are several major, repeat procurers in the built environment, be it for highways, water or electricity. They are the main utilities by which we live, so perhaps a trick is being missed and some of those major procurers should be considered as funders of some of the education process. If the procurement improves, then the contractors and consultants, at the tail end of the process, will also then start to see the benefit of investing in universities. I suspect that universities still do not know where to aim at, because of the short-term nature of the business. That is my view on the second point.

[180] On mathematics and physics, the frightening point for me is that the teachers themselves are not actually well educated to teach the subjects that are failing. The starting point has surely to be to make sure that the teachers in schools are suitably qualified and enthusiastic about their subjects. That enthusiasm spills over. I have children in secondary education, and they will come home excited about the subjects that their teachers are excited about. In other subjects, they will not be excited. So, if you have people teaching subjects that are not part of their core skills, I have to question how passionate they are about those subjects. That is the starting point for me: to educate the educators and make sure that they are appropriately skilled to lead the courses and be passionate about them—that is called leadership.

[181] **David Melding:** Touching on what Alun has raised, looking at maths and physics, we have a problem. When I was at secondary school—at a south Wales comprehensive—the heads of the chemistry and physics departments both had a PhD. I suspect that that would be a rarer occurrence today. I do not think that I was taught any core science by a teacher that did not have a core qualification in the subject. It is of real concern that we have shifted away from that so much.

[182] The banker Mervyn Davies was speaking to the Cardiff Business School on Monday, and this issue came up, although more in relation to graduates. He was talking about the experience in India and China, where the number of students who are now studying engineering and core sciences is just vast. He was asked how we could encourage more young people, as they did 25 to 30 years ago, to study these subjects. He said, simply, in a one-point answer, 'Incentivise them; pay them to do it. Don't charge them fees; give them bursaries'. Would that help us to turn the culture around so that people can realise the opportunities?

[183] As an institute, what responsibility do you have to enthuse young people? You are doing a bit of it by taking these bridges around primary schools and so on. I am sure that you have hugely inquisitive youngsters clambering all over them—I can just picture it. Taking it to secondary school is, I suppose, sometimes a bit more challenging. What are your

responsibilities to young graduates, as they go for their first jobs and get higher qualifications, to improve skills such as management and entrepreneurship? I have to commend what you do in terms of public speaking. I think that I am right that you run a public speaking competition in the institute. In fact, I have been a judge, several times, in the south Wales region. I have been very impressed that, as an institute, you realise that, sometimes, you will have to talk about complicated projects in public meetings where the level of understanding of technical issues will be limited. These technical people have to realise what will really fire someone emotionally, and learn to respond in a way that is acclimatised to the environment that they are in.

10.50 a.m.

[1] I think that that is an excellent programme, and I wonder whether something analogous to that could be done in terms of entrepreneurship. The potential must be vast. The structures that are used in engineering, the materials, have changed so massively and there is the importance of environmental issues now. Wales and Britain could become a leader nation in improving and influencing. We may not be building all the buildings in China or India, but they may be using quite a lot of our technology and materials. I wonder what potential there is to translate some of this technical ability into marketable products. There are many things in your field that are constantly being innovated as far as I can see.

[2] **Mr Lander:** You raised many points. Incentivising people is absolutely what we are suggesting in our paper. It has to be done to encourage to them. Motivation is always useful. The weakness that we have in the institution—and thank you for your good words—is that we are seeing the gap between graduation and becoming a chartered engineer, which typically is at 27 or 28 years of age, having gone through a postgraduate training development programme, where the right skills are required to become chartered, more emphasis has been put onto general management issues—I would like to say ‘leadership’, but I think not. I do not think we have touched the leadership aspect. We are seeing a huge loss of people. There is a big gap between the numbers who graduate and the numbers who become chartered members of the institution. It is a gap that we have yet to master. We have spent the last few years in Wales working on younger people, with programmes such as the bridges to schools. We now do schools to bridges; we take pupils out to the built bridges; we take them to the second Severn crossing and the old Severn crossing and we take them to Menai bridge in north Wales. We are doing that as well. We are now building the education centre at Magor Services and we will continue that programme.

[3] The bit that we have yet to refocus on is that group I mentioned. If we can get them into university and the university can cope to get them through, we then lose them. They come out and they do not all become civil engineers or go into construction. It is quite a broad degree and you can go into an awful lot of things with a degree in engineering. We lose people who have been student members and do not become graduate members, and certainly do not become chartered members of the institution. It is a commercial world. We have a dwindling membership, and to survive, we must create more members or pay a lot more in subscriptions. That is the brutal fact. So, it is the area that we are turning our attention to. I do not have all the answers yet, but we are heavily focusing upon encouraging those who graduate to stay in the industry and to become that next step—chartered. However, to get there, part of the process to become chartered is heavily biased towards engineering, but with management; we need to do more on leadership. I have not fully answered your question, but there is a gap, which is why I cannot answer it properly. We recognise that, and for the next three or four years, our main focus in Wales is to try and bridge that gap. Next year’s chairman is a chair at Cardiff University and a professor of civil engineering and his focus will be to look at how we retain those people and get them to be chartered. I will have the answers in a few years’ time, but for now, I cannot answer further.

[4] **Kirsty Williams:** Just to pick up on that point—I am not sure whether you answered David’s point—we have a national shortage of town and country planners, and the Government therefore has a scheme where it pays people to study town and country planning at Welsh universities. Hopefully, that will have the affect of more people studying it. Do you think that we need a similar scheme here, where the Assembly Government would pay bursaries to Welsh students to study civil engineering at Welsh institutions?

[5] **Mr Lander:** Absolutely. It is a key point in our paper.

[6] **Gareth Jones:** Diolch yn fawr iawn, Simon, am eich cyflwyniad a’r dystiolaeth a roesoch gerbron y Pwyllgor, ac am ganolbwyntio ar elfennau hollbwysig. Mae’n fater i ni fel pwyllgor eu hystyried yn drylwyr a’u cyflwyno yn ein hadroddiad. Yr ydym yn ddiolchgar i chi am eich amser ac am eich cyfraniad a dymunwn y gorau i chi.

**Gareth Jones:** Thank you very much, Simon, for your presentation and the evidence that you have presented to the Committee, and for concentrating on crucial elements. It is a matter for us as a committee, to consider them thoroughly and to present them in our report. We are grateful to you for giving of your time and for your contribution and we wish you all the best.

[184] **Mr Lander:** Thank you.

[185] **Gareth Jones:** Symudwn ymlaen yn awr at y papurau i’w nodi. Y cyntaf yw ymateb terfynol y pwyllgor i ymgynghoriad Llywodraeth Cynulliad Cymru ar ei strategaeth sgiliau a chyflogaeth, ‘Sgiliau sy’n Gweithio i Gymru’. Cawsoch gyfle i wneud sylwadau ar yr ymateb drafft yng nghyfarfod olaf y tymor diwethaf ac i gynnig diwygiadau pellach y tu allan i’r pwyllgor. Mae’r ymgynghoriad yn cau yfory, felly dyma’r cyfle olaf i ni, fel aelodau’r pwyllgor, i gytuno ar ein hymateb. Bydd yr ymateb yn cael ei osod gerbron y Cynulliad gyda chais am ddadl. Yr wyf am bwysleisio hynny: bydd cais am ddadl mewn Cyfarfod Llawn oherwydd yr wyf yn gwybod y bydd elfennau y bydd angen i ni eu trafod ymhellach. Bydd cais am ddadl, os mai hynny yw eich dymuniad chi. Yr wyf yn siŵr mai hynny fydd eich dymuniad. Fodd bynnag, yr wyf yn gwahodd unrhyw sylwadau pellach ac yr wyf yn deall fod David am wneud sylw yn awr.

**Gareth Jones:** We will now move on to the papers to note. The first is the committee’s final response to the Welsh Assembly Government’s consultation on its skills and employment strategy, ‘Skills that Work for Wales’. You had an opportunity to comment on the draft response in the last meeting of last term and to suggest further changes outside the committee. The consultation closes tomorrow, so this is our last chance, as committee members, to agree our response. The response will be laid before the Assembly with a request for a debate. I wish to emphasise that: there will be a request for a Plenary debate, because I know that there will be elements that we will need to discuss further. There will be a request for a debate, if that is how you choose to proceed. I am sure that that is what you will choose. However, I now invite any further comments and I understand that David wishes to say something.

[186] **David Melding:** Thank you, Chair. I hope that this can be accommodated. I apologise for my absence at the last committee meeting, but I had to attend a funeral.

[187] In point 9, I am not very happy with the recommendation as it is currently termed, because it seems contingent on the consultation responses to the Government’s strategy, ‘Skills that Work for Wales’. It was a central recommendation of the Leitch report that we should work to improve the level of intermediate skills up until 2020. Leitch says that we must start with basic skills, and I completely accept that, but that if we are really to deliver on the skills agenda, the higher end skills also have to be addressed. My understanding of the committee’s view was that we should set a higher benchmark for intermediate skills in that longer timescale and that that should be incorporated into the Deputy Minister’s ambitions for

the new skills action plan. I hope that the other consultees will also have said it, but I do not think that our response, in backing Leitch, should be contingent on that. In the current wording, it is only a recommendation if there are other responses amplifying it. I think that we have received more than enough evidence to justify a direct recommendation without any such qualification.

[188] **Jeff Cuthbert:** I am grateful to David for raising this point. In principle, I have no objection whatsoever to making level 3 the target for intermediate skills. However, I think that the recommendation is written in the way that it is because it recognises that what may be suitable for some occupational areas may not be suitable for others. That is why there is a reference to consulting further. The principle of having level 3 as the intermediate target is not something that I object to, but I recognise that there may be practical issues raised by different types of industries or occupational areas. I think that the recommendation is correctly written; that would be my view.

[189] **Gareth Jones:** Thank you, Jeff, and David. I believe that we can come to some kind of agreement. The general indication is that we need to upgrade to level 3, but there could well be practical difficulties. We somehow need to word that into it; the thrust is to improve and increase up to level 3, notwithstanding that there may be some issues that need to be addressed. Would that be acceptable?

[190] **David Melding:** Good luck. If you think that you can find the appropriate wording, you should do so. Leitch is quite specific that the benchmark for intermediate skills needs to be raised. The environment in which skills are developed in each sector is influenced by that sector. I am not sure that there is a huge problem about how you translate these aspirations into practice in terms of there being a general objective. Obviously, we realise that, in some specific cases, there will be evidence against moving in the direction of the strong presumption that we need to raise the benchmark of intermediate skills. So, at the moment, it is contingent on other evidence coming in and I do not think that that is necessary.

11.00 a.m.

[191] **Kirsty Williams:** For a start, it is not our consultation—it is someone else's consultation—and I do not think that I would disagree with David's point that, as a general principle and aspiration, level 3 should be clearly stated as our recommendation for the longer term goal for the Government. I do not believe that putting a cap on our aspirations in the longer term is something that the Government would find difficult.

[192] **David Melding:** I concur.

[193] **Gareth Jones:** The general feeling then is that we concur with the Leitch recommendation. That is not in dispute, is it?

[194] **David Melding:** [*Inaudible.*] As did the Minister, who refused to give the commitment.

[195] **Gareth Jones:** Yes, but what are the committee's thoughts on the Leitch report?

[196] **Janet Ryder:** Adrian Webb undertook the review and said that that is what we need in Wales and I would give more credence to what he says than to a report that was written in the south-east of England.

[197] **Jeff Cuthbert:** As a matter of principle, I have no objection whatsoever to level 3 being the target, but it is just that I know that, in some sectors, that may pose practical difficulties in terms of training and development programmes and the nature of that industry.

That is why a condition needs to be included. I have no objection to saying explicitly that the principle is to aim for level 3. I am sure that we can come up with a form of words.

[198] **Gareth Jones:** I tend to agree with that, provided that we can have that general thrust.

[199] **David Melding:** Thinking about the form of words, I realise that the difficulty is that we are late in the day in terms of the ministerial deadline, but I still think that the committee's response has integrity even if we have a slight difficulty in meeting the ministerial consultation. The Conservative Members would not agree to a reference to the ministerial consultation having to be part of the condition of us making this recommendation. We cannot accept that.

[200] **Gareth Jones:** I accept that. Can you leave it to me and the clerk to come up with a form of words and hopefully we can present this final report?

[201] **Alun Cairns:** On paragraph 29, I do not have an issue with the recommendation that is in bold print, but I think that the statement—

[202] 'We believe that there are too many providers of post-16 education and training'

[203] —is pretty strong. I find it difficult to agree with that. I am happy to stick with the recommendation in the bold print without question, but that statement does not conform to the view of Conservative Members. Could we come up with a form of words that would exclude that element of it?

[204] **Jeff Cuthbert:** I share that view. When I read that line, I underlined it. The recommendation is not a problem, but if I were the head of a school and read that line, I would think, 'Gosh, they are going to close my sixth form or college, or whatever'. We are talking about collaboration here and that needs to be reflected in that explanatory sentence. That is the thrust there.

[205] **Alun Cairns:** As long as it is not forced.

[206] **Jeff Cuthbert:** How can collaboration be forced?

[207] **Gareth Jones:** Fine. We can address that. There are many providers of post-16 education, but it does not mean, as Jeff is right to say, if you read it literally, that there will be the threat of closure and so on. We are in fact talking about collaboration and configuration. We can have a look at that.

[208] **Kirsty Williams:** However, we are not clear, as a Committee, what the Government is intending. What we are recommending is that the Government needs to clarify its policy in this area, rather than us dictating what the policy is. The concern was that we did not know, from talking to it, what it was going to do; I do not think that it knows what it is going to do, but there you go.

[209] **Jeff Cuthbert:** Paragraph 25, on European funding, refers to Welsh Assembly Government bids for convergence funds. We should just say structural funds, because aspects of competitiveness are ESF funds as well and can be used for training. Convergence is the biggest by far, but we should refer to the structural funds rather than just convergence.

[210] The other point is on the sector skills councils, mentioned in paragraphs 32 and 33. I fully agree with the sentiment and recommendation here, but, in terms of accuracy, the table under the 'No Wales Office in Publicity Literature' needs to be double checked, because



GoSkills has certainly now opened an office in Wales—I was at its launch a few weeks ago—and I believe that Cogent now has a Wales-based office, so I suggest that you check the currency of that table.

[211] **David Melding:** With regard to paragraph 33, it might help if you put that table as an appendix and say ‘as at’ whenever the professor’s advice was given. That might help. If the other sector skills council has since opened an office, you could put that in. However, if it is put into an appendix, it is not quite so—

[212] **Kirsty Williams:** The recommendation in paragraph 27 on foundation degrees is fine—I am happy with it—but the previous sentence states:

[213] ‘We understand that Wales does not currently have the powers that would permit further education colleges to do so’.

[214] It goes on to ask for this at the earliest opportunity. The earliest opportunity was in the Education and Skills Bill, but the Government did not ask for those powers. That should be noted in that sentence. It could read something like: ‘we understand that Wales does not currently have the powers that would permit further education colleges to do so and did not seek these via the Education and Skills Bill.’ That is the fact. The earliest opportunity was via that piece of legislation and that opportunity was not taken. I just want that fact recorded.

[215] **Jeff Cuthbert:** I do not see how it enhances our aspiration to refer to something that did not happen.

[216] **Kirsty Williams:** It sets it in context. The context is that we are recommending that it should ask for that power, but the fact is that the opportunity was not taken. If we are talking about foundation degrees, the full context of the whole issue of foundation degrees needs to be put in.

[217] **Janet Ryder:** Could it not say, ‘seek these powers as soon as possible and regrets the failure of the Government to ask for powers’?

[218] **Kirsty Williams:** I am happy with that. I just think we need to set it in the full context because that opportunity has been lost.

[219] **Gareth Jones:** I am not sure about ‘regrets’ and so on. We can change the ‘we understand’ part, and be a bit more factual, by saying that we did not apply for these powers so cannot permit further education to—

[220] **Kirsty Williams:** I am happy with that. Janet went further than I was suggesting with the ‘regret’ bit. I just wanted it included that we did not ask for it.

[221] **Gareth Jones:** Are we agreed that there should be reference to the non take-up of that power?

[222] **Janet Ryder:** I do not think that it moves the argument on. We are saying that we should have these powers and this should be sought as soon as possible.

[223] **Gareth Jones:** Can you leave that with us then?

[224] **Kirsty Williams:** Yes.

[225] **Gareth Jones:** Gobeithiaf y gallwn **Gareth Jones:** I hope that we can ymgorffori’r pwyntiau yr ydych wedi tynnu incorporate the comments to which you have

sylw atynt, fel ein bod yn gallu cyflwyno'r adroddiad i'r Cynulliad, a chael dadl lawn yn y Siambr, fel y dymunwch. Dyna'r cyfan sydd gennyf i'w ddweud, ar ôl cyfarfod digon bywiog a defnyddiol. Dyna ddiwedd y cyfarfod.

drawn attention, so that we may present the report to the Assembly and have a full debate in the Chamber, as you wish That is all that I have to say, at the end of a lively and useful meeting. That is the end of the meeting.

*Daeth y cyfarfod i ben am 11.09 a.m.*  
*The meeting ended at 11.09 a.m.*